

PACIFIC REGION
FINAL

**INTEGRATED FISHERIES
MANAGEMENT PLAN**
JUNE 1, 2023 - MAY 31, 2024

SALMON
NORTHERN BC



Genus *Oncorhynchus*



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canada

© His Majesty the King in Right of Canada, as represented by the Minister of the Department of Fisheries and Oceans, 2023

Cat. No. Fs143-3/23-2279E-PDF ISBN: 978-0-660-49077-9 ISSN: 2564-002X

Correct citation for this publication:

Fisheries and Oceans Canada. 2023. Northern Salmon Integrated Fisheries Management Plan 2023/24. 23-2279: 444p.

This Integrated Fisheries Management Plan is intended for general purposes only. Where there is a discrepancy between the Plan and the Fisheries Act and Regulations, the Act and Regulations are the final authority. A description of Areas and Subareas referenced in this Plan can be found in the Pacific Fishery Management Area Regulations, 2007.

TABLE OF CONTENTS

DEPARTMENT CONTACTS	15
INDEX OF WEB-BASED INFORMATION	19
GLOSSARY AND LIST OF ACRONYMS	25
FOREWORD	28
NEW FOR 2023/2024	29
1 OVERVIEW.....	36
1.1 Introduction	36
1.2 History	36
1.3 Type of Fishery and Participants	36
1.4 Location of Fishery.....	37
1.5 Fishery Characteristics	37
1.6 Governance	39
1.6.1 Policy Framework for the Management of Pacific Salmon Fisheries	40
1.6.2 First Nations' Fisheries	45
1.7 Consultation Process	46
1.8 Approval Process	46
2 STOCK ASSESSMENT, SCIENCE AND INDIGENOUS KNOWLEDGE	47
2.1 Biological Synopsis	47
2.2 Ecosystem Interactions.....	50
2.2.1 Pacific Salmon Returning In 2023: Mixed Signals From Environmental Conditions ..	52
2.3 Indigenous Knowledge	68
2.4 Stock Assessment	70
2.5 Science Information Sources.....	71
2.6 Precautionary Approach.....	74
2.7 Shared Stewardship.....	74
2.8 Research.....	75

3	STEWARDSHIP, CO-MANAGEMENT, CONSULTATION AND ADVISORY BOARDS	77
3.1	Pacific Salmon Treaty	77
3.2	Salmonid Enhancement Program	80
3.3	Fisheries Act: Fish Stocks Provisions	81
3.4	Consultation.....	82
3.5	Canada and First Nations Collaborative Governance	83
3.5.1	Canada and First Nation Treaties and Reconciliation Agreements	83
3.6	Advisory Committees and Boards	83
3.6.1	Salmon Coordinating Committee	83
3.6.2	Integrated Harvest Planning Committee	83
3.6.3	Commercial Salmon Advisory Board.....	84
3.6.4	Sport Fishing Advisory Board.....	84
4	ECONOMIC, SOCIAL AND CULTURAL IMPORTANCE.....	85
4.1	Indigenous Fisheries.....	85
4.1.1	Economic Value	87
4.2	Recreational Fishery	88
4.3	Commercial Fishery.....	93
4.3.1	Harvest Sector.....	93
4.3.2	Processing Sector	99
4.4	Export Market.....	101
5	MANAGEMENT ISSUES	106
5.1	Conservation.....	106
5.1.1	Wild Salmon Policy	106
5.1.2	Species at Risk Act.....	106
5.2	Ocean and Habitat Considerations.....	107
5.2.1	Canada’s Marine and Coastal Areas Conservation Mandate	107
5.2.2	Marine Protected and Conserved Areas	108
5.2.3	Marine Spatial Planning in Canada	112

TABLE OF CONTENTS

5.2.4	Pacific North Coast Integrated Management Area (PNCIMA)	113
5.2.5	Northern Shelf Bioregion Marine Protected Area Network Planning Process	113
5.2.6	Marine Spatial Planning Southern BC	113
5.2.7	Ghost Gear Program	114
5.3	Conservation of Species that May be Affected by Salmon Fisheries	115
5.3.1	Rockfish	115
5.3.2	Marine Mammals	117
5.3.3	Turtle And Basking Shark Incident And Sightings Reports.....	118
5.3.4	Seabirds.....	119
5.3.5	Sharks.....	120
5.3.6	SARA Listed and COSEWIC Assessed Species.....	120
5.4	Killer Whale	123
5.4.1	Resident Killer Whale	123
5.4.2	Southern Resident Killer Whale Management Measures to Address Reduced Prey Availability, and Physical and Acoustic Disturbance	125
5.4.3	Depredation by Killer Whale.....	126
5.5	U.S. Marine Mammal Protection Act Fish and Fish Product Import Provisions	127
5.6	Marine Mammal Regulations.....	128
5.7	Aquaculture Management	129
5.8	Fishing Vessel Safety	131
5.9	Catch Monitoring.....	131
5.9.1	Enhanced Monitoring, Reporting, and Sampling Requirements for Salmon Bycatch in the Option A Trawl Fishery	131
6	FISHERY MANAGEMENT OBJECTIVES FOR STOCKS OF CONCERN	133
6.1	Rivers and Smith Inlet Sockeye.....	133
6.2	Skeena River Sockeye	134
6.3	Nass River Sockeye.....	134
6.4	North Coast Chum.....	135
6.5	Skeena and Nass Chinook	135
6.6	Northern Coho	135

TABLE OF CONTENTS

6.7	West Coast of Vancouver Island (WCVI) Chinook.....	136
6.8	Skeena Steelhead.....	137
7	GENERAL DECISION GUIDELINES, ACCESS AND ALLOCATION	138
7.1	Access and Allocation Objectives	138
7.1.1	International Objectives.....	138
7.1.2	Domestic Allocation Objectives.....	138
7.2	Allocation Guidelines.....	138
7.2.1	First Nations – Food, Social, and Ceremonial (FSC) and Treaty Domestic Harvest ..	139
7.2.2	Test Fisheries.....	140
7.2.3	Recreational Fisheries	141
7.2.4	Commercial Fisheries	141
7.2.5	First Nations Economic Opportunity and CSAF and Inland Demonstration Fisheries	142
7.2.6	Excess Salmon to Spawning Requirements Fisheries.....	142
7.3	General Decision Guidelines	143
7.3.1	Pre-season Planning.....	143
7.3.2	In-season Decisions	143
7.3.3	Selective Fisheries.....	143
7.3.4	Post-Release Mortality Rates used to access frims.....	144
8	COMPLIANCE PLAN	147
8.1	Compliance and Enforcement Objectives.....	147
8.2	Regional Compliance Program Delivery	147
8.3	Consultation.....	148
8.4	Compliance Strategy.....	149
9	PERFORMANCE/EVALUATION CRITERIA	150
9.1	2022/2023 Post Season Review for Stocks of Concern.....	150
9.1.1	Rivers and Smith Inlet Sockeye	150
9.1.2	Skeena River Sockeye	151
9.1.3	Nass River Sockeye	151

TABLE OF CONTENTS

9.1.4	North Coast Chum	152
9.1.5	WCVI Chinook	152
9.1.6	Inshore Rockfish	153
9.2	2022/2023 Post Season Review for Access and Allocation Objectives	153
9.2.1	International Objectives.....	153
9.2.2	Domestic Allocation Objectives.....	154
9.2.3	First Nations Objectives.....	154
9.2.4	Recreational and Commercial Objectives	154
9.3	2022/2023 Post Season Review of Compliance Management Objectives	155
10	NORTHERN BC FIRST NATIONS FISHERIES	156
10.1	Catch Monitoring and Reporting Initiatives	156
10.1.1	Aboriginal Harvest Management System	156
10.1.2	Chinook and Coho Coded Wire Tag (CWT Sampling).....	157
10.1.3	Fishery Monitoring and Catch Reporting Risk Assessment Tool.....	158
10.2	Communal Licence Harvest Target Amounts	159
10.3	Indigenous Commercial Fishing Opportunities.....	160
10.3.1	Allocation Transfer Program (ATP).....	161
10.3.2	Pacific Integrated Commercial Fisheries Initiative (PICFI)	161
10.3.3	First Nations Demonstration Fisheries	162
10.3.4	Dual Fishing.....	163
10.4	Treaty and Reconciliation Agreement Fisheries	164
10.4.1	Treaties.....	164
10.4.2	Reconciliation Agreements	165
11	NORTHERN BC RECREATIONAL FISHERIES.....	166
11.1	Recreational Vision	166
11.1.1	Tsiinee Tla'anda/Chiinaay Tllxanda Code of Conduct of Recreational Fishing on Haida Gwaii.....	166
11.2	Licencing	166
11.2.1	Information on Openings and Closures.....	167

TABLE OF CONTENTS

11.3	Catch Monitoring	168
11.3.1	Creel Surveys	169
11.3.2	Internet Recreational Catch and Effort (IREC) Reporting Program	169
11.3.3	Logbooks	170
11.3.4	Chinook and Coho Coded Wire Tag (CWT) Sampling.....	170
12	NORTHERN BC COMMERCIAL FISHERIES	172
12.1	Licensing	172
12.1.1	National Online Licensing System (NOLS) Client Support - Licensing Services.....	172
12.1.2	Licence Category	172
12.1.3	Licence Category Background.....	172
12.1.4	Licence Renewal Fees	173
12.1.5	Licence Renewal and Issuance	173
12.2	Openings and Closures	177
12.3	Licence Conditions.....	179
12.3.1	Transporting	179
12.3.2	Retention of Lingcod by Salmon Troll.....	179
12.3.3	Retention of Freezer Troll Chinook and Coho Heads	180
12.3.4	Chinook and Coho Coded Wire Tag (CWT) Sampling.....	182
12.3.5	Commercial Harvest Logs and In-Season Reporting	182
12.4	Catch Monitoring	184
12.5	Commercial Salmon Allocation Implementation Plan	185
12.6	Conservation Measures.....	190
12.6.1	Selective Fishing	190
12.6.2	Robson Bight.....	190
12.6.3	Rockfish Conservation Measures in Salmon Troll.....	190
12.7	Commercial Demonstration Fisheries.....	191
12.7.1	Transfer Guidelines for the Temporary Transfer of Commercial Salmon Shares	192
13	SPECIES SPECIFIC SALMON FISHING PLANS.....	197
13.1	Northern Chinook Salmon Fishing Plan.....	204

TABLE OF CONTENTS

13.1.1	Northern Chinook Overview.....	207
13.1.2	Northern AABM Chinook.....	211
13.1.3	Skeena-Nass ISBM Chinook	222
13.1.4	Central Coast ISBM Chinook.....	231
13.2	Northern Chum Salmon Fishing Plan.....	237
13.2.1	Northern Chum Overview.....	240
13.2.2	Haida Gwaii Chum Overview.....	241
13.2.3	Skeena-Nass Chum	247
13.2.4	Central Coast Chum.....	254
13.3	Northern Coho Salmon Fishing Plan	264
13.3.1	Northern Coho Overview	266
13.3.2	Northern Coho.....	267
13.4	Northern Pink Salmon Fishing Plan.....	279
13.4.1	Northern Pink Salmon Overview	282
13.4.2	Haida Gwaii Pink Salmon.....	283
13.4.3	Skeena-Nass Pinks	289
13.4.4	Central Coast Pink Salmon	298
13.5	Northern Sockeye Salmon Fishing Plan	307
13.5.1	Northern Sockeye Overview	311
13.5.2	Haida Gwaii Sockeye (Areas 1, 2W and 2E).....	313
13.5.3	Nass Sockeye.....	318
13.5.4	Skeena Sockeye.....	331
13.5.5	Central Coast Sockeye	348
13.5.6	Rivers & Smith Inlet Sockeye.....	355
APPENDIX 1: LOGBOOK SAMPLES		363
APPENDIX 2: FISHING VESSEL SAFETY		366
APPENDIX 3: COMMERCIAL SALMON LICENCE AREAS		379
APPENDIX 4: MAPS OF NORTHERN BC COMMERCIAL LICENCE AREAS		380
APPENDIX 5: ADVISORY BOARD MEMBERSHIPS		383

APPENDIX 6: UPDATES TO THE COMMERCIAL SALMON ALLOCATION FRAMEWORK..... 385

APPENDIX 7: NASS CHUM DRAFT REBUILDING PLAN 411

APPENDIX 8: SKEENA CHUM DRAFT REBUILDING PLAN 417

APPENDIX 9: 2023 SALMON OUTLOOK..... 421

APPENDIX 10: LONGER TERM COMMERCIAL CLOSURES OR MITIGATION 432

APPENDIX 11: STOCK ASSESSMENT INFORMATION OF FISHING LEVELS FOR WEST COAST VANCOUVER ISLAND CHINOOK UNDER THE FISH STOCK PROVISIONS . 435

APPENDIX 12: TSIINEE TLA'ANDA/CHIINAAY TLLXANDA CODE OF CONDUCT OF RECREATIONAL FISHING ON HAIDA GWAIL..... 443

TABLE OF FIGURES

Figure 1-1: Management Areas for Northern B.C.	37
Table 2-1: Summary of general biological and life history characteristics for five species of Pacific salmon 48	
Figure 2-1: Generalized habitat of British Columbia Pacific salmon species in the North Pacific Ocean. ...	50
Figure 2-2: Timing of common age classes of Pacific salmon returning in 2023 in each habitat they occupy. For each species, the most common life-history types are presented, using the Gilbert-Rich age designation system (in brackets); the number on the left indicates the total age at return, while the subscript shows the number of winters spent in fresh water prior to migrating to the ocean. Coloured boxes show the life stage and habitat occupied by each group of animals in every year of their life, leading up to their return to fresh water to spawn in 2023.....	54
Figure 2-3 Global annual mean temperature difference from pre-industrial conditions (1850-1900). Canada’s temperature increases are double this global rate of warming, typical of countries occupying northern latitudes. The World Meteorological Organization (WMO) uses six international data sets to provide an authoritative assessment of global temperature change presented in this figure: Had CRUT5; NOAA GlobalTemp; GISTEMP; ERA5; JRA-55; Berkeley Earth. Source: Met Office Hadley Centre for Climate Science and Services, https://www.metoffice.gov.uk/about-us/press-office/news/weather-and-climate/2022/2021-hadcrut5-wmo-temperature-statement [Accessed Dec 15,2022].....	55
Figure 2-4 Annual average sea-surface-temperature anomalies from Fisheries & Oceans Canada lighthouse stations: https://www.dfo-mpo.gc.ca/science/data-donnees/lightstations-phares/index-eng.html . Anomalies represent the departure from a mean reference period (1948-2021). Temperature anomalies are expressed as degree Celsius (C).	61
Figure 4-1: Tidal Water Recreational Fishing Licences and Pacific Salmon Conservation Stamps Sold, 2000/01 to 2021/22*	89
Figure 4-2: Tidal Water Recreational Fishing Direct and Package Expenditures and Investments for all species, in constant (2021) dollars.....	91
Figure 4-3: Tidal Water Recreational Fishing Direct and Package Expenditures and Investments for Salmon North Coast and South Coast, in constant (2021) dollars	92
Figure 4-4: Total Landed Kilograms and Value (2021\$) of Pacific Salmon by Year (2013-2022*).....	94
Figure 4-5: Total Landed Value (2021\$) of Pacific Salmon by Species by Year (2013-2022*).....	95
Figure 4-6: Total Landed Kilograms of Pacific Salmon by Licence Area by Year (2017-2022*)	96
Figure 4-7: Total Landed Value (2021\$) of Pacific Salmon by Licence Area by Year (2017-2022*).....	96
Figure 4-8: North Coast salmon value by species, 2013-2022* (in 2021\$).....	97
Figure 4-9: South Coast salmon value by species, 2013-2022* (in 2021\$).....	98

Figure 4-10: Share of the total value of processing sector wages in 2022* (by salmon species)	100
Figure 4-11: Total value and quantity of Pacific salmon exports (in 2021 constant dollars), 2011-2022* ...	102
Figure 4-12: Proportion of Pacific salmon annual export value by species, 2011-2022*	102
Figure 4-13: Total value of Pacific salmon exports from BC per main importers, 2011-2022* (in 2021\$) ...	103
Figure 4-14: Proportions of total value of Pacific salmon exports from BC by main destination countries in 2022*	104
Figure 5-1: Pacific Fisheries Management Areas and Federal Marine Conservation Initiatives and Closures	109
Table 5-1: Overview of Federal Marine Conservation Initiatives in DFO Pacific Region (see Figure 5-1 map)	109
Table 7-1: Allocation guidelines.....	139
Table 7-2: Post-Release Mortality Rates	145
Table 10-1: Communal Licence Harvest Target Amounts	160
Figure 13-1: Overview of Northern Chinook salmon	207
Figure 13-2: Overview of Northern AABM Chinook	211
Table 13-1: Stock management actions anticipated in Northern British Columbia AABM Chinook fisheries to limit impacts on stocks of concern	213
Table 13-2: Commercial Allocation Implementation Plan for the 2015–current period	220
Figure 13-3: Overview of the Skeena-Nass ISBM Chinook	223
Table 13-3: Commercial Allocation Implementation Plan for the 2015–current period	229
Figure 13-4: Overview of Central Coast ISBM Chinook.....	231
Table 13-4: Commercial Allocation Implementation Plan for the 2015–current period	235
Figure 13-5: Overview of Northern Chum	240
Figure 13-6: Overview of Haida Gwaii Chum	242
Table 13-5: Commercial Allocation Implementation Plan for the 2015–current period	245
Figure 13-7: Overview of Skeena-Nass Chum	247
Table 13-6 Management Escapement Goals (MEGs) and escapements for major Chum systems in Areas 3-5. Note: MEGs were developed in the 1980s and require review.	248
Table 13-7: Commercial Allocation Implementation Plan for the 2015–current period	253
Figure 13-8: Overview of Central Coast Chum	255
Table 13-8: Commercial Allocation Implementation Plan for the 2015–current period	261

Figure 13-9: Overview of North Coast Coho	266
Figure 13-10: Overview of North Coast and Central Coast Coho.....	267
Table 13-9: Commercial Allocation Implementation Plan for the 2015–current period	276
Figure 13-11: Overview of Northern Pink Salmon.....	282
Figure 13-12: Conservation Units in the Haida Gwaii Pink Salmon Management Unit (1 CU)	283
Figure 13-13: Conservation Units in the Skeena-Nass Pink Salmon Management Unit.....	289
Table 13-10: Commercial Allocation Implementation Plan for the 2015–current period	295
Figure 13-14: Conservation Units in the Central Coast Pink Salmon Management Unit	299
Table 13-11: Commercial Allocation Implementation Plan for the 2015–current period	304
Figure 13-15: Overview of Northern Sockeye Salmon.....	311
Figure 13-16: Overview of Haida Gwaii Sockeye.....	313
Figure 13-17: Overview of Nass Sockeye Salmon	318
Figure 13-18 KWINAGEESE SOCKEYE BROOD RETURN STATUS, 2015 TO 2025	321
Figure 13-19: 90 Mesh Net Construction	323
Table 13-12 Recreational Sockeye Fishery Triggers for Meziadin Lake	326
Figure 13-20: Overview of Skeena Sockeye Salmon.....	331
Figure 13-21: The allowable abundance based Canadian commercial harvest rate on Skeena Sockeye. This includes gillnet, seine and inland demonstration fisheries.....	335
Figure 13-22: 90 Mesh Net Construction	339
Table 13-13: Guidelines for Management Actions for Recreational Sockeye Fisheries in the Skeena Watershed	341
Figure 13-23: Overview of Central Coast Sockeye	348
Figure 13-24: 90 Mesh Net Construction	351
Figure 13-25: Overview of Rivers and Smith Inlet Sockeye	355
Figure 13-26: 90 Mesh Net Construction	359
Figure 13-27: Area3 Chum Exploitation Rates (US and Canada).....	413
Figure 13-28: Area 4 Chum Exploitation Rates US and Canada	418
Figure 13-29: Benchmarks and biological status zones for CU assessments	422
Figure 13-30. Schematic of a generalized harvest strategy under DFO’s PA.	423
Table 13-14: Longer Term Commercial Closures	433
Table 13-15: Additional Mitigation Measures Beginning in 2022	433

Figure 13-31. Total abundance of adult WCVI hatchery plus natural origin Chinook average ~280,000 in the recent 10 years. Natural origin Chinook returns after ocean or non-terminal harvest average ~25,000. About 80-90% of the total production is hatchery origin. Fisheries are non-selective and so catches include hatchery and natural production.....440

Figure 13-32: Smolt to age 2 adult survival rate for Robertson Creek Hatchery Chinook; which is the exploitation rate and survival rate indicator for the WCVI Stock Management Unit. The recent 10 year average is 3% survival. The smolt to adult survival of natural production from rivers along the WCVI is likely less than 1%.....440

Figure 13-33 a) Chinook spawner numbers in 3 indicator rivers in Kyuquot Sound in north west Vancouver Island, and b) Chinook spawner numbers in 3 indicator rivers in Clayoquot Sound in south west Vancouver Island. 1993-2022. Total return means total spawners plus broodstock captures. LRP and URP are Upper and Lower biological benchmarks based on Sgen and Smsy respectively, as interim Lower and Upper Reference Points respectively (see Holt and Irvine 2013).441

Figure 13-34: Catch Year Exploitation Rate (CYER) in non-terminal fisheries (not including Alberni Inlet) on WCVI Chinook natural origin Chinook salmon such as returns to Clayoquot Sound. The total exploitation rate is averaging about 35% in recent years, about half of which is taken in US fisheries. Note that AABM and ISBM are Pacific Salmon Treaty designations for fishery types; Aggregate Abundance Based Management and Individual Stock Based Management respectively.442

DEPARTMENT CONTACTS

A more comprehensive list of contacts can be found online at:

<https://www.pac.dfo-mpo.gc.ca/contact-eng.html>

24 Hour Recorded Information (Commercial)

Vancouver (604) 666-2828

Toll Free 1-888-431-3474

Pacific Salmon Commission (PSC) Office..... (604) 684-8081

PSC Test Fisheries (Recorded, In-Season Information) (604) 666-8200

Recreational Fishing: <https://www.dfo-mpo.gc.ca/fisheries-peches/recreational-recreative/index-eng.html>

Commercial Fishing: <https://www.dfo-mpo.gc.ca/fisheries-peches/commercial-commerciale/index-eng.html>

REGIONAL HEADQUARTERS

Regional Director, Fisheries Management

Neil Davis..... (604) 666-0115

Director, Salmon Management and Client Services

Jeff Grout..... (604) 666-0789

PST Implementation Advisor

Dean Allan..... (250) 851-4821

Senior Salmon Advisor; Fraser Panel Chair

Adam Keizer. 604-318-6638

Regional Resource Manager – Salmon

Mike Hawkshaw (604) 314-7056

A/Regional Resource Manager – Salmon

Jeffrey Radford (250) 600-1042

Regional Salmon Rebuilding Manager

Christie Nelson..... (604) 348-9622

Salmon Rebuilding Coordinator

Ashley Dobko (604) 679-5738

DEPARTMENT CONTACTS

Salmon Rebuilding Coordinator

Lauren Bottke (TBD)

Salmon Rebuilding Coordinator

Claire Menendez (226) 203-0830

A/Regional Senior Salmon Officer

Ge Li (604) 404-3296

A/Regional Senior Salmon Officer

Erika Watkins (250) 895-9351

Regional Salmon Officer

Lindsay Begemann (236) 334-0654

A/Regional Assistant Salmon Officer

Arthur Liao (236) 335-1857

Regional Fisheries Management Officer

Kaley Farkas (236) 339-1708

Regional Recreational Fisheries Coordinator

Greg Hornby (250) 286-5886

Regional Director, Conservation and Protection

Nicole Gallant..... (604) 666-0604

Regional Director, Ecosystem Management

Tracey Sandgathe..... (604) 220-3295

Director, Res. Management and Sustainability

Jennifer Nener (604) 666-1090

Pacific Fishery Licence Unit

200-401 Burrard Street

Vancouver, B.C. V6C 3S4

Toll-Free: 1-877-535-7307

Email fishing-peche@dfo-mpo.gc.ca

NORTH COAST AREA

Area Director

Sandra Davies (250) 627-3426

DEPARTMENT CONTACTS

Senior Reconciliation Implementation Advisor
Stephen Watkinson (604) 787-8662

Senior Reconciliation Implementation Advisor
Peter Katinic..... (250) 407-2500

North Coast Reconciliation Implementation Coordinator
Karen Kimura-Miller..... (250) 624-0042

Central Coast Reconciliation Implementation Coordinator
Kristen Wong (250) 799-5620

A/Haida Gwaii Reconciliation Implementation Coordinator
Mark Rose..... (250) 561-5966

A/Reconciliation Implementation Officer
Wendy Evans..... (250) 627-3425

Aboriginal Affairs Advisor
Melanie Anthony (250) 627-3426

A/Aboriginal Program Officer-
Andrea Komlos..... (250) 615-5371

A/Aboriginal Program Officer-
Christina Cann..... (778) 361-0164

Area Chief, Conservation and Protection
Terry Jackson (250) 627-3484

Salmon Stock Assessment Section Head (Formerly Area Chief)
Shaun Davies (250) 627-3472

Strategic Advisor - Pacific Salmon Strategy Integration
Shannon Balfry..... (604) 617-9744

PSSI Implementation Officer
Clarence Nelson (250) 627-3477

Resource Management - A/Salmon Section Head
Bradley Koroluk..... (778) 213-8082

Resource Manager - Haida Gwaii
Patrick Fairweather..... (778) 361-0582

DEPARTMENT CONTACTS

Resource Manager - North Coast (Areas 3 to 6)

Corey Martens..... (250) 627-3404

Assistant Resource Manager, North Coast

Karlena Lord.....(250)-922-4266

Resource Manager - Inland Demonstration Fisheries/ESSRs

Vacant.....

A/Resource Manager - Central Coast (Areas 7-10)

Justinas Savickas..... (250) 799-5127

Resource Manager - Recreational Fisheries

Darren Chow..... (250) 627-3441

Salmon Management Biologist, North Coast

Vacant

AQUACULTURE MANAGEMENT

Senior Director, Aquaculture Management Division

Brenda McCorquodale (250) 902-8865

Manager, Aquaculture Environmental Operations

Adrienne Paylor (250) 202-0400

Manager, Transition Plan Strategic Development and Area-Based Aquaculture Management

Kerra Shaw (250) 703-0917

Manager, Aquaculture Resource Management

Reagan Newcomb (778) 268-2854

Senior Coordinator: Marine Finfish and Freshwater

Alyssa Bougie (250) 327-1811

Senior Coordinators – Engagement and Indigenous Consultation

Todd Johansson..... (250) 902-2683

Chief, Conservation and Protection

Trevor Gray (250) 286-5811

INDEX OF WEB-BASED INFORMATION

FISHERIES AND OCEANS CANADA GENERAL INFORMATION

MAIN PAGE

<http://www.dfo-mpo.gc.ca>

Our Vision, Latest News, Current Topics

Twitter:

DFO Pacific: [@DFO_Pacific](#)

En Français: [@MPO_Pacifique](#)

ACTS, ORDERS, AND REGULATIONS

<https://www.dfo-mpo.gc.ca/acts-lois/index-eng.htm>

Atlantic Fisheries Restructuring Act, Canada Shipping Act, Coastal Fisheries Protection Act, Department of Fisheries and Oceans Act, Financial Administration Act, Fisheries Act, Fisheries Development Act, Fisheries Improvements Loan Act, Fishing and Recreational Harbours Act, Freshwater Fish Marketing Act, Great Lakes Fisheries Convention Act, Oceans Act, Species at Risk Act

REPORTS AND PUBLICATIONS

<http://www.dfo-mpo.gc.ca/reports-rapports-eng.htm>

Administration and Enforcement of the Fish Habitat Protection and Pollution Prevention Provisions of the *Fisheries Act*, Audit and Evaluation Reports - Audit and Evaluation Directorate, Canadian Code of Conduct for Responsible Fishing Operations, Departmental Performance Reports, Fisheries Research Documents, Standing Committee's Reports and Government responses, Sustainable Development Strategy

FEDERAL SCIENCE LIBRARIES NETWORK

<https://science-libraries.canada.ca/eng/fisheries-oceans/>

Fisheries and Oceans Canada online library catalogue

PACIFIC SALMON TREATY

<http://www.psc.org>

Background information; full text of the treaty

PACIFIC REGION GENERAL INFORMATION

MAIN PAGE

<http://www.pac.dfo-mpo.gc.ca/index-eng.html>

General information, Area information, Latest news, Current topics

POLICIES, REPORTS AND AGREEMENTS

<https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/fisheries-peche-eng.html>

Reports and Discussion Papers, New Directions Policy Series, Agreements

OCEANS PROGRAM

<http://www.pac.dfo-mpo.gc.ca/oceans/index-eng.html>

Integrated Coastal Management; Marine Protected Areas; Areas of Interest; Canada's Ocean Strategy; *Oceans Act*

PACIFIC REGION FISHERIES MANAGEMENT

MAIN PAGE

<http://www.dfo-mpo.gc.ca/fm-gp/index-eng.htm>

Commercial Fisheries, Aboriginal Fisheries, Recreational Fisheries, Maps, Notices and Plans, International Management, Enforcement

ABORIGINAL FISHERIES STRATEGY

<http://www.dfo-mpo.gc.ca/fm-gp/aboriginal-autochtones/index-eng.htm>

Aboriginal Fisheries Strategy (AFS) principles and objectives; AFS agreements; Programs; Treaty Negotiations

AQUACULTURE MANAGEMENT

<http://www.pac.dfo-mpo.gc.ca/aquaculture/index-eng.html>

The new federal regulatory program for aquaculture in British Columbia; Program overview and administration, public reporting, and aquaculture science

RECREATIONAL FISHERIES

<http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

Fishery Regulations and Notices, Fishing Information, Recreational Fishery, Policy and Management, Contacts, Current BC Tidal Waters Sport Fishing Guide and Freshwater Supplement; Rockfish Conservation Areas, Shellfish Contamination Closures; On-line Licencing

COMMERCIAL FISHERIES

<http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/comm/index-eng.htm>

Links to Groundfish, Herring, Salmon, Shellfish and New and Emerging Fisheries homepages; Selective Fishing, Test Fishing Information, Fishing Areas, Canadian Tide Tables, Fishery Management Plans, Commercial Fishery Notices (openings and closures)

INITIATIVE TO UPDATE THE COMMERCIAL SALMON ALLOCATION FRAMEWORK

<http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html>

Links to the Departments' consultation website which provides an overview of the process to update the Commercial Salmon Allocation Framework (CSAF), including links to summary reports and submissions with recommendations.

FISHERIES NOTICES

<http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?>

Want to receive fishery notices by e-mail? If you are a recreational sport fisher, processor, multiple boat owner or re-distribute fishery notices, register your name and/or company at the web-site address above. Openings and closures, updates, and other relevant information regarding your chosen fishery are sent directly to your registered email. It's quick, it's easy and it's free.

INTEGRATED FISHERY MANAGEMENT PLANS

<http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/ifmp-gmp/index-eng.htm>

Current Management Plans for Groundfish, Pelagics, Shellfish (Invertebrates), Minor Finfish, Salmon; sample Licence Conditions; Archived Management Plans

SALMON TEST FISHERY - PACIFIC REGION

<https://www.pac.dfo-mpo.gc.ca/pacific-smon-pacifique/science/research-recherche/testfishery-pechedessai-eng.html>

Definition, description, location and target stocks

LICENCING

<http://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/index-eng.html>

Contact information; Recreational Licencing Information, Commercial Licence Types, Commercial Licence Areas, Licence Listings, Vessel Information, Vessel Directory, Licence Statistics and Application Forms

NATIONAL ON-LINE LICENSING SYSTEM (NOLS)

<https://fishing-peche.dfo-mpo.gc.ca>

E-mail: fishing-peche@dfo-mpo.gc.ca

(Please include your name and the DFO Region in which you are located.)

Telephone: 1-877-535-7307

Fax: 613-990-1866

TTY: 1-800-465-7735

SALMON

<https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/index-eng.html>

Salmon Facts; Salmon Fisheries; Enhancement and Conservation; Research and Assessment; Consultations; Policies, Reports and Agreements; Glossary of Salmon Terms

FRASER RIVER/BC INTERIOR AREA RESOURCE MANAGEMENT AND STOCK ASSESSMENT

<http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/index-eng.html>

Contact information; Test fishing and survey results (Albion, creel surveys, First Nations); Fraser River Sockeye and Pink escapement updates; Important notices; Recreational fishing information

NORTH COAST RESOURCE MANAGEMENT

<http://www.pac.dfo-mpo.gc.ca/fm-gp/northcoast-cotenord/index-eng.html>

First Nations fisheries, Recreational fisheries; Commercial salmon and herring fisheries; Skeena Tyee test fishery; Counting facilities; Post-season Review; Contacts

YUKON/TRANSBOUNDARY RIVERS AREA MAIN PAGE

<http://www.pac.dfo-mpo.gc.ca/yukon/index-eng.html>

Fisheries Management; Recreational fisheries; Habitat; Licencing; Contacts

PACIFIC REGION SALMONID ENHANCEMENT PROGRAM

MAIN PAGE

<http://www.pac.dfo-mpo.gc.ca/sep-pmvs/index-eng.html>

Publications (legislation, policy, guidelines, educational resources, brochures, newsletters and bulletins, papers and abstracts, reports); GIS maps and Data (habitat inventories, spatial data holdings, land use planning maps); Community involvement (advisors and coordinators, educational materials, habitat conservation and Stewardship Program, projects, Stream Talk).

PACIFIC REGION POLICY AND COMMUNICATIONS

MAIN PAGE

<http://www.pac.dfo-mpo.gc.ca/index-eng.html>

Media Releases; Salmon Updates, Backgrounders, Ministers Statements, Publications; Contacts

CONSULTATION SECRETARIAT

<http://www.pac.dfo-mpo.gc.ca/consultation/index-eng.html>

Consultation Calendar; Policies; National; Partnerships; Fisheries Management, Oceans, Science and Habitat and Enhancement Consultations; Current and Concluded Consultations

PUBLICATIONS CATALOGUE

<http://www.pac.dfo-mpo.gc.ca/publications/index-eng.html>

Information booklets and fact sheets available through Communications branch

SPECIES AT RISK ACT (SARA)

<https://www.dfo-mpo.gc.ca/species-especies/sara-lep/index-eng.html>

SARA species; SARA permits; public registry; enforcement; Stewardship projects; Consultation; Past Consultation; First Nations; Related Sites; News Releases

PACIFIC REGION SCIENCE

MAIN PAGE

<http://www.pac.dfo-mpo.gc.ca/science/index-eng.html>

Science divisions; Research facilities; PSARC; International Research Initiatives

GLOSSARY AND LIST OF ACRONYMS

A comprehensive glossary is available online at:

<http://dev-public.rhq.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/gloss-eng.html>

LIST OF ACRONYMS USED IN THIS PLAN:

ACRONYM	PHRASE
AABM	Aggregate Abundance-Based Management
AAROM	Aboriginal Aquatic Resource and Oceans Management
AHC	Area Harvest Committee
AFS	Aboriginal Fisheries Strategy
ATP	Allocation Transfer Program
Bmsy	Biomass at Maximum Sustainable Yield
CCTAC	Canadian Commercial Total Allowable Catch
CEDP	Community Economic Development Program
COHO ABM	Coho Abundance-Based Management
COSEWIC	Committee for the Status of Endangered Wildlife in Canada
CPUE	Catch Per Unit Effort
CSAP	The Centre for Scientific Advice Pacific
CSAS	The Canadian Science Advisory Secretariat
CSAF	Commercial Salmon Allocation Framework
CSAB	Commercial Salmon Advisory Board
CU	Conservation Unit
CWT	Coded Wire Tag

GLOSSARY AND LIST OF ACRONYMS

DIDSON	Dual Frequency Identification Sonar
DU	Designatable Unit
ER	Exploitation Rate
ESSR	Excess Salmon to Spawning Requirements
FNFC	First Nations Fishery Council
FRP	Fraser River Panel
FSC	Food, Social and Ceremonial
HG	Haida Gwaii
ITQ	Individual Transfer Quota
IHPC	Integrated Harvest Planning Committee
ISBM	Individual Stock-Based Management
LAER	Low Abundance Exploitation Rates
LRP	Lower Reference Points
MA	Management Adjustment
MCC	Marine Conservation Caucus
MPA	Marine Protected Area
MSY	Maximum Sustainable Yield
MU	Management Unit
MVI	Mid Vancouver Island
NMCAR	National Marine Conservation Area Reserve
NOLS	National On-line Licensing System
NWA	National Wildlife Area

GLOSSARY AND LIST OF ACRONYMS

PA	Precautionary Approach
pDBE	Proportional Difference Between Estimates
PICFI	Pacific Integrated Commercial Fisheries Initiative
PFMA	Pacific Fisheries Management Areas
PSC	Pacific Salmon Commission
PNCIMA	Pacific North Coast Integrated Management Area
PSM	Pre-Spawn Mortality
PSSI	Pacific Salmon Strategy Initiative
PST	Pacific Salmon Treaty
RCA	Rockfish Conservation Area
SARA	<i>Species at Risk Act</i>
SEG	Sustainable Escapement Goal
SEP	Salmonid Enhancement Program
SFAB	Sport Fishing Advisory Board
SGEN	Spawner abundance required to get to SMSY in 1 generation
SHMF	Selective Hatchery Mark Fishery
SMSY	Spawners at Maximum Sustainable Yield
TAC	Total Allowable Catch
TAM	Total Allowable Mortality
WCVI	West Coast Vancouver Island
WSP	Wild Salmon Policy (Canada's Policy for Conservation of Wild Pacific Salmon)

FOREWORD

The purpose of this Integrated Fisheries Management Plan (IFMP) is to identify the main objectives and requirements for the Northern B.C. Pacific salmon fishery, as well as the management measures that will be used to achieve these objectives. This document also serves to communicate the basic information on the fishery and its management to Fisheries and Oceans Canada (DFO, the Department) staff, legislated co-management boards, First Nations, harvesters, and other interested parties. This IFMP provides a common understanding of the basic “rules” for the sustainable management of the fisheries resource.

This IFMP is not a legally binding instrument that can form the basis of a legal challenge. The IFMP can be modified at any time and does not fetter the Minister’s discretionary powers set out in the Fisheries Act. The Minister can, for reasons of conservation or for any other valid reasons, modify any provision of the IFMP in accordance with the powers granted pursuant to the Fisheries Act.

Where DFO is responsible for implementing obligations under land claims agreements, the IFMP will be implemented in a manner consistent with these obligations. In the event that an IFMP is inconsistent with obligations under land claims agreements, the provisions of the land claims agreements will prevail to the extent of the inconsistency.

NEW FOR 2023/2024

KEY CHANGES FOR THE 2023/24 NORTHERN BC SALMON IFMP

PACIFIC SALMON STRATEGY INITIATIVE

The Pacific Salmon Strategy Initiative (PSSI) will continue its long-term strategy to address serious declines in key Pacific salmon populations through a series of initiatives under four pillars.

In December 2022, The Department launched The Pacific Salmon Commercial Licence Retirement Program, Pacific Salmon Indigenous Communal Commercial License Alternation Program, and the Derelict Vessel Mitigation and Gear Disposal Program to transform the harvest sector for greater adaptability and economic viability by reducing the commercial salmon fleet to better align with longer-term prospects for commercial harvest. More information can be found at: <https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/comm-licence-retirement-retrait-permis/index-eng.html>

In 2023, the Department will continue to implement longer term commercial closures that were identified in 2022 where stocks of conservation concern may be intercepted in targeted fisheries or as by-catch. These closures are expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. Further details on longer term commercial closures or additional mitigations can be found in APPENDIX 10.

For 2023 and beyond, the Department is continuing to take a more precautionary approach to managing fisheries that interact with stocks of conservation concern as part of a coordinated approach under the PSSI to help stabilize and support rebuilding of these depressed populations. Under the Harvest Transformation pillar, the Department will be seeking feedback from First Nations and stakeholders on other areas where additional changes may be implemented to modernize fisheries management and stabilize and restore Pacific salmon. Harvest transformation initiatives will continue to be discussed in further detail at meetings in 2023.

Further details can be found here: [Pacific Salmon Strategy Initiative \(dfo-mpo.gc.ca\)](https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/comm-licence-retirement-retrait-permis/index-eng.html)

DUAL FISHING

In 2023, DFO will be considering limited opportunities to pilot *Type B* dual fishing (i.e. retention of non-target bycatch for FSC) in salmon economic opportunity and demonstration fisheries. These pilots would enable retention of non-target bycatch for FSC purposes that the First Nation would otherwise be licenced to harvest under their FSC licenses, where there is commercial TAC identified to initiate a directed commercial fishery of a different target species. Retention of bycatch for FSC would be permitted subject to available allocation, sufficient abundance, a valid FSC licence for the fishing area, compliance with communal licence areas, and mandatory landing requirements, including any additional catch monitoring and reporting requirements to separately account for FSC and sale harvests. DFO is engaging First Nations who have expressed an interest to explore potential bycatch-type dual fishing pilots that may be permitted in 2023. For more information, please see 10.3.4 Dual Fishing.

CATCH MONITORING REQUIREMENTS IN COMMERCIAL SALMON FISHERIES

Starting in 2023, the Department plans to implement additional monitoring for commercial salmon fisheries to improve information on potential bycatch of stocks of concern. Increased requirements for additional monitoring in commercial fisheries aligns with initiatives in the Commercial Harvest Transformation, as part of the Pacific Salmon Strategy Initiative, to improve monitoring and assessment programs. These measures will help to improve information and limit the risk of serious harm to stocks of concern consistent with the precautionary approach. Specific requirements will vary by fishery. The Department will be consulting with the commercial sector and will discuss specific requirements.

PACIFIC SALMON RETURNING IN 2023: MIXED SIGNALS FROM ENVIRONMENTAL CONDITIONS

The 2023 Pacific salmon returns experienced varying environmental conditions across their fresh-water and marine residences. Overall, we predict that 2023 Canadian Pacific salmon productivity (adult recruits produced per parental spawner) will generally fall near or below historical averages. This prediction is based on environmental and biological data from 2018-2023, which coincide with parental spawning and egg incubation through to ocean rearing conditions for the 2023 salmon returns across populations.

The effects of environmental conditions on 2023 returning salmon will depend on the specific conditions encountered by each population, and their life-histories. While we do not have relevant data for each salmon population, we provide a general description of what is known

about overall environmental conditions experienced by Pacific salmon returning in 2023. Specifically:

- Summer river temperatures are increasingly exceeding upper thermal tolerances for salmon in assessed systems.
- Early, rapid snowmelt depleted snowpacks in most of B.C. by mid-May/early-June in 2018 and 2019. Early loss of snowpack can contribute to warmer summer river and lake temperatures. Snowpacks were more variable across B.C. in 2020 and 2021, though some areas were well below average by late spring.
- B.C. experienced multiple summer droughts in recent years. A notable summer drought in 2018 affected most of the province, including the northwest coast. Lower water levels can increase temperatures, block passage to key spawning habitat, strand salmon, and increase their exposure to predators. Nass River Chinook returns continue to be affected by low water levels in 2017/2018, with management continuing a precautionary approach in 2023. In 2022, Central Coast Chum in Areas 7 and 8 experienced low water levels in many streams, including a significant pre-spawn mortality event in Neekas Creek (Area 7).
- Northeast Pacific marine heatwaves were present during late-2013-2016 and in 2019, 2020 and 2021. Marine heatwaves have negatively affected physical and biological ocean processes relating to salmon growth and productivity. However, by 2021 zooplankton community composition off the west coast of Vancouver Island and in Hecate Strait had generally returned to average conditions after being dominated by lower quality species since the 2013-2016 heatwave.

Looking further into the future, we do not anticipate that long-term salmon survival patterns will return to what we have seen historically. Pacific salmon are already responding to environmental changes driven by climate change and other human activities. As environmental conditions continue to change, as predicted for B.C. and the Yukon, climate change vulnerability assessments will be a valuable tool for providing a longer-range outlook for Canadian Pacific salmon.

Additional adjustments to fishing plans may be made in-season to respond to adverse environmental conditions to support conservation requirements.

FISH STOCKS PROVISIONS / REBUILDING PLANS

In April of 2022, three stocks of Pacific Salmon were included in a regulatory amendment to the *Fishery (General) Regulations* (FGR) under the Fish Stocks Provisions (FSP). FSP includes obligations to maintain prescribed fish stocks at levels necessary to promote their sustainability

(s. 6.1) and to develop and implement rebuilding plans for stocks that have declined to or below their limit reference point, LRP, (s. 6.2). The first three prescribed salmon stocks are Okanagan Chinook, West Coast Vancouver Island (WCVI) Chinook, and Interior Fraser River (IFR) Coho. Collaborative work is underway to develop Rebuilding Plans for both WCVI Chinook and Okanagan Chinook. A rebuilding plan for IFR Coho is not planned as this population is above the LRP. It is the intent of the Department to work with First Nations and stakeholders to produce a summary document describing the current management strategy for Interior Fraser Coho, and how it is compliant with the Precautionary Approach policy.

In addition to the first batch of stocks, the Department sought feedback from October 19 to December 19, 2022 on a proposal for a regulatory amendment to the FGR to prescribe the second batch of fish stocks that would be subject to FSP (sections 6.1–6.3 of the Fisheries Act). This regulatory amendment would see the addition of 62 fish stocks to Schedule IX of the FGR nationally, including four Pacific salmon stocks. Schedule IX currently contains 30 fish stocks.

Information on the proposed batch two stocks can be found here: [Consultation on a Regulatory Proposal to Prescribe Stocks to the Fish Stocks Provisions in the Fisheries Act](https://dfo-mpo.gc.ca/consultation/consultation-on-a-regulatory-proposal-to-prescribe-stocks-to-the-fish-stocks-provisions-in-the-fisheries-act) (dfo-mpo.gc.ca).

West Coast Vancouver Island Chinook Rebuilding Plan Updates:

Collaborative work is underway to develop a Rebuilding Plan for WCVI Chinook, with an expected completion date by April 2024. Engagement with First Nation and stakeholders on rebuilding objectives is expected to begin Spring 2023 and will continue until the completion of the Rebuilding Plan. An appendix outlining how DFO is meeting Section 70(5) of the Fish Stock Provisions while the Rebuilding Plan is being developed can be found in Appendix 11.

Okanagan Chinook Rebuilding Plan Updates:

Rebuilding Plan development for Okanagan Chinook is currently underway, with an expected completion date by April 2024. An initial draft of the rebuilding plan is being collaboratively developed with the Okanagan Nation Alliance. Engagement with First Nations and stakeholders on the draft rebuilding plan is expected to begin in the Summer of 2023.

Interior Fraser Coho Update:

Interior Fraser Coho are above their LRP, and therefore fall under Section 6.1 of the Fisheries Act and are not subject to a rebuilding plan at this time. The Department intends to work collaboratively with First Nations and stakeholders to prepare a document that will formalise the status of IFR Coho and show how the current management strategy is consistent with the Precautionary Approach.

COMMERCIAL SALMON ALLOCATION FRAMEWORK (CSAF)

*Please see Appendix 6 for details of CSAF demonstration fisheries for 2023.

Additional information on the work completed since 2013 can be found at the following link:

<http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html>

The Department is continuing to implement existing and review new CSAF demonstration fisheries proposals through the IFMP process. CSAF demonstration fishery proposals are intended to provide increased flexibility for harvesters to fish their commercial salmon shares. CSAF demonstration fishery proposals are assessed through an Evaluation Framework which outlines Departmental objectives and were developed with support from the Salmon Coordinating Committee (SCC) and Commercial Salmon Advisory Board (CSAB).

KWINAGEESE SOCKEYE CLOSURE

The Kwinageese Sockeye closure will be implemented for 1 week in 2023 for all marine net fisheries in PFMA 3.

NORTHERN BC COHO MANAGEMENT ACTIONS

In response to poor returns observed in recent years, the Department is continuing a precautionary approach to Coho management in 2023 to address ongoing conservation concerns for Northern Coho stocks. Management actions to reduce overall exploitation are being implemented, including a longer term closure of the Area F mixed-stock Coho directed fishery, starting in 2022 and to remain in place until there is clear evidence of stock growth, and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. For more information on Coho see Section [13.3](#).

SKEENA CHINOOK

Returns of Skeena Chinook have been weak since 2017, and continuing through 2022; subsequently, a continued precautionary approach is warranted. For 2023, management measures will be implemented in both Recreational and Commercial fisheries to support conservation and promote rebuilding of Skeena Chinook.

Continuing from 2022, the Area 4 Gillnet fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

FRASER RIVER CHINOOK – CONSERVATION MEASURES

New for 2023: The Minister has approved changes to Fraser Chinook conservation measures in 2023. These new measures are also intended to provide priority access for FSC fisheries in Fraser River and approach area fisheries for allowable impacts on the Fraser Summer 5₂ Chinook stock; while also committing to develop quantitative Canadian mortality limits for these stocks, and will consult affected groups on the specific fishery measures that will maximize their harvest within those constraints.

Recent indications of below average snow pack levels and expected above average temperatures through the summer will result in challenging environmental conditions for 2023. While the full extent of these impacts will not be understood until later in the year, the Department will continue to monitor these conditions, and may consider implementation of additional actions at a later date. In the interim, the Minister has approved changes to the management plan for 2023 which are designed to reduce Canadian fisheries mortality to 14%. The measures for 2023 are focused on commercial and recreational fisheries, with FSC management approaches to align with those implemented in recent years. This is expected to result in the majority of allowable impacts on Fraser Summer 5₂ Chinook being in FSC fisheries. The approved commercial and recreational changes in Northern fisheries are as follows:

- Commercial Measures: The Area F Troll Chinook fishery will be delayed until August 16.

Recreational Measures: Daily catch limits will be reduced to one (1) Chinook per day from July 11 to July 31 in Northern AABM Recreational Fisheries (Areas 1, 2, 142, and that portion of Area 101 west of 131 degrees 40.0 minutes West longitude)

Changes in Area 10 recreational fisheries

Additional fishery restrictions will be implemented for Area 10 to address the uncertain status of Chinook stocks in that area. The Department is working to further understand stock composition and abundance of Chinook Salmon inside Smith Inlet (Area 10) to support informed management decisions for fisheries in the area. In line with the precautionary approach and the requirement to be cautious when scientific information is uncertain, the Department is implementing non-retention of Chinook Salmon in Subareas 10-4 to 10-12 in July and August of 2023/24, to avoid mortality on local Chinook stocks while gathering data to support this work future management. Additional sampling is planned to further assess the stock composition of Chinook stocks during recreational fisheries in Subareas 10-1 to 10-3. For more information, see Section 13.1.4.4.2.

MEZIADIN LAKE RECREATIONAL TRIGGERS

Triggers for the recreational fishery in Meziadin Lake are being implemented again in 2023 in response to recent poor returns of Meziadin Sockeye. For more information, see Section [13.5.3.5.2](#).

MANAGEMENT ACTIONS DURING SKEENA SOCKEYE FSC CLOSURES

When FSC fisheries for Skeena Sockeye are closed for conservation purposes, a number of management actions will be implemented. For descriptions of these management actions, see Section 13.5.

ADJUSTMENTS TO HATCHERY CHINOOK PRODUCTION FOR HARVEST

Following the implementation of longer term closures affecting Chinook catch in Chinook-directed fisheries and as bycatch in Chum-directed fisheries, the hatchery Chinook produced to support harvest in these fisheries is being re-aligned with the new fishery regime. Departmental analysis estimated a reduction of Atnarko Chinook produced for harvest purposes at the Snootli River Hatchery of approximately 25% from the 2022 target, reflecting a commensurate reduction in the Chinook fishery. No adjustments are being made to the remaining Chinook production for harvest or to any of the Chinook production for rebuilding, assessment, conservation or education purposes. Re-aligning production to meet current fishery regimes will contribute to additional DFO hatchery focus on salmon population rebuilding measures where possible.

ADJUSTMENTS TO HATCHERY CHUM PRODUCTION FOR HARVEST

Following the implementation of longer term closures affecting Chum-directed fisheries, the hatchery Chum produced to support harvest in these fisheries is being realigned with the new fishery regime. Departmental analysis estimated a reduction of Bella Coola Summer Chum produced for harvest purposes at the Snootli River Hatchery of approximately 75% from the 2022 target, reflecting a commensurate reduction in the Chum fishery. No adjustments are being made to the remaining Chum production for harvest or to any of the Chum production for rebuilding, conservation or education purposes.

I OVERVIEW

I.1 INTRODUCTION

The Northern BC Salmon Integrated Fisheries Management Plan (IFMP) covers the period June 1, 2023 to May 31, 2024.

This IFMP provides a broad context to the management of the Pacific salmon fishery and the interrelationships of all fishing sectors involved in this fishery. Section 2 considers stock assessment, while Sections 3 and 4 consider the shared stewardship arrangements and the social, cultural, and economic performance of the fishery. Section 5 describes the broader management issues, and the objectives to address these issues are identified in Section 6. Sections 7 and 8 describe allocation, general decision guidelines, and compliance plans. Post-season review information is outlined in Section 9. Sections 10, 11, and 12 are sections that describe the different fisheries, and Section 13 of the IFMP covers off the fishing plans for each salmon species.

The Appendices in the IFMP provide information such as the fishing vessel safety, advisory board members, and maps of commercial licence areas.

I.2 HISTORY

Fish and marine resources are central to the culture, society, and well-being of First Nations and provide a critical connection to language, traditional knowledge, and health of communities. For thousands of years, the history, economy, and culture of Canada's west coast have been inextricably linked to Pacific salmon. Since the late 1800s, salmon have supported a vibrant commercial fishing industry, vital to the establishment and well-being of many coastal communities. Salmon, particularly Chinook and Coho, also play a key role in the west coast recreational fishery.

I.3 TYPE OF FISHERY AND PARTICIPANTS

This plan describes the management of First Nations, recreational, and commercial fisheries for Pacific salmon in Northern BC and the factors that influence decision-making. Salmon fisheries are coordinated regionally with many management decisions occurring in area and field offices. Key to salmon management is the development and implementation of integrated fisheries management plans that meet specified objectives focusing on conservation, allocation, and obligations to First Nations and international treaties.

I.4 LOCATION OF FISHERY

This IFMP is designed to describe the approach to fisheries in tidal and non-tidal waters from Cape Caution north to the B.C./Alaska border, including the Skeena River watershed.

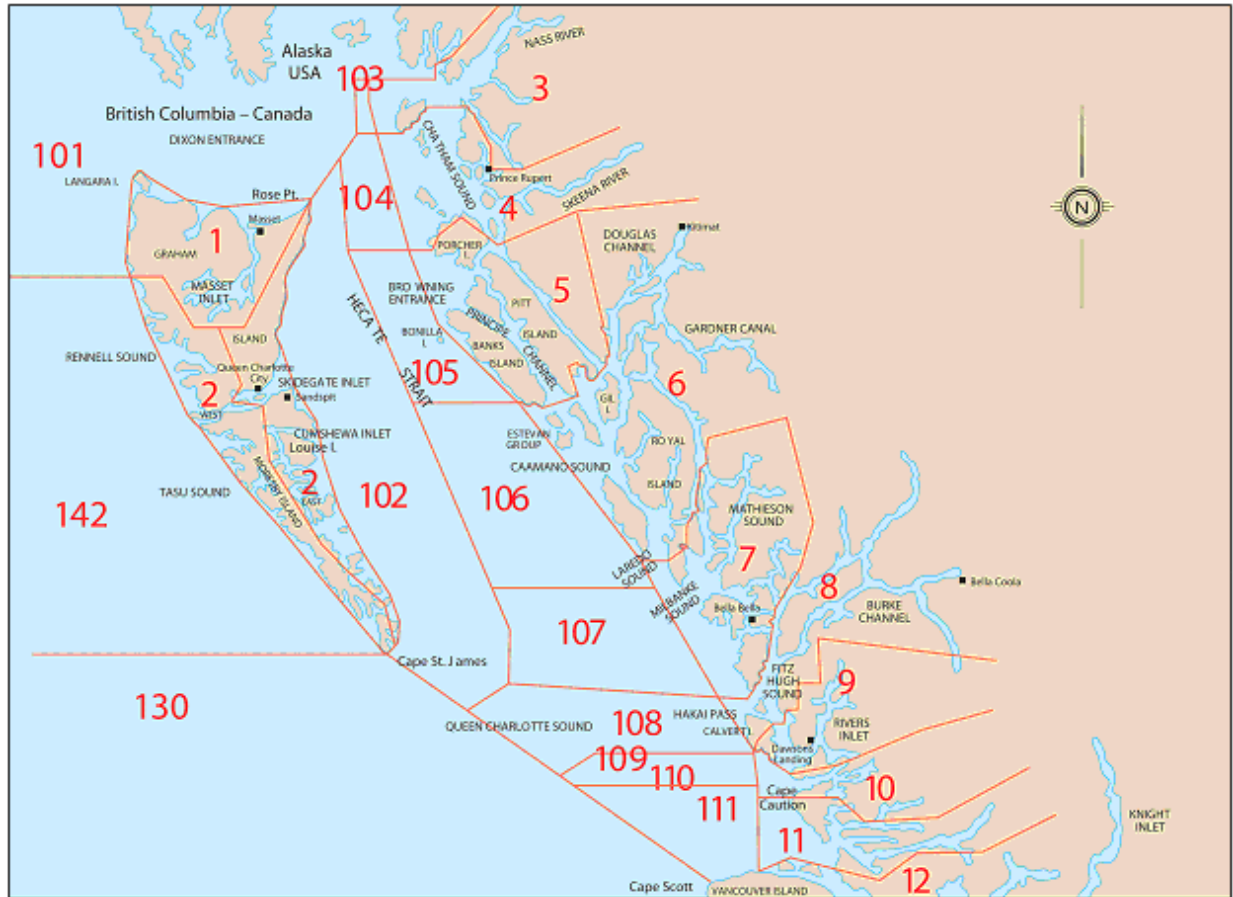


Figure I-1: Management Areas for Northern B.C.

I.5 FISHERY CHARACTERISTICS

Pacific salmon species covered in the plan include Sockeye, Coho, Pink, Chum, and Chinook. Fisheries include those undertaken by First Nations as well as recreational and commercial sectors.

In the 1990 Sparrow decision, the Supreme Court of Canada found that where an Indigenous group has an Aboriginal right to fish for food, social, and ceremonial (FSC) purposes, it takes priority — after conservation — over other uses of the resource.

There are four modern treaties in British Columbia, which all have fisheries chapters: Nisga'a Final Agreement, Tsawwassen First Nation Final Agreement, Maa-nulth First Nations Final Agreement, and Tla'amin (Sliammon) Nation Final Agreement. Through these treaties, Nations work with DFO to manage treaty fisheries on an annual basis. There are also historic treaties in British Columbia (Douglas Treaties and Treaty 8). For a detailed list of long-term fisheries arrangements in BC and Yukon, please see the internet at <https://www.pac.dfo-mpo.gc.ca/abor-autoc/treaty-traites-eng.html>.

Pre-season, DFO engages in a variety of consultation and collaborative harvest planning processes with First Nations at the community level, broader tribal, or watershed levels. Fisheries are then authorized via a Communal Licence issued by the Department under the *Aboriginal Communal Fishing Licences Regulations*. These licences are typically issued to individual bands or tribal aggregates, and describe the details of authorized fisheries including dates, times, methods, and locations of fishing. For modern treaty Nations, a Harvest Document is issued, which authorizes domestic harvest in accordance with their Final Agreement. Licences, Harvest Documents and Aboriginal Fisheries Strategy (AFS) agreements (where applicable) include provisions that allow First Nations' designation of individuals to fish for the group and in some cases, vessels that will participate in fisheries.

Fishing techniques used in FSC fisheries are varied, ranging from traditional methods such as dip nets to modern commercial methods such as seine nets, fished from specialized vessels.

Separate from FSC fisheries, some First Nations have communal access to commercial opportunities as follows:

- Negotiated through a side agreement, some modern treaty First Nations have communal commercial access through a Harvest Agreement outside of the constitutionally protected treaty. More information is provided in Section 10.4.

- Commercial fisheries access through communal commercial licences obtained via voluntary licence relinquishments through DFO programs (e.g. Pacific Integrated Commercial Fisheries Initiative – PICFI, or Allocation Transfer Program – ATP). These licences are fished in a manner that is comparable to the general commercial fishery.

- Negotiated economic opportunity fisheries (Lower Fraser and West Coast of Vancouver Island only), or demonstration fisheries (select locations, to date supported through licences relinquished from the commercial salmon fleet, primarily from the ATP and PICFI programs).

Excess Salmon to Spawning Requirements (ESSR) fisheries may also be provided that permit the sale of fish in some highly terminal areas where spawner abundance is in excess of spawning requirements. Modern treaty Nations with provisions for access to surplus salmon under their Final Agreement, may be authorized to selective, terminal commercial sale fisheries where abundance permits.

Fisheries and Oceans Canada regulates recreational fishing for Pacific salmon in both tidal and non-tidal waters. All recreational fishers must possess a valid sport fishing licence. Tidal licences are issued by DFO, and non-tidal licences are issued by the province. Anglers wishing to retain salmon taken from either tidal or non-tidal waters must have a valid salmon conservation stamp affixed to their licence. The proceeds from the sale of tidal Pacific Salmon Conservation stamps are used to fund salmon restoration projects supported by the non-profit Pacific Salmon Foundation. The proceeds from the sale of non-tidal Conservation Surcharge stamps directly benefit fish conservation through the Habitat Conservation Trust Foundation.

Fishing techniques used in the recreational fishery include trolling, mooching, and casting with bait, lures, and artificial flies. Boats are most commonly used, but anglers also fish from piers, shores, or beaches. Only barbless hooks may be used when fishing for salmon in British Columbia.

Commercial salmon licences are issued for three gear types: troll, seine, and gill net. Trollers employ hooks and lines, which are suspended from large poles extending from the fishing vessel. Altering the type and arrangement of lures used on lines allows various species to be targeted. Seine nets are set from fishing boats with the assistance of a small skiff. Nets are set in a circle around schools of fish. The bottom edges of the net are then drawn together into a “purse” to prevent escape of the fish. Salmon gill nets are rectangular nets that hang in the water and are set from either the stern or bow of the vessel. Fish swim headfirst into the net, entangling their gills in the mesh. Altering the mesh size and the way in which nets are suspended in the water allows nets to target certain sizes of fish. Gill-netters generally fish near coastal rivers and inlets.

Licence conditions and commercial fishing plans lay out allowable gear characteristics such as hook styles, mesh size, net dimensions, and the methods by which gear may be used.

1.6 GOVERNANCE

Departmental policy development related to the management of fisheries is guided by a range of considerations that include legislated mandates, judicial guidance, and international and domestic commitments that promote biodiversity and a precautionary, ecosystem-based approach to the management of marine resources. Policies were developed with consultation

from those with an interest in salmon management. While the policies themselves are not subject to annual changes, implementation details are continually refined where appropriate.

I.6.1 POLICY FRAMEWORK FOR THE MANAGEMENT OF PACIFIC SALMON FISHERIES

Salmon management programs continue to be guided by the following policies: *Canada's Policy for Conservation of Wild Pacific Salmon* (WSP), *An Allocation Policy for Pacific Salmon*, *A Policy for Selective Fishing*, *A Framework for Improved Decision Making in the Pacific Salmon Fishery*, and the Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries. These policies are available at:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/index-eng.html>

Canada's Policy for Conservation of Wild Pacific Salmon (the Wild Salmon Policy) sets out the vision regarding the importance and role of Pacific wild salmon as well as a strategy for their protection. More information on this can be found in Section 5.1.1 of this plan or at:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/index-eng.html>

The 1999 *An Allocation Policy for Pacific Salmon*, announced in 1999, sets out principles for allocating salmon in BC among the three harvest groups (First Nations food, social and ceremonial; commercial; and recreational) and within the commercial fishery among gear types (gillnet, seine and troll). It forms the basis for general decision guidelines outlined in Section 7 of this plan.

Since the Salmon Allocation Policy (SAP) was first adopted twenty years ago, there have been significant changes to fisheries management, policy, and Aboriginal rights. Most recently, within the 2018 BC Supreme Court *Ahousaht* decision (*Ahousaht Indian Band and Nation et al v. Canada (Attorney General)* 2018 BCSC 633), the application of the SAP (1999) was found to be an unjustified infringement of the five Nuu-chah-nulth Nations' (Ahousaht, Ehattesaht/Chinehkint, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht) Aboriginal rights to fish and sell fish insofar as the SAP accords priority to the recreational fishery over the Five Nations' right-based sale fishery for Chinook and Coho salmon. To the extent that the SAP applies to the Five Nations in the manner declared an unjustifiable infringement by the Court, the SAP is of no force and effect in its application to the Five Nations' exercise of their Aboriginal right to fish and sell fish. DFO has responded to the court decision through the development of a Fisheries Management Plan for the Five Nations, which addresses the right to sell fish. Rather than designing a process solely to address the Court's findings in *Ahousaht*, DFO has also initiated a process to review and replace the SAP (1999).

The Department has embarked on a collaborative, phased process with First Nations and stakeholders to review and update the policy. This process of updating the Salmon Allocation

Policy is being conducted in a manner that is intended to respect Canada's nation-to-nation relationship with Indigenous peoples and engage stakeholders. For more information on the SAP Review process, please visit our website (<http://www.pac.dfo-mpo.gc.ca/consultation/smon/sap-prs/index-eng.html>).

Pacific Fisheries Reform, announced by the Department in April of 2005, provides a vision of a sustainable fishery where the full potential of the resource is realized, Aboriginal rights and title are respected, there is certainty and stability for all, and fishery participants share in the responsibility of management. Future treaties with First Nations are contemplated, as is the need to be adaptive and responsive to change. This policy direction provides a framework for improving the economic viability of commercial fisheries, to addressing First Nations aspirations with respect to FSC and commercial access and involvement in management.

In May 1999, the Department released *A Policy for Selective Fishing in Canada's Pacific Fisheries*. Under the Department's selective fishing initiative, harvester groups have experimented with a variety of methods to reduce the impact of fisheries on non-target species, with a number of measures reaching implementation in fisheries.

SUSTAINABLE FISHERIES FRAMEWORK

The Sustainable Fisheries Framework (SFF) is a toolbox of policies to ensure that Canadian fisheries support conservation and sustainable use of resources.

These policies include:

- A Fishery Decision-Making Framework Incorporating the Precautionary Approach
 - Guidelines for Implementing the Fish Stocks Provisions in the *Fisheries Act*
 - Guidelines for writing rebuilding plans per the Fish Stocks Provisions and A Fishery-Decision-making Framework Incorporating the Precautionary Approach
- Ecological Risk Assessment Framework (ERAF) for Coldwater Corals and Sponge Dominated Communities
 - Fishery Monitoring Policy
 - Introduction to the procedural steps for implementing the Fishery Monitoring Policy
 - Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas
 - Policy on Managing Bycatch
 - Policy on New Fisheries for Forage Species
 - Wild Salmon Policy

For more information on the Sustainable Fisheries Framework and its policies, visit: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/overview-cadre-eng.htm>

Sustainability Surveys for Fisheries: DFO annually tracks the performance of major fish stocks that it manages through the Sustainability Survey for Fisheries. Results of previous Sustainability Surveys are available at: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/index-en.html>

Sustainable Fisheries Framework work plans: Each year, DFO develops a work plan and reports on priorities and targets regarding the sustainable management of Canada's marine resources. These work plans are available at: <https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/index-eng.html>

PRECAUTIONARY APPROACH FRAMEWORK

The Sustainable Fisheries Framework policy suite includes a decision-making framework incorporating a precautionary approach to commercial, recreational, and food, social, and ceremonial fishing: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-eng.htm>

The precautionary approach in fisheries management requires caution when scientific knowledge is uncertain. The absence of adequate scientific information should not result in postponed action or failure to take action to avoid the risk of serious harm to fish stocks or their ecosystem.

Applying the precautionary approach to fisheries management decisions entails establishing harvest strategies that:

- identify three stock status zones – Healthy, Cautious, and Critical – delineated by an upper stock reference point and a limit reference point;
- set the removal rate at which fish may be harvested within each stock status zone; and
- adjust the removal rate according to fish stock status (i.e. spawning stock biomass or another index/metric relevant to population productivity), based on pre-agreed decision rules.

The framework requires that a harvest strategy be incorporated into respective fisheries management plans to keep the removal rate moderate when the stock status is in the Healthy

Zone, to promote rebuilding when stock status is low, and to ensure a low risk of serious or irreversible harm to the stock.

A key component of the *Precautionary Approach Framework* requires that when a stock has declined to the Critical Zone, a rebuilding plan must be in place with the aim of having a high probability of the stock growing out of the Critical Zone within a reasonable timeframe:

<http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precautionary-precaution-eng.htm>

FISHERIES ACT: FISH STOCK PROVISIONS

Amendments to the *Fisheries Act* (Bill C-68) were passed into legislation in 2019 and include new authorities to amend the Fishery (General) Regulations and requirements to maintain major fish stocks at sustainable levels, and to develop and implement rebuilding plans for stocks that have declined to their critical zone. Amendments are available at:

<https://www.parl.ca/LegisInfo/en/bill/42-1/C-68>

The associated regulatory amendment to prescribe major fish stocks and describe requirements for rebuilding plans was registered and came into force on April 3, 2022, and published in Canada Gazette, Part II. Available at: <https://www.gazette.gc.ca/rp-pr/p2/2022/2022-04-13/html/sor-dors73-eng.html>

ECOLOGICAL RISK ASSESSMENT FRAMEWORK & COLD-WATER CORAL AND SPONGE CONSERVATION STRATEGY

The *Ecological Risk Assessment Framework for Coldwater Corals and Sponge Dominated Communities* (or ERAF) outlines a process for identifying the level of ecological risk of fishing activity and its impacts on sensitive benthic areas in the marine environment. Available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/risk-ecolo-risque-eng.htm>.

DFO's *Pacific Region Cold-water Coral and Sponge Conservation Strategy* aims to promote the conservation, health and integrity of Canada's Pacific Ocean cold-water coral and sponge species. For more information, visit: <https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/conservation-eng.html>

FISHERY MONITORING AND CATCH REPORTING

DFO released the national Fishery Monitoring Policy in 2019, which will replace the regional Strategic Framework for Fisheries Monitoring and Catch Reporting in the Pacific Fisheries (2012). The national policy seeks to provide dependable, timely and accessible fishery information through application of a common set of steps used to establish fishery monitoring

requirements across fisheries. Available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fishery-monitoring-surveillance-des-peches-eng.htm>

The 2012 Pacific Strategic Framework for Fisheries Monitoring and Catch Reporting is available at: <https://www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework-monitoring-cadre-surveillance-eng.html>

To ensure consistent national application, further guidance is provided through in the Introduction to the Procedural Steps of Implementing the Fishery Monitoring Policy, available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fmp-implementation-ppm-mise-en-oeuvre-eng.htm>

POLICY FOR MANAGING THE IMPACTS OF FISHING ON SENSITIVE BENTHIC AREAS

To avoid serious or irreversible harm to sensitive benthic habitat, species and communities and to otherwise address impacts to benthic habitat, communities and species, this policy outlines a five (5) step process. Available at: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/benthi-eng.htm>

POLICY ON MANAGING BYCATCH

The *Policy on Managing Bycatch* supports sustainable fisheries management by minimizing the risk of fisheries causing serious or irreversible harm to bycatch species, and by accounting for total catch, including retained and non-retained bycatch. Available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/bycatch-policy-prise-access-eng.htm>

The *Guidance on Implementation of the Policy on Managing Bycatch* supports policy implementation: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/bycatch-guide-prise-access-eng.htm>

POLICY ON NEW FISHERIES FOR FORAGE SPECIES

While other new fisheries may be started under the *New and Emerging Fisheries Policy*, this policy outlines the special considerations for new fisheries on forage species, which must not threaten the conservation of other species that depend on the forage species for food. Available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/forage-eng.htm>

WILD SALMON POLICY

Canada's Policy for Conservation of Wild Pacific Salmon (WSP) guides Canada and its partners in protection and conservation actions for the five iconic wild Pacific salmon species and their habitats. For more information visit: <https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/index-eng.html>

I.6.2 FIRST NATIONS' FISHERIES

Section 35(1) of the *Constitution Act, 1982* recognizes and affirms the existing Aboriginal and treaty rights of the Indigenous peoples in Canada. The Government of Canada's legal and policy frameworks identify a special obligation to provide First Nations the opportunity to harvest fish for food, social and ceremonial purposes. Treaty Agreements signed between Nations and the Government of Canada also obligate Canada to provide these opportunities.

DFO is committed to the recognition and implementation of Aboriginal and treaty rights related to fisheries, oceans, aquatic habitat, and marine waterways in a manner consistent with section 35 of the *Constitution Act, 1982*, the United Nations Declaration on the Rights of Indigenous Peoples Act, and the federal Principles Respecting the Government of Canada's Relationship with Indigenous peoples. The DFO-CCG Reconciliation Strategy provides a guidance document to better understand why and how reconciliation informs the work of the Department.

For further details on the United Nations Declaration on the Rights of Indigenous peoples see <https://www.justice.gc.ca/eng/declaration/index.html>

For further details on the United Nations Declaration on the Rights of Indigenous Peoples Act see <https://laws-lois.justice.gc.ca/eng/acts/u-2.2/>

For further details on the Principles Respecting the Government of Canada's Relationship with Indigenous peoples see <https://www.justice.gc.ca/eng/csj-sjc/principles-principes.html>

DFO's Reconciliation Strategy can be found at <https://www.dfo-mpo.gc.ca/fisheries-peches/aboriginal-autochtones/reconciliation-eng.html>

For further details on reconciliation in British Columbia and Yukon, refer to <https://www.pac.dfo-mpo.gc.ca/abor-autoc/reconciliation-pacific-pacifique-eng.html>

Information on Indigenous fisheries and reconciliation is available at: <http://www.pac.dfo-mpo.gc.ca/abor-autoc/index-eng.html>

Information on the Government of Canada work to advance reconciliation can be found here: <https://www.rcaanc-cirnac.gc.ca/eng/1400782178444/1529183710887>

Information on long-term fisheries arrangements and links to individual modern treaties and reconciliation agreements can be found here:

<https://www.pac.dfo-mpo.gc.ca/reconciliation/arrangements-ententes-eng.html>

I.7 CONSULTATION PROCESS

This plan considers the results of consultations and input from First Nations, recreational and commercial harvesters and conservation organizations. Input was received directly through bilateral meetings and submissions to DFO on the proposed plan. Meetings with First Nations, Indigenous organizations and the Integrated Harvest Planning Committee (IHPC) provided opportunities for various parties to come together to discuss issues and concerns related to the management of salmon.

Any further significant changes to provisions in the IFMP will be identified to the parties prior to implementation, unless if circumstances require changes to be made without prior notification, such as the case of in-season forecast updates.

Fisheries and Oceans Canada is committed to working with First Nations on planning and management of the salmon fisheries through existing and emerging bilateral and regional processes and relationships, and to achieving reconciliation with Indigenous peoples by working towards renewed nation-to-nation relationships and partnerships that contribute to reconciliation, the recognition of rights and mutual understanding, trust and respect. Fisheries and Oceans Canada also continues to consult with recreational and commercial harvesters, and conservation organizations to seek input on the IFMP and to further plan and co-ordinate fishing activities.

Further information on salmon consultations, including IHPC terms of reference, membership, and meeting dates can be found on the Salmon Consultation website at: <http://www.pac.dfo-mpo.gc.ca/consultation/smon/index-eng.html>.

I.8 APPROVAL PROCESS

This plan will be approved by the Regional Director General – Pacific Region on behalf of the Minister of Fisheries and Oceans Canada.

2 STOCK ASSESSMENT, SCIENCE AND INDIGENOUS KNOWLEDGE

2.1 BIOLOGICAL SYNOPSIS

Pacific salmon managed by DFO include five species belonging to the genus *Oncorhynchus*: Pink (*O. gorbuscha*), Chum (*O. keta*), Sockeye (*O. nerka*), Coho (*O. kisutch*) and Chinook (*O. tshawytscha*). The native range of Pacific salmon includes the North Pacific Ocean, Bering Strait, south-western Beaufort Sea and surrounding fresh waters. They occur in an estimated 1300 - 1500 rivers and streams in BC and Yukon; notably, the Skeena River and Nass River in the north and the Fraser River in the south, collectively accounting for roughly 75% of the total salmon production in Canada.

Each Pacific salmon species has unique physical characteristics, life histories and spawning habits, with further variation observed among populations of each species. Table 2-1 provides a brief summary of the contrasts in life history characteristics among species of Pacific salmon (from Haig-Brown Kingfisher Creek Restoration Project, 1998-99).

Chinook salmon produce the largest adults of all the Pacific salmon species and typically live the longest (six or more years). Chinook salmon fry may go to sea soon after hatching or, after one to two years in fresh water. Chinook salmon generally mature at age three to seven years, but “jacks” and occasionally “jills”, defined as two-year-old sexually mature males and females that return to spawn, are also common among some Chinook salmon populations (as well as some Coho and Sockeye salmon populations).

Adult Coho generally return from late summer and early fall. Most populations originate from streams close to the ocean, although some journey as far as 1,500 kilometers inland. In contrast to other Pacific salmon, most Coho fry remain in freshwater for a full year after emerging from the gravel. Their age at maturity is normally three years, though a number of northern stocks may spend two years in freshwater before returning to spawn as four year old. Similarly, approximately ten percent of Interior Fraser Coho mature as four year old due to a two-year juvenile freshwater residency period.

Sockeye salmon generally spawn in streams with lake outlets. Young Sockeye typically spend between one and three years in their “nursery lake” before migrating to sea, although there are populations which do not require nursery lakes as part of their life history. Upon entering the ocean, Sockeye salmon move rapidly out of the estuaries and travel thousands of miles into the Gulf of Alaska and the North Pacific to feed. They generally return to their natal spawning stream at ages three to six years.

Chum salmon generally spawn in early winter in lower tributaries along the coast, rarely more than 150 kilometers inland. Fry emerge in the spring and go directly to sea. Chum generally mature in their third, fourth, or fifth year.

Pink salmon live only two years, spending the majority of their life in ocean feeding areas. Pink salmon fry migrate to the sea as soon as they emerge from the gravel. Once mature, adults leave the ocean in the late summer and early fall and usually spawn in streams not fed by lakes, short distances from their ocean-entry point.

The numbers of Pacific salmon returning to BC waters varies greatly from year to year and decade to decade, often with pronounced population cycles. For example, populations of Pink salmon usually have a dominant odd-year or even-year cycle, and a number of Sockeye salmon populations are very abundant every fourth year. This is seen most dramatically in the Fraser River, where the abundance of some populations in abundant years is many times larger than that of other years. Longer term cycles are also apparent but less regular and seem to be associated with changes in ocean conditions that affect survival during the feeding migration period.

All five Pacific salmon species are harvested in First Nations fisheries in coastal and inland areas. Coho and Chinook are the preferred species in the BC coastal mixed-stock recreational and commercial hook-and-line fisheries, and to a lesser extent, are caught by gill and seine nets. Sockeye, Pink and Chum are harvested primarily in First Nations and commercial net fisheries, but are also caught in recreational fisheries.

For more information, refer to the Fisheries and Oceans Canada Pacific Salmon Facts website at <https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/facts-infos-eng.html>.

Table 2-1: Summary of general biological and life history characteristics for five species of Pacific salmon

Life History Characteristic	Coho <i>O. kisutch</i>	Sockeye <i>O. nerka</i>	Pink <i>O. gorbuscha</i>	Chum <i>O. keta</i>	Chinook <i>O. tsawytscha</i>
Season when eggs hatch	Spring	Spring	Spring	Spring	Spring
Length of stay in freshwater	1–2 years; 1 year is common.	1 month to 2 years	Virtually none; often straight to ocean.	Virtually none; often straight to ocean.	Ocean-type: 60-150 days Stream-type: 1-2 years
Primary rearing habitat	Stream	Lake/stream	Estuary	Estuary	Stream/Ocean
Size at ocean migration	10cm or more	Variable, 6.5 to 12cm	About 3.3cm	2.8 to 5.5cm	5 to 15cm

Life History Characteristic	Coho <i>O. kisutch</i>	Sockeye <i>O. nerka</i>	Pink <i>O. gorbuscha</i>	Chum <i>O. keta</i>	Chinook <i>O. tsawytscha</i>
Ocean voyage	4–18 months	16 months to 4 years	18 months	2 to 5 years	4 months to 5 years
Age at return to freshwater	During 2nd to 4th year	During 3rd to 5th years	During 2nd year	During 3rd to 5th years	During 2nd to 6th years
Season/month of return	Late summer to January	Mid-summer to late autumn	July to September	July to October	Spring to fall; some rivers support more than one run.
Number of eggs/female	2,000–3,000	2,000–4,500	1,200–2,000	2,000–3,000	2,000-17,000 (generally 5,000-6,000)
Preferred spawning area	Small streams	Near and in lake systems.	Close to ocean	Above turbulent areas or upwellings	Very broad tolerances

SALMON LIFE CYCLE

The Pacific salmon life-cycle includes periods in fresh water and the marine environment, with varying durations across species and populations. For all species, life begins in freshwater, when eggs deposited into gravel beds (called *redds*) the fall prior hatch as *alevins* by mid-winter. After surviving the rest of winter living in the gravel, young *fry* emerge in spring to reside in freshwater streams and lakes from a few hours (Pink and some Chum salmon populations) up to two years (some Coho and Chinook populations). Most fry then migrate to the sea to become *smolts* (transitioning to the salt water environment) and spend one to five years in the ocean, often undertaking prolonged (and sometimes distant) ocean-feeding migrations which are thought to be population-specific (Figure 2-1). (Notable exceptions include some Sockeye salmon that have developed a land-locked form—called kokanee—that do not go to sea). In the ocean, Sockeye, Pink and Chum feed primarily on plankton and crustaceans such as tiny shrimp. Chinook and Coho also eat smaller fish, such as herring. At sea, Pacific salmon species attain the following average adult weights: 1 to 3 kg for Pink; 5 to 7 kg for Chum; 3.5 to 7 kg for Coho; 2 to 4 kg for Sockeye; and 6 to 18 kg for Chinook (the largest recorded Chinook was 57.27 kg). As anadromous species, Pacific salmon migrate back into rivers and streams as adults to spawn (often to the same river and even gravel bed from which they hatched). The return migration to fresh water can occur from spring to fall (timing is species- and/or population-dependent), but spawning generally takes place through the fall and early winter. In general, Sockeye and Chinook travel the farthest upstream to spawn—some as far as 1,500 kilometres. Chum, Coho and Pink usually originate from spawning sites located closer to the ocean. A notable exception is Yukon River Chum salmon that travel 3,200 kilometres to their spawning

grounds. Following courtship, spawning females release eggs that are fertilized by a spawning male; the eggs are then buried by the female to start the next generation. Both adults die after spawning. Total life spans range from two years (for Pink salmon populations) up to six or seven years (for some Sockeye and Chinook salmon populations).

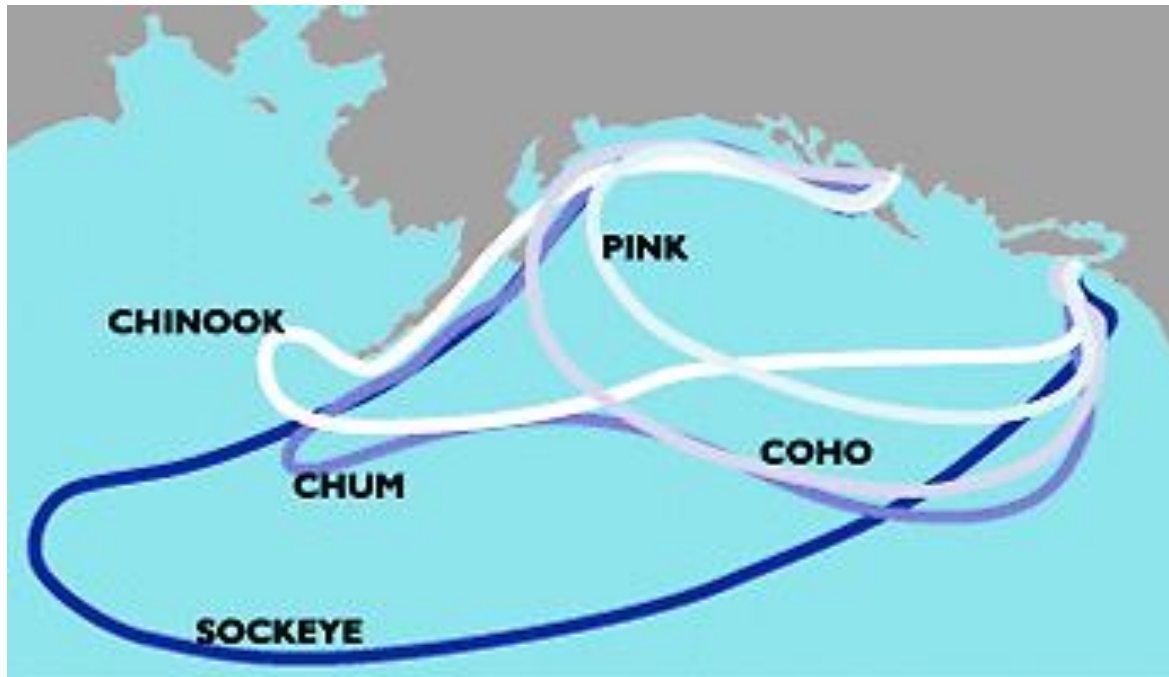


Figure 2-1: Generalized habitat of British Columbia Pacific salmon species in the North Pacific Ocean.

2.2 ECOSYSTEM INTERACTIONS

As a consequence of their anadromous life history, salmon are sensitive to changes in both the marine and freshwater ecosystems. Salmon are an ecologically important species supporting complex food webs in oceanic, estuarine, freshwater and terrestrial ecosystems by providing nutrients every year during their migration to the rivers and lakes to spawn.

DFO is moving away from management on a single species and moving towards an integrated ecosystem approach to science and management. Strategy 3 of the [Wild Salmon Policy](#) (WSP), Inclusion of Ecosystem Values and Monitoring, states the Department's intent to progressively incorporate ecosystem values in salmon management. The main focus of this effort will be on developing ecosystem-related indicators and science-based tools to better understand the pressures on Conservation Units (CUs) of Pacific Salmon and for integrating salmon conservation and other planning objectives. This strategy will include extraction of relevant information on environmental conditions in marine and freshwater ecosystems, in a risk-based framework.

The greatest challenge in implementation of the WSP is balancing the goals of maintaining and restoring healthy and diverse salmon populations and their habitats, with social and economic objectives that reflect people's values and preferences. Standardized monitoring and assessment of wild salmon populations, habitat and eventually ecosystem status will facilitate the development of comprehensive integrated strategic plans (WSP Strategy 4) that will address the goals of the WSP while addressing the needs of people. Outcomes of these plans will include biological objectives for salmon production from CUs and, where appropriate, anticipated timeframes for rebuilding, as well as management plans for fisheries and watersheds, which reflect open, transparent, and inclusive decision processes involving First Nations, communities, environmental organizations, fishers and governments.

For strategic planning and successful management of Pacific salmon, it will be essential to link variation in salmon production with changes in climate and their ecosystems. Salmon productivity in the Pacific is clearly sensitive to climate-related changes in stream, estuary and ocean conditions. Historically, warm periods in the coastal ocean have coincided with relatively low abundances of salmon, while cooler ocean periods have coincided with relatively high salmon numbers. In the past century, most Pacific salmon populations have fared best in periods having high precipitation, deep mountain snowpack, cool air and water temperatures, cool coastal ocean temperatures, and abundant north-to-south upwelling winds in spring and summer.

The Department conducts programs to monitor and study environmental conditions.

Information on these programs is available at:

<http://www.pac.dfo-mpo.gc.ca/science/index-eng.html>.

These programs include:

- The Strait of Georgia Ecosystem Research Initiative
- Fraser River Environmental Watch
- Monitoring of physical, biological, and chemical freshwater and marine conditions
- Chlorophyll and phytoplankton timing and abundance

The annual State of the Pacific Ocean Report describes changes and trends in atmospheric and oceanic conditions which have the potential to affect Pacific salmon (and other species) populations and informs science-based decision-making and DFO's management of fisheries and marine resources in the Pacific Region. It is available at:

<http://www.dfo-mpo.gc.ca/oceans/publications/index-eng.html>.

2.2.1 PACIFIC SALMON RETURNING IN 2023: MIXED SIGNALS FROM ENVIRONMENTAL CONDITIONS

B.L. MacDonald, N.L. Wilson, S.C.H. Grant, J.L. Boldt, D.A. Patterson, A. Sastri C. Hannah

Summary

The 2023 Pacific salmon returns experienced varying environmental conditions across their fresh-water and marine residences. Overall, we predict that 2023 Canadian Pacific salmon productivity (adult recruits produced per parental spawner) will generally fall near or below historical averages. This prediction is based on environmental and biological data from 2018-2023, which coincide with parental spawning and egg incubation through to ocean rearing conditions for the 2023 salmon returns across populations.

The effects of environmental conditions on 2023 returning salmon will depend on the specific conditions encountered by each population, and their life-histories. While we do not have relevant data for each salmon population, we provide a general description of what is known about overall environmental conditions experienced by Pacific salmon returning in 2023.

Specifically:

- Summer river temperatures are increasingly exceeding upper thermal tolerances for salmon in assessed systems. In the Fraser River, summer temperatures in 2018, 2019, and 2021 regularly exceeded such thresholds.
- Early, rapid snowmelt depleted snowpacks in most of B.C. by mid-May/early-June in 2018 and 2019. Early loss of snowpack can contribute to warmer summer river and lake temperatures. Snowpacks were more variable across B.C. in 2020 and 2021, though some areas were well below average by late spring.
- B.C. experienced multiple summer droughts in recent years. A notable summer drought in 2018 affected most of the province, including the northwest coast. In 2021, extreme to severe drought impacted multiple regions in southern B.C. Lower water levels can increase temperatures, block passage to key spawning habitat, strand salmon, and increase their exposure to predators.
- Unprecedented flooding in southwestern B.C. during November 2021 may have scoured out salmon eggs in some systems (relevant for Pink salmon specifically).
- Northeast Pacific marine heatwaves were present during late-2013-2016 and in 2019, 2020 and 2021. Marine heatwaves have negatively affected physical and biological ocean processes relating to salmon growth and productivity. However, by 2021 zooplankton community composition off the west coast of Vancouver Island and in Hecate Strait had

generally returned to average conditions after being dominated by lower quality species since the 2013-2016 heatwave.

Looking further into the future, we do not anticipate that long-term salmon survival patterns will return to what we have seen historically. Pacific salmon are already responding to environmental changes driven by climate change and other human activities. As environmental conditions continue to change, as predicted for B.C. and the Yukon, climate change vulnerability assessments will be a valuable tool for providing a longer-range outlook for Canadian Pacific salmon.

General Distribution of the 2023 Pacific Salmon Returns

Five species of Pacific salmon are assessed and managed by the Department of Fisheries and Oceans: sockeye, Chinook, coho, pink and chum. Species and populations exhibit considerable variation in the habitats they occupy and the life history strategies they employ.

Most Canadian Pacific salmon returning in 2023 would have been deposited as eggs in their fresh water spawning grounds between 2018 and 2021, and will therefore return at an age falling between two and five years old (Figure 2-2). Many sockeye and Chinook populations, and all coho populations, rear in fresh water for one to two years as juveniles, before migrating to the ocean. Other sockeye and Chinook populations, and all chum and pink populations, migrate to the ocean shortly after hatching and emergence, with only a limited fresh water juvenile stage. Since the majority of 2023 returns would have inhabited fresh water environments between 2018 and 2021 (Figure 2-2), we present general fresh water conditions specific to these years.

The majority of 2023 Pacific salmon returns would have entered into the marine environment between 2020 and 2022, depending on their species and population, and will remain there until they return to fresh water in 2022. We present general marine conditions for 2020 to 2022 where available.



Figure 2-2: Timing of common age classes of Pacific salmon returning in 2023 in each habitat they occupy. For each species, the most common life-history types are presented, using the Gilbert-Rich age designation system (in brackets); the number on the left indicates the total age at return, while the subscript shows the number of winters spent in fresh water prior to migrating to the ocean. Coloured boxes show the life stage and habitat occupied by each group of animals in every year of their life, leading up to their return to fresh water to spawn in 2023.

Global and Regional Environmental Context for Salmon Outlook

The planet is warming (Figure 2-3). Average land-ocean temperature has risen by 1.09°C over the last century (IPCC 2022), and the years 2014 to 2021 were the warmest on record (NOAA National Centers for Environmental Information 2022). Canada is warming at double the rate of the global average, due to its northern latitude (Bush and Lemmen 2019).

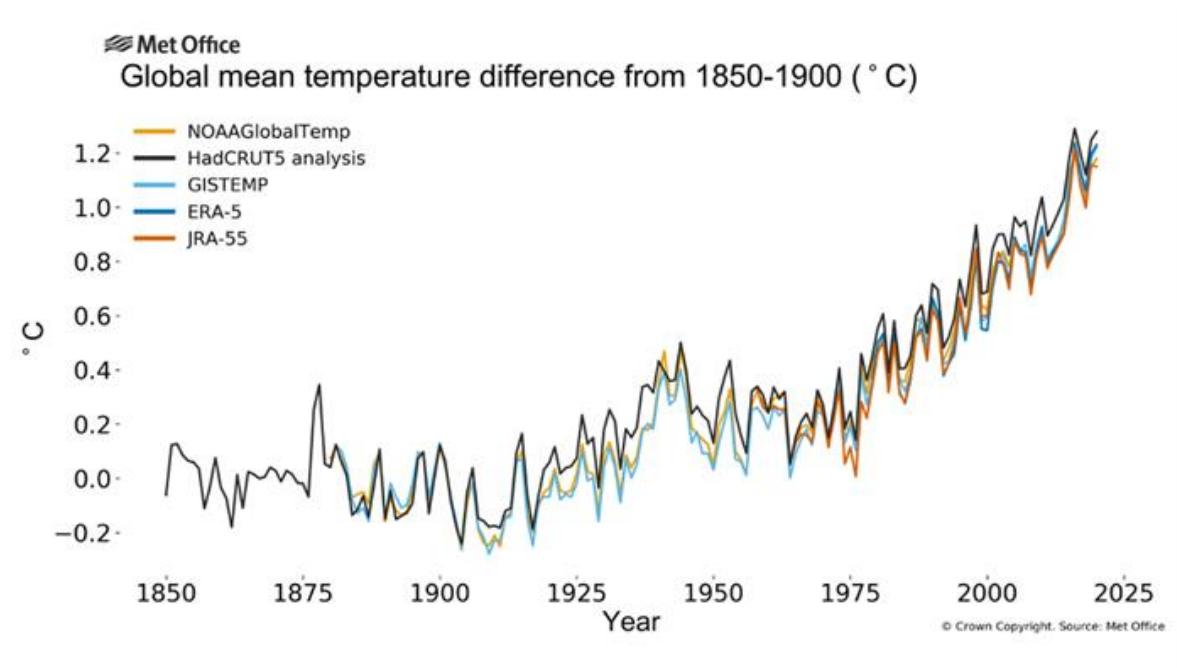


Figure 2-3 Global annual mean temperature difference from pre-industrial conditions (1850-1900). Canada's temperature increases are double this global rate of warming, typical of countries occupying northern latitudes. The World Meteorological Organization (WMO) uses six international data sets to provide an authoritative assessment of global temperature change presented in this figure: Had CRUT5; NOAAGlobalTemp; GISTEMP; ERA5; JRA-55; Berkeley Earth. Source: Met Office Hadley Centre for Climate Science and Services, <https://www.metoffice.gov.uk/about-us/press-office/news/weather-and-climate/2022/2021-hadcrut5-wmo-temperature-statement> [Accessed Dec 15,2022]

Profound environmental changes are already occurring in Western Canada as a result of the warming that has taken place to date. In B.C., average precipitation is increasing; snowpacks are melting earlier, altering the hydrographs of rivers in snow-dominated systems; lakes and rivers are becoming ice-free earlier in the spring; river temperatures are warming, and sea-surface temperatures are also warming along the coast (White et al. 2016). The Yukon has experienced accelerated warming during the winter months, increases in precipitation, melting glaciers, thawing permafrost, and earlier snowmelt over the past 50 years. Such changes are affecting the hydrologic regime in the Yukon, leading to increases in flooding and winter low flows (Streicker 2016).

Extreme events, such as the 2021 heat dome and fall atmospheric rivers, are likely to become more common and more severe in the Pacific Region as global temperatures continue to rise (White et al. 2016; Philip et al. 2021). A heatwave like that experienced in June 2021 historically would have occurred once every 1,000 years. With 2°C of global warming above the pre-industrial (1850-1900) average, the frequency of such an event would increase to roughly every 5 to 10 years (Philip et al. 2021). Similarly, human-induced climate change has increased the

likelihood of westerly atmospheric river events like that experienced in fall 2021 by at least 60% (Gillett et al. 2022).

Global temperatures are projected to rise 1.5°C to 3.7°C above the 1850-1900 average by the end of this century. We are already approaching the 1.5°C global limit of warming that the IPCC recommends as critical if we are to avoid significant issues related to food, water, and other life support systems on the planet (IPCC 2014, 2018, UNEP 2019). Temperatures in BC are expected to increase between 1.6°C to 5.2°C above the 1986-2005 average by the end of this century, according to low (RCP2.6) or “business as usual” high (RCP8.5) emission scenarios (Bush and Lemmen 2019). These projected changes will be accompanied by further increases in precipitation, loss of glaciers, and summer/early fall drought in southern BC (White et al. 2016). Average temperatures in Northern Canada are projected to increase by 2.1 to 7.8°C by the end of the century (Bush and Lemmen 2019). Precipitation will likely continue to increase in the Yukon, and will increasingly fall as rain rather than snow, while glaciers continue to melt, and permafrost continues to thaw (Bush and Lemmen 2019).

Environmental Conditions are Affecting the Salmon Outlook for 2023: Why does this matter?

Pacific salmon are already responding to environmental changes driven by climate change and other human activities (Grant et al. 2019). Though there are exceptions, we present general trends:

- Chinook salmon abundances have declined throughout their range across B.C. and the Yukon (Dorner et al. 2018; Grant et al. 2019).
- Sockeye salmon have declined and/or exhibited low abundances in southern latitudes in the past decade (Peterman and Dorner 2012; Grant et al. 2019; Hyatt et al. 2021). In recent years, sockeye abundances were generally poor throughout their Canadian range, including northern areas.
- Coho salmon declined in the mid-1980’s. Northern BC coho recovered in the mid-2000s, but southern populations continue to exhibit low marine survival and exist at low abundances.
- Chum salmon have generally not exhibited declines in the past decade (Grant et al. 2019, 2020, 2021), though returns were generally poor from 2019 to 2021.
- Pink salmon have generally not exhibited declines in the past decade (Grant et al. 2019, 2020, 2021).

This qualitative outlook describes broad-scale patterns in fresh water and marine conditions to provide an indication of overall conditions for salmon survival, specifically for the 2023 returns. Physical changes in fresh water and marine environments affect Pacific salmon through their habitats and food availability, and salmon respond through their behaviour, growth rates, and

overall survival (NOAA Fisheries 2021). While we do not have relevant data for all species in all locations, we provide a general description of what is known about environmental conditions experienced by the 2023 returns, in relation to historical conditions.

Salmon populations returning in 2023 will have been exposed to varying fresh water and marine conditions during the years 2018-2023. The specific environmental conditions experienced by each population are determined by their spawning and juvenile rearing distributions, age of return, and other characteristics such as migration timing. Additional factors can also contribute to salmon productivity, including habitat alteration from natural and human activities, particularly in fresh water, hatchery contributions, disease, contaminants, predation, competition, and other local environmental conditions.

Given the environmental changes already being observed, and those predicted for the future in B.C. and the Yukon, we do not anticipate that long-term salmon survival patterns will return to what we have seen historically. Climate change vulnerability assessments for Pacific salmon on the west coast of the U.S. indicate that vulnerability to climate change varies across Pacific salmon species and populations, determined by their unique combinations of geographical distribution and life history characteristics (Crozier et al. 2019). Climate vulnerability is largely higher for southern and interior populations, and this interacts with fresh water and estuary residence times (Crozier et al. 2019). These patterns corroborate some of the general trends that have already been observed across Pacific salmon populations in Canada (Grant et al. 2019).

As environmental conditions continue to change, climate change vulnerability assessments will be a valuable tool for providing a longer-range outlook for Canadian Pacific salmon. Such assessments will provide a more detailed understanding of the distribution of climate vulnerabilities across Pacific salmon populations in Canada, to better inform current and future management decisions and support efforts to adapt to the changing salmon landscape.

Fresh Water Indicators of Health for Spawning, Egg Incubation, and Juvenile Rearing Life Stages between 2018-2021

Air Temperature: Air temperature is an important determinant of river temperature, and therefore an important indicator of health for salmon in the fresh water stages of their lifecycle. Canadian Pacific salmon returning in 2023 lived during two of the five hottest years on record globally (2020 & 2019) (NOAA National Centers for Environmental Information 2022). Locally, air temperatures have been warmer than average in recent decades (Streicker 2016; White et al. 2016). British Columbia warmed by 1.9°C between 1948 to 2016, while northern Canada warmed by 2.3°C, and some areas of northwestern Canada warmed by over 3°C (Bush and Lemmen 2019).

Spring months were warmer than average in B.C. in both 2018 and 2019, due to extremely warm May conditions. Summer 2018 was also warm, while summer 2019 was more variable and at times cooler than average (PCIC 2020). In 2020, B.C. experienced near normal maximum daily temperatures and above normal minimum daily temperatures, though warm conditions were prevalent in southeast B.C. in August 2020. In 2021, while spring months were closer to average, summer daily minimum and maximum temperatures were some of the warmest on record (Anslow and Sobie 2022). The summer of 2021 began with an extreme heatwave that blanketed Western Canada in late June, sending temperatures soaring well above all-time heat records across the region (Di Liberto 2021). This heatwave was found to be “virtually impossible” in the absence of human-caused climate change (Philip et al. 2021).

River Temperatures: Salmon have challenges migrating upstream to their spawning grounds when rivers are too warm. Annual river temperatures are not available for most BC/Yukon systems, but in the Fraser River system, where data are available, summer temperatures regularly exceeded upper thermal thresholds for salmon in 2018, 2019, and 2021.

Fisheries and Oceans Canada Fraser River environmental watch reports: <https://www.pac.dfo-mpo.gc.ca/science/habitat/frw-rfo/reports-rapports/archives-eng.html>. [Accessed December 10, 2020 & December 21, 2022]

In 2020, river temperatures were relatively average, except for a short period at the end of July where they exceeded 18°C.

Fisheries and Oceans Canada Fraser River environmental watch reports: <https://www.pac.dfo-mpo.gc.ca/science/habitat/frw-rfo/index-eng.html>. [Accessed October 12, 2021]

Peak summer water temperatures in the Fraser River increased by greater than 1.8 °C in the fifty years preceding 2008 (Farrell et al. 2008). It is now common each year to have days where river temperatures exceed 18°C at some point in the spring/summer. Temperatures above 18°C can result in decreased adult salmon swimming performance, and above 20°C can increase adult mortality, adult disease, egg inviability, and cause legacy effects that have negative impacts on juvenile condition (Tierney et al. 2009; Burt et al. 2011; Eliason et al. 2011; Sopinka et al. 2016). High in-river spawning and incubation temperatures can have population-specific negative effects on fertilization success and embryo survival, affect timing of hatch (Whitney et al. 2014), emergence (Macdonald et al. 1998), and reduce swimming endurance and impair swimming behaviour of fry (Burt et al. 2012). For juveniles that rear in fresh water, warmer temperatures can improve juvenile growth rates when prey are not limiting (Brett 1971, Edmundson & Mazumder 2001), and also increase the length of the growing season in some areas (Schindler et al. 2005). The exposure of a salmon population to these various temperature-related fresh water conditions will vary by system. However, as temperatures continue to increase from global climate change, the net effect is expected to be negative (Crozier et al. 2019).

Snowpack: The timing and rate of snowpack loss are significant factors in the volume and timing of spring freshets. The size and melting rate of winter snowpack in the mountains is a strong indicator of river water volume, flow rates and temperature in the summer months (Patterson and Hague 2007). Early loss of snowpack reduces the cool water inputs into rivers and lakes from snowmelt in warmer summer months.

In 2018 and 2019, the onset of snowmelt began several weeks earlier than normal. In these years, most regions of BC had below-average snowpacks by the second week of May. The 2020 season had a mix of snowmelt conditions, with early melt in low and mid-elevation areas and a delay in the melt of high elevation snowpacks. Snowpack in 2021 was average to well above average until April. Snowmelt began earlier than normal, particularly at lower elevations. By the end of May snowpack was below average in southeast B.C. and Vancouver Island, and well below average in some parts of Interior B.C.

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development, River Forecast Center, Snow Conditions & Water Supply Bulletin:

<https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/drought-flooding-dikes-dams/river-forecast-centre/snow-survey-water-supply-bulletin>

Spring freshets were close to normal in 2017, 2018, 2019. In 2020, earlier seasonal melt and lower peak snow accumulation in some areas of the province saw some rivers trend towards an earlier freshet and below seasonal stream flow, while others remained close to normal or slightly above. Snowmelt began early at low and mid elevations in 2021.

Ministry of Forests, Lands, Natural Resource Operations, and Rural Development, River Forecast Center, Snow Conditions & Water Supply Bulletin:

<https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/drought-flooding-dikes-dams/river-forecast-centre/snow-survey-water-supply-bulletin>

Summer drought

Drought can result in lower river and lake levels, deteriorate water quality, block access to spawning habitat, strand salmon, increase exposure to predators and increase the risk of low oxygen levels in some fresh water systems. Recent years hit records for summer droughts in B.C. In 2018, a heatwave in early spring depleted snowpacks, and lack of precipitation from July to November created extensive dry to extremely dry conditions from July to November that affected the entire coast of B.C., including the northwest. In 2019, a spring heatwave created dry conditions across the province, and drove down stream flows. Heavy rains in July helped to relieve the drought. Most of the province experienced wet conditions in early summer 2020. However, Vancouver Island and some southern B.C. watersheds became very dry by late summer. In both 2019 and 2020, most of the province had returned to average conditions by October. In 2021, below average precipitation in spring and summer months combined with

very warm summer temperatures, punctuated by several heatwaves. This led to severe drought conditions in southern B.C. that lasted from July to September (Anslow and Sobie 2022).

British Columbia Drought Information Portal:

<https://governmentofbc.maps.arcgis.com/apps/MapSeries/index.html?appid=838d533d8062411c820eef50b08f7ebc>

Fall Floods

Flooding and high river flows can scour spawning beds or bury salmon eggs in sediment (Holtby and Healey 1986; Lisle 1989; Lapointe et al. 2000; Pike et al. 2010; Cloutier et al. 2017; Crozier et al. 2019). In Fall 2021, extended periods of extreme rainfall caused unprecedented flooding in southwestern B.C. and Washington State.

Marine indicators of Health for Juvenile Rearing to Adulthood Life Stages between 2020-2023

Ocean Temperature: Salmon metabolic demands increase with temperature. Without a concurrent increase in prey quality or quantity, salmon growth and productivity will decrease under warming conditions (Holsman et al. 2018). In recent years Chinook body weight for a given length declined (Daly et al. 2017). Sizes of mature Fraser River sockeye declined from the 1970s to the early 1990s, increased in the early 2000s, then again decreased through the 2010s. Lake-type Fraser Sockeye were amongst the smallest on record in 2019, 2020, and 2021 (Latham et al. 2021, 2022). Predation also can intensify in warmer ocean conditions, increasing salmon mortality (Holsman et al. 2012).

Sea surface temperatures have been warmer than average in the Northeast Pacific Ocean in recent decades (Figure 2-4) and have increased linearly by 0.87°C over the past 100 years (Chandler 2022). Following “The Blob”, the notable North Pacific marine heatwave of 2013 to 2016, there was a return to near-average sea-surface temperatures in 2017 and 2018. However, this was likely due to the cooling effect of the La Niña that persisted until the second half of 2018 (Ross and Robert 2018, 2019). New heatwaves were observed in the late summer and fall of 2018 and throughout most of 2019 and 2020 (Hannah et al. 2019; Ross and Robert 2020, 2021). The 2019 and 2020 heat waves were the second and third most expansive, respectively, in recorded history (NOAA Fisheries 2020), though neither reached the water column depths of The Blob. The 2020 marine heatwave persisted into the latter half of 2020, despite the emergence of La Niña conditions (Ross and Robert 2021).

Sea surface temperatures in the northeast Pacific were generally cooler in 2021 than in 2020 (Ross and Robert 2022). Near average, or slightly warm temperatures were observed in 2021, likely due to the influence of strong cool phases of climate oscillations (ENSO & PDO) layered

on top of long-term warming due to climate change (Ross and Robert 2022). However, multiple marine heatwaves were observed in 2021, including a short-lived heatwave observed in the waters surrounding Vancouver Island during the early summer heat dome event (Hilborn and Hannah 2022).

At the time of writing, we are entering into our third consecutive La Niña winter. Moving into January-March 2023 there is a 50-50 chance of continued La Niña or ENSO-neutral conditions. By February-April 2023 there is a 71% change of ENSO-neutral conditions (NOAA National Weather Service 2022).

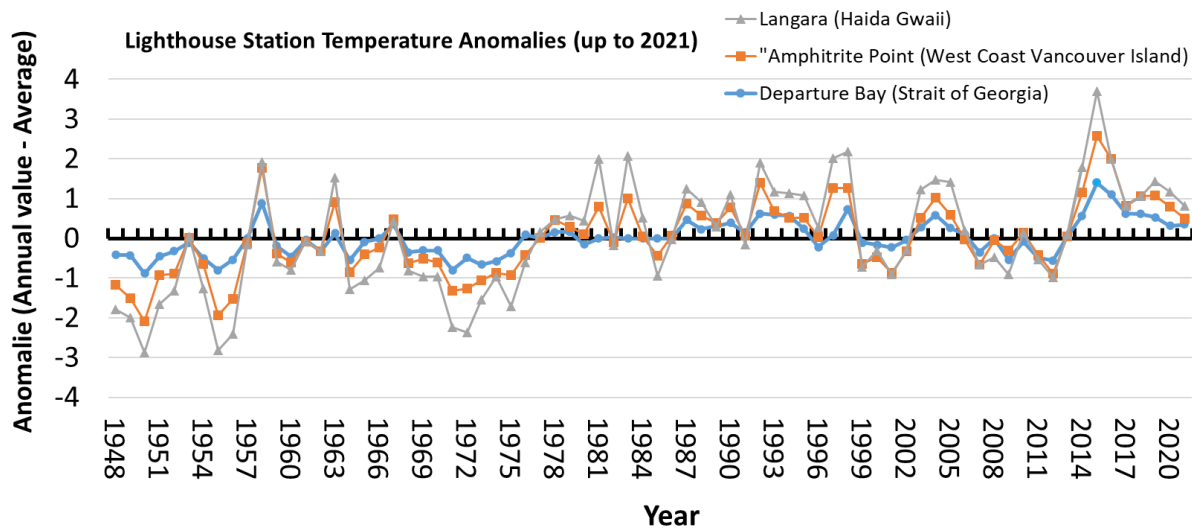


Figure 2-4 Annual average sea-surface-temperature anomalies from Fisheries & Oceans Canada lighthouse stations: <https://www.dfo-mpo.gc.ca/science/data-donnees/lightstations-phares/index-eng.html>. Anomalies represent the departure from a mean reference period (1948-2021). Temperature anomalies are expressed as degree Celsius (C).

Physical oceanography: Deep water convection is one of the major processes driving open-ocean primary productivity in the Pacific Ocean. Strong winter mixing brings more nutrients to the surface. Mixing in the winter of 2019/20 was weak. This suggests that surface nutrients were low, though they were likely not as low as they were in 2019 (Ross and Robert 2021). Winter mixing in 2020/21 was closer to normal than the previous two years, and nutrient supply was likely average in spring 2021 (Ross and Robert 2022).

Food Web - Phytoplankton: Phytoplankton are the base of the aquatic food web, feeding a host of other animals, such as zooplankton. The size and composition of phytoplankton communities

affect the zooplankton that are able to feed on them, causing impacts further up the food chain (Batten and Ostle 2020).

Off the west coast of B.C. (along Line P), phytoplankton biomass was relatively low in 2020 (Peña and Nemcek 2021). Phytoplankton community composition was similar to 2015 (a marine heatwave year) in the winter of 2020, but in the summer it was similar to pre-marine heatwave years (Boldt et al. 2021). Phytoplankton community composition appeared to be returning to pre-marine heatwave conditions in the 2021 offshore surveys (Ostle and Batten 2022).

Food Web - Zooplankton Zooplankton play a key role in the food web, supporting higher trophic levels. Boreal and sub-Arctic copepods are lipid-rich and very nutritious species of zooplankton that occur along the outer B.C. coast. Sub-arctic copepods are more abundant in relatively cool years (Hipfner et al. 2020). Southern copepods are smaller, comparatively lipid-poor zooplankton that are less nutritious and have their distributions centered off California. Warmer ocean temperatures, such as those seen in marine heatwaves like The Blob, cause northward shifts in the distribution of southern copepod species to occupy habitats otherwise too cold for them (Mackas et al. 2004). Such shifts in zooplankton composition are a key pathway potentially linking reduced salmon productivity to warmer temperatures in the Northeast Pacific Ocean (Mackas et al. 2007).

In 2020, the biomass of gelatinous zooplankton, characterized by high water content and low nutritional value, declined compared to the anomalous highs observed since the 2014 marine heatwave (Galbraith and Young 2021). In 2021 gelatinous biomass returned to the long-term average (Galbraith and Young 2022). Crustacean biomass anomalies were generally close to average in both 2020 and 2021 (Galbraith and Young 2021, 2022).

Among the crustaceans, sampling in the coastal waters of Vancouver Island (North and South) and Hecate Strait showed declining trends in southern copepods since 2017/18, with a brief uptick in 2020 in the Southern Vancouver Island region. In 2021 southern copepod abundances were below or close to average on the shelf (Galbraith and Young 2022). Southern copepods were comparatively more abundant in offshore areas than on the shelf in both 2020 and 2021 (Galbraith and Young 2021, 2022). Boreal and subarctic copepods were closer to average in 2020 than in previous years (Galbraith and Young 2021). In 2021 boreal and subarctic copepods generally increased, and were above average in all areas apart from one (average in offshore SVI) (Galbraith and Young 2022).

In the Strait of Georgia, zooplankton biomass has been trending upwards since 2011 (Perry et al. 2021), and was above average in both 2020 and 2021 (Young et al. 2021, 2022). Zooplankton biomass was dominated by medium and large bodied copepods and larger crustaceans (Young et al. 2021, 2022), which tend to be the preferred prey for several species of juvenile fish of commercial interest (Perry et al. 2021).

References

- Anslow, F., and Sobie, S. 2022. Land temperature and hydrological conditions in 2021. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3482. pp. 18–22.
- Batten, S., and Ostle, C. 2020. Lower trophic levels in the Northeast Pacific. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2019. *Edited by* J.L. Boldt, A. Javorski, and P.C. Chandler. Can. Tech. Rep. Fish. Aquat. Sci. 3377. pp. 58–62.
- Boldt, J.L., Javorski, A., and Chandler, P.C. (*Editors*). 2021. State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2020. Can. Tech. Rep. Fish. Aquat. Sci. 3434: vii + 231. Available from https://publications.gc.ca/collections/collection_2021/mpo-dfo/Fs97-6-3434-eng.pdf.
- Brett, J.R. 1971. Energetic responses of salmon to temperature. A study of some thermal relations in the physiology and freshwater ecology of sockeye salmon (*Oncorhynchus nerka*). *Am. Zool.* **11**(1): 99–113. doi:198.103.39.129.
- Burt, J.M., Hinch, S.G., and Patterson, D.A. 2011. The importance of parentage in assessing temperature effects on fish early life history: a review of the experimental literature. *Rev. Fish Biol. Fish.* **21**: 377–406. doi:10.1007/s11160-010-9179-1.
- Burt, J.M., Hinch, S.G., and Patterson, D.A. 2012. Developmental temperature stress and parental identity shape offspring burst swimming performance in sockeye salmon (*Oncorhynchus nerka*). *Ecol. Freshw. Fish* **21**(2): 176–188. doi:10.1111/j.1600-0633.2011.00535.x.
- Bush, E., and Lemmen, D.S. (*Editors*). 2019. Canada’s changing climate report; Government of Canada, Ottawa, ON. Government of Canada, Ottawa, ON. Available from www.ChangingClimate.ca/CCCR2019.
- Chandler, P.C. 2022. Sea surface temperature and salinity observed at shore stations and weather bouys along the B.C. coast in 2021. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3482. pp. 42–46.
- Cloutier, C., Locat, J., Geertsema, M., Jakob, M., and Schnorbus, M. 2017. Potential impacts of climate change on landslides occurrence in Canada. *In* Slope Safety Preparedness for Impact of Climate Change. *Edited by* K. Ho, S. Lacasse, and L. Picarelli. CRC Press, Leiden, The Netherlands. pp. 71–104. doi:10.1201/9781315387789-5.
- Crozier, L.G., McClure, M.M., Beechie, T., Bograd, S.J., Boughton, D.A., Carr, M., Cooney, T.D., Dunham, J.B., Greene, C.M., Haltuch, M.A., Hazen, E.L., Holzer, D.M., Huff, D.D., Johnson, R.C., Jordan, C.E., Kaplan, I.C., Lindley, S.T., Mantua, N.J., Moyle, P.B., Myers, J.M., Nelson, M.W., Spence, B.C., Weitkamp, L.A., Williams, T.H., and Willis-Norton, E. 2019. Climate vulnerability assessment for Pacific salmon and steelhead in the California Current Large Marine Ecosystem. *PLoS One* **14**(7): e0217711. doi:10.1371/journal.pone.0217711.
- Daly, E.A., Brodeur, R.D., and Auth, T.D. 2017. Anomalous ocean conditions in 2015 : impacts on spring Chinook salmon and their prey field. *Mar. Ecol. Prog. Ser.* **566**: 169–182. doi:10.3354/meps12021.
- Dorner, B., Catalano, M.J., and Peterman, R.M. 2018. Spatial and temporal patterns of covariation in productivity of Chinook salmon populations of the northeastern Pacific Ocean. *Can. J. Fish. Aquat.*

- Sci. **75**(7): 1082–1095. doi:10.1139/cjfas-2017-0197.
- Edmundson, J.A., and Mazumder, A. 2001. Linking growth of juvenile sockeye salmon to habitat temperature in Alaskan lakes. *Trans. Am. Fish. Soc.* **130**: 644–662. doi:10.1577/1548-8659(2001)130<0644:LGOJSS>2.0.CO;2.
- Eliason, E.J., Clark, T.D., Hague, M.J., Hanson, L.M., Gallagher, Z.S., Jeffries, K.M., Gale, M.K., Patterson, D.A., Hinch, S.G., and Farrell, A.P. 2011. Differences in thermal tolerance among sockeye salmon populations. *Science* (80-.). **332**(6025): 109–112. doi:10.1126/science.1199158.
- Farrell, A.P., Hinch, S.G., Cooke, S.J., Patterson, D.A., Crossin, G.T., Lapointe, M., and Mathes, M.T. 2008. Pacific salmon in hot water: applying aerobic scope models and biotelemetry to predict the success of spawning migrations. *Physiol. Biochem. Zool.* **81**(6): 697–708. doi:10.1086/592057.
- Galbraith, M., and Young, K. 2021. West Coast British Columbia zooplankton biomass anomalies 2020. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2020. *Edited by* J.L. Boldt, A. Javorski, and P. Chandler. *Can. Tech. Rep. Fish. Aquat. Sci.* 3434. pp. 75–80.
- Galbraith, M., and Young, K. 2022. West Coast British Columbia zooplankton biomass anomalies 2021. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. *Can. Tech. Rep. Fish. Aquat. Sci.* 3482. pp. 77–82.
- Gillett, N.P., Cannon, A.J., Malinina, E., Schnorbus, M., Anslow, F., Sun, Q., Kirchmeier-Young, M., Zwiers, F., Seiler, C., Zhang, X., Flato, G., Wan, H., Li, G., and Castellan, A. 2022. Human influence on the 2021 British Columbia floods. *Weather Clim. Extrem.* Elsevier B.V. doi:10.1016/j.wace.2022.100441.
- Grant, S.C.H., MacDonald, B.L., Lewis, D., G.J., N.L.W.C., and Michielsens, C.G.J. 2021. State of Canadian Pacific salmon in 2020. *In* State of the Physical, Biological and Selected Fishery Resources of Pacific Canadian Marine Ecosystems in 2020. *Can. Tech. Rep. Fish. & Aquat. Sci.* 3434. pp. vii + 231. *Edited by* J.L. Boldt, A. Javorski, and P.C. Chandler.
- Grant, S.C.H., Macdonald, B.L., and Michielsens, C.G.J. 2020. State of Canadian Pacific salmon in 2019. *In* State of the Physical, Biological and Selected Fishery Resources of Pacific Canadian Marine Ecosystems in 2019. *Can. Tech. Rep. Fish. Aquat. Sci.* 3377. pp. x + 288. *Edited by* J.L. Boldt, A. Javorski, and P.C. Chandler. pp. 86–91. Available from <https://www.dfo-mpo.gc.ca/oceans/publications/soto-rceo/2019/index-eng.html>.
- Grant, S.C.H., MacDonald, B.L., and Winston, M.L. 2019. State of the Canadian Pacific salmon: responses to changing climate and habitats. *Can. Tech. Rep. Fish. Aquat. Sci.* **3332**: ix + 50 pp. Available from <http://www.dfo-mpo.gc.ca/species-especies/publications/salmon-saumon/state-etat-2019/abstract-resume/index-eng.html>.
- Hannah, C., Page, S., and Ross, T. 2019. Ocean surface temperatures in 2018: another marine heat wave? *In* State of the Physical, Biological and Selected Fishery Resources of Pacific Canadian Marine Ecosystems in 2018. *Can. Tech. Rep. Fish. Aquat. Sci.* 3314. *Edited by* J.L. Boldt, J. Leonard, and P.C. Chandler. pp. 31–36. Available from <https://dfo-mpo.gc.ca/oceans/publications/soto-rceo/2018/index-eng.html>.
- Hilborn, A., and Hannah, C. 2022. Sea surface temperature during 2021: heat waves and heat domes. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. *Can. Tech. Rep. Fish.*

- Aquat. Sci. 3482. pp. 47–54.
- Hipfner, J.M., Galbraith, M., Bertram, D.F., and Green, D.J. 2020. Basin-scale oceanographic processes, zooplankton community structure, and diet and reproduction of a sentinel North Pacific seabird over a 22-year period. *Prog. Oceanogr.* **182**: 102290. Elsevier. doi:10.1016/j.pocean.2020.102290.
- Holsman, K., Hollowed, A., Shin-Ichi, I., Bograd, S., Hazen, E., King, J., Mueter, F., and Perry, R.I. 2018. Climate change impacts, vulnerabilities and adaptations: North Pacific and Pacific Arctic marine fisheries. *In Impacts of climate change on fisheries and aquaculture: synthesis of current knowledge, adaptation and mitigation options. Edited by M. Barange, T. Bahri, M.C.M. Beveridge, K.L. Cochrane, S. Funge-Smith, and F. Poulain. FAO Fisheries and Aquaculture Technical Paper, No. 627. FAO, Rome. pp. 113–138. Available from <http://www.fao.org/3/i9705en/i9705en.pdf>.*
- Holsman, K.K., Scheuerell, M.D., Buhle, E., and Emmett, R. 2012. Interacting effects of translocation, artificial propagation, and environmental conditions on the marine survival of Chinook salmon from the Columbia River, Washington, U.S.A. *Conserv. Biol.* **26**(5): 912–922. doi:10.1111/j.1523-1739.2012.01895.x.
- Holtby, L.B., and Healey, M.C. 1986. Selection for adult size in female coho salmon (*Oncorhynchus kisutch*). *Can. J. Fish. Aquat. Sci.* **43**(10): 1946–1959. doi:10.1139/f86-240.
- Hyatt, K., Stiff, H., and Stockwell, M. 2021. Coast-side sockeye salmon performance indicators, regional overview of trends, 2020 returns, and 2021–2023 outlook. *In State of the Physical, Biological and Selected Fishery Resources of Pacific Canadian Marine Ecosystems in 2020. Can. Tech. Rep. Fish. & Aquat. Sci. 3434. pp. vii + 231. Edited by J.B. P. Chandler, A. Javorski. pp. 112–116.*
- IPCC. 2014. Climate change 2014: impacts, adaptation, and vulnerability. Part A: global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. *Edited By C.B. Field, V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. 1132 pp. Available from <https://www.ipcc.ch/report/ar5/wg2/>.*
- IPCC. 2018. Summary for policymakers. *In Global warming of 1.5°C. An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change. Edited By V. Masson-Delmotte, P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield. World Meteorological Organization, Geneva, Switzerland. 32 pp. Available from <http://www.ipcc.ch/report/sr15/>.*
- IPCC. 2022. Summary for policymakers. [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Lösschke, V. Möller, A. Okem (eds.)]. *In Climate change 2022: impacts, adaptation, and vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Edited by H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Lösschke, V. Möller, and A. Okem. Cambridge University Press. In press. Available from https://report.ipcc.ch/ar6wg2/pdf/IPCC_AR6_WGII_FinalDraft_TechnicalSummary.pdf.*
- Lapointe, M., Eaton, B., Driscoll, S., and Latulippe, C. 2000. Modelling the probability of salmonid egg pocket scour due to floods. *Can. J. Fish. Aquat. Sci.* **57**(6): 1120–1130. doi:10.1139/cjfas-57-6-1120.

- Latham, S., Phung, A., Brkic, D., Ball, C., Sellars, J., Dailey, C., and Taylor, E. 2021. Size and age trends of mature Fraser River Sockeye salmon (*Oncorhynchus nerka*) through 2020. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2020. *Edited by* J.L. Boldt, A. Javorski, and P. Chandler. Can. Tech. Rep. Fish. Aquat. Sci. 3434. pp. 122–126.
- Latham, S., Phung, A., Brkic, D., Sellars, J., Ball, C., Taylor, E., Dailey, C., Wong, S., Hague, M., and Nowak, B. 2022. Size of mature Fraser River Sockeye and Pink salmon. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3482. pp. 108–111.
- Di Liberto, T. 2021. Astounding heat obliterates all-time records across the Pacific Northwest and Western Canada in June 2021. Available from <https://www.climate.gov/news-features/event-tracker/astounding-heat-obliterates-all-time-records-across-pacific-northwest> [accessed 25 November 2021].
- Lisle, T.E. 1989. Sediment transport and resulting deposition in spawning gravels, north coastal California. *Water Resour. Res.* **25**(6): 1303–1319. doi:10.1029/WR025i006p01303.
- Macdonald, J.S., Scrivener, J.C., Patterson, D.A., and Dixon-Warren, A. 1998. Temperatures in aquatic habitats: the impacts of forest harvesting and the biological consequences to sockeye salmon incubation habitats in the interior of B.C. *In* Forest-fish conference: land managment practices affecting aquatic ecosystems. Proc. Forest-Fish Conf., May 1-4, 1996, Calgary, AB. *Edited by* M.K. Brewin and D.M.A. Monita. Natural Resources Canada, Edmonton, AB. pp. 313–324.
- Mackas, D.L., Batten, S., and Trudel, M. 2007. Effects on zooplankton of a warmer ocean: recent evidence from the Northeast Pacific. *Prog. Oceanogr.* **75**(2): 223–252. doi:10.1016/j.pocean.2007.08.010.
- Mackas, D.L., Peterson, W.T., and Zamon, J.E. 2004. Comparisons of interannual biomass anomalies of zooplankton communities along the continental margins of British Columbia and Oregon. *Deep Sea Res. Part II Top. Stud. Oceanogr.* **51**(6–9): 875–896. doi:10.1016/j.dsr2.2004.05.011.
- NOAA Fisheries. 2020. String of marine heatwaves continues to dominate Northeast Pacific. Available from <https://www.fisheries.noaa.gov/feature-story/string-marine-heatwaves-continues-dominate-northeast-pacific> [accessed 12 October 2021].
- NOAA Fisheries. 2021. Literature review of climate change impacts on Pacific salmon and steelhead. Available from <https://www.fisheries.noaa.gov/west-coast/climate/literature-review-climate-change-impacts-pacific-salmon-and-steelhead> [accessed 29 November 2021].
- NOAA National Centers for Environmental Information. 2022. Climate at a glance: global time series. Available from https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/global/time-series/globe/land_ocean/12/12/1880-2022 [accessed 29 December 2022].
- NOAA National Weather Service. 2022. El Nino/Southern Oscillation (ENSO) diagnostic discussion, December 8, 2022. Available from https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.shtml [accessed 28 December 2022].
- Ostle, C., and Batten, S. 2022. Lower trophic levels in the Northeast Pacific. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3482. pp. 83–86.
- Patterson, D.A., and Hague, M.J. 2007. Evaluation of long range summer forecasts of lower Fraser River discharge and temperature conditions. *Can. Tech. Rep. Fish. Aquat. Sci.* **2754**: vii + 34. Available

- from <https://science-catalogue.canada.ca/record=4027137~S6>.
- PCIC. 2019. Seasonal Anomaly Maps. Available from <https://www.pacificclimate.org/analysis-tools/seasonal-anomaly-maps> [accessed 10 January 2020].
- Peña, A., and Nemcek, N. 2021. Nutrients and phytoplankton along Line P and West Coast of Vancouver Island. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2020. *Edited by* J.L. Boldt, A. Javorski, and P.C. Chandler. *Can. Tech. Rep. Fish. Aquat. Sci.* 3434. pp. 64–67.
- Perry, I.R., Young, K., Galbraith, M., Chandler, P., Velez-Espino, A., and Baillie, S. 2021. Zooplankton variability in the Strait of Georgia, Canada, and relationships with the marine survivals of Chinook and Coho salmon. *In* PLoS ONE. doi:10.1371/journal.pone.0245941.
- Peterman, R.M., and Dorner, B. 2012. A widespread decrease in productivity of sockeye salmon (*Oncorhynchus nerka*) populations in western North America. *Can. J. Fish. Aquat. Sci.* **69**(8): 1255–1260. doi:10.1139/f2012-063.
- Philip, S.Y., Kew, S.F., Oldenborgh, G.J. Van, Yang, W., Vecchi, G.A., Anslow, F.S., Li, S., Seneviratne, S.I., Luu, L.N., Arrighi, J., Singh, R., Aalst, V., Hauser, M., Schumacher, D.L., Marghidan, C.P., Ebi, K.L., Vautard, R., Tradowsky, J., Coumou, D., Lehner, F., Rodell, C., Stull, R., Howard, R., Gillett, N., and Otto, F.E.L. 2021. Rapid attribution analysis of the extraordinary heatwave on the Pacific Coast of the US and Canada June 2021. Available from <https://www.worldweatherattribution.org/wp-content/uploads/NW-US-extreme-heat-2021-scientific-report-WWA.pdf>.
- Pike, R.G., Redding, T.E., Moore, R.D., Winkler, R.D., and Bladon, K.D. (editors). 2010. Compendium of forest hydrology and geomorphology in British Columbia, Volume 2 of 2. B.C. Min. For. Range, For. Sci. Prog., Victoria, B.C. and FORREX Forum for Research and Extension in Natural Resources, Kamloops, B.C., Land Manag. Handb. 66. pp. 401–806. Available from <https://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh66.htm>.
- Ross, T., and Robert, M. 2018. La Niña and another warm year. *In* State of the Physical, Biological and Selected Fishery Resources of Pacific Canadian Marine Ecosystems in 2017. *Can. Tech. Rep. Fish. Aquat. Sci.* 3225. *Edited by* P.C. Chandler, S.A. King, and J.L. Boldt. pp. 27–32. Available from <https://dfo-mpo.gc.ca/oceans/publications/soto-rceo/2017/index-eng.html>.
- Ross, T., and Robert, M. 2019. Another warm, but almost normal, year in the Northeast Pacific Ocean. *In* State of the Physical, Biological and Selected Fishery Resources of Pacific Canadian Marine Ecosystems in 2018. *Can. Tech. Rep. Fish. Aquat. Sci.* 3314. *Edited by* J.L. Boldt, J. Leonard, and P.C. Chandler. *Can. Tech. Rep. Fish. Aquat. Sci.* 3314. pp. 15–20. Available from <https://dfo-mpo.gc.ca/oceans/publications/soto-rceo/2018/index-eng.html>.
- Ross, T., and Robert, M. 2020. Are marine heatwaves the new normal for the Northeast Pacific Ocean? *In* State of the Physical, Biological and Selected Fishery Resources of Pacific Canadian Marine Ecosystems in 2019. *Can. Tech. Rep. Fish. Aquat. Sci.* 3377. *Edited by* J.L. Boldt, A. Javorski, and P.C. Chandler. pp. 21–25. Available from <https://waves-vagues.dfo-mpo.gc.ca/Library/40884569.pdf>.
- Ross, T., and Robert, M. 2021. Marine heatwave persists despite growing La Niña. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2020. *Edited by* J.L. Boldt, A. Javorski, and P. Chandler. *Can. Tech. Rep. Fish. Aquat. Sci.* 3434. pp. 24–28.
- Ross, T., and Robert, M. 2022. Normal temperatures despite strong cool climate indices and an emerging freshening trend. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. *Can.*

- Tech. Rep. Fish. Aquat. Sci. 3482. pp. 23–30.
- Schindler, D.E., Rogers, D.E., Scheuerell, M.D., and Abrey, C.A. 2005. Effect of changing climate on zooplankton and juvenile sockeye salmon growth in Southwestern Alaska. *Ecology* **86**(1): 198–209. doi:10.1890/03-0408].
- Sopinka, N.M., Middleton, C.T., Patterson, D.A., and Hinch, S.G. 2016. Does maternal captivity of wild, migratory sockeye salmon influence offspring performance? *Hydrobiologia* **779**(1): 1–10. doi:10.1007/s10750-016-2763-1.
- Streicker, J. 2016. Yukon climate change indicators and key findings in 2015. Northern Climate Exchange, Yukon Research Centre, Yukon College, 84 pp. Available from https://www.yukoncollege.yk.ca/sites/default/files/inline-files/Indicator_Report_Final_web.pdf.
- Tierney, K.B., Patterson, D.A., and Kennedy, C.J. 2009. The influence of maternal condition on offspring performance in sockeye salmon *Oncorhynchus nerka*. *J. Fish Biol.* **75**(6): 1244–1257. doi:10.1111/j.1095-8649.2009.02360.x.
- United Nations Environment Programme. 2019. Emissions gap report 2019. UNEP, Nairobi. doi:10.18356/ff6d1a84-en.
- White, T., Wolf, J., Anslow, F., and Werner, A. 2016. Indicators of climate change for British Columbia: update 2016. Victoria, B.C. doi:ISBN 0-7726-4732-1.
- Whitney, C.K., Hinch, S.G., and Patterson, D.A. 2014. Population origin and water temperature affect development timing in embryonic sockeye salmon. *Trans. Am. Fish. Soc.* **143**(5): 1316–1329. doi:10.1080/00028487.2014.935481.
- Young, K., Galbraith, M., Perry, R.I., and Sastra, A. 2021. Zooplankton status and trends in the central and northern Strait of Georgia, 2020. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2020. *Edited by* J.L. Boldt, A. Javorski, and P. Chandler. Can. Tech. Rep. Fish. Aquat. Sci. 3434. pp. 186–190.
- Young, K., Galbraith, M., Sastri, A., and Perry, R.I. 2022. Zooplankton status and trends in the central and northern Strait of Georgia, 2021. *In* State of the physical, biological and selected fishery resources of Pacific Canadian marine ecosystems in 2021. *Edited by* J.L. Boldt, E. Joyce, S. Tucker, and S. Gauthier. Can. Tech. Rep. Fish. Aquat. Sci. 3482. pp. 176–179.

2.3 INDIGENOUS KNOWLEDGE

The term Indigenous knowledge may not be universally used, and other terms such as Indigenous Knowledge Systems, Traditional Knowledge, Traditional Ecological Knowledge, or Aboriginal Traditional Knowledge, which all convey similar concepts, may be used instead.

In 2019, the *Fisheries Act* was amended to include provisions for the where the Minister may or shall consider provided Indigenous knowledge in making decisions pertaining to fisheries, fish and fish habitat. Section 61 of the act ensures this knowledge is protected and can only be provided with consent. There are also provisions under the *Species At Risk Act* (s.10.2, s.15.2,

s.16, s.18.1) that support inclusion of Indigenous knowledge to inform the assessment and protection of species at risk. Likewise, the *Oceans Act* (s.42) allows the Minister to consider Indigenous knowledge in oceans-related decisions.

The Government of Canada and the scientific community acknowledge the need to incorporate Indigenous knowledge in meaningful and respectful ways. Work is underway at a National level to develop processes for how DFO receives Indigenous knowledge and applies it to inform decision-making. Many outstanding questions remain on how to move forward in a way that respects, meaningfully incorporates, and protects the knowledge that may be shared with DFO, to mutual benefit. For example, how to engage knowledge holders, and how to ensure that the knowledge can be shared and considered in a mutually acceptable manner by both knowledge holders and the broader community of First Nations, stakeholders, managers, and policy makers involved in the fisheries. Given the diversity of knowledge and relationships, regional work will involve an iterative process in collaboration with First Nations, Indigenous groups and knowledge holders, to ensure appropriate inclusion and protection of the knowledge provided. The Department is committed to finding a way forward that respects the knowledge and the knowledge holders, and upholds the Principles respecting the Government of Canada's relationship with Indigenous peoples, which are available online at:

<https://www.justice.gc.ca/eng/csj-sjc/principles-principes.html>.

More information on the updates to the *Fisheries Act*: <https://www.dfo-mpo.gc.ca/campaign-campagne/fisheries-act-loi-sur-les-peches/reconciliation-eng.html>

See Sections 2.5, 34.1, and 61.2 in the *Fisheries Act* (2019): <https://laws-lois.justice.gc.ca/eng/acts/f-14/>.

Section 61.2 protections for Indigenous knowledge have also been included in the *Access to Information Act*, Schedule 2: <https://laws-lois.justice.gc.ca/eng/acts/a-1/page-15.html#h-1230>

The *Wild Salmon Policy* (WSP) (2005) and *Wild Salmon Policy Implementation Plan* (2018) both acknowledge the importance of integrating Indigenous Knowledge (IK) and Traditional Ecological Knowledge (TEK) into the strategic planning process. The Department may identify potential partnerships with First Nations organizations to develop an approach for integrating IK into the WSP, particularly in planning initiatives.

The *Species at Risk Act* makes a special reference to the inclusion of Traditional Knowledge in the recovery of species at risk. The Department has developed an operational guidance document for SARA practitioners (*Guidance on Considering Traditional Knowledge in Species at Risk Implementation*, 2011). Indigenous groups have participated in the development and implementation of Interior Fraser River Coho and Cultus Lake Sockeye salmon species management actions.

2.4 STOCK ASSESSMENT

Salmon stock assessment is primarily concerned with providing sound scientific information to inform activities relating to the conservation and management of salmon resources. Stock assessment describes the past and present state of salmon stocks and may provide forecasts of future states. Stock assessment programs contribute information to the fisheries management process, from the initial setting of objectives (and policies) to providing expert advice in the implementation of management plans. Stock assessment information also supports First Nations and Treaty obligations, integrated ocean management planning, development of marine protected areas, protection and recovery of species at risk, and international Treaty obligations and negotiations.

Historically, stock assessment has primarily focused on population dynamics of individual exploited stocks, as well as biological and population processes such as growth, reproduction, recruitment and mortality. As DFO moves to implementation of an ecosystem approach, populations must be considered in a broader context and all activities impacting status, not just fishing, must be considered.

In the Pacific Region, salmon stock assessment advice is provided through the Salmon Assessment Section within each Area (Yukon and Transboundary, North Coast, South Coast, and Fraser and Interior Areas), in conjunction with core Salmon Stock Assessment staff in the Stock Assessment and Research Division of Science Branch. External partners and clients play an increasing role in delivery of stock assessment activities. Some First Nations, recreational and commercial harvesters contribute directly through data collection and reporting. First Nations and community groups conduct field data collection projects. Universities and non-government organizations (NGOs) are active in analytical and peer review processes. Stock assessment staff collaborate with other regional, national and international organizations and conduct numerous cooperative and/or joint programs.

The Salmon Stock Assessment Framework is shaped by the WSP Strategy 1, which specifies requirements for standardized monitoring, status and management predicated on benchmarks. Strategy 1 identifies three elements:

1. WSP Strategy 1 provides a standardized process for organizing Pacific salmon into Conservation Units (CUs), groups of wild salmon living in an area that are sufficiently isolated from other wild salmon such that the area is unlikely to be recolonized naturally in an acceptable period of time if they are extirpated. Scientists have grouped the greater than 9,600 Pacific salmon stocks into just over 450 discreet Conservation Units.

2. DFO has developed criteria to assess CUs and identified a range of metrics for setting upper and lower CU benchmarks of status, dependent on data quality and availability (Holt et al. 2009; Holt et al. 2018). For each metric, lower and upper benchmarks will delimit three status zones of a CU. Management actions will be determined based on a CUs biological status relative to these benchmarks. Management will be focused on conservation measures for CUs in the red zone (i.e. below the lower benchmark), shift to cautionary management in the amber zone (between the lower and upper benchmark), and emphasizes sustainable use in the green zone (i.e., above the upper benchmark).
3. A key requirement of the WSP is ongoing monitoring and assessment of the status of CUs. Monitoring wild salmon status in a cost-effective manner poses a challenge. It is not practical or cost effective to monitor all salmon demes. (A deme, as defined in the WSP, is a term for a local population of organisms of one species that actively interbreed with one another and share a distinct gene pool.) When groups of CUs are exposed to common threats, the approach will be to monitor a subset of these units. Annually, assessment monitoring plans are updated by the Salmon Assessment Coordinating Committee (SACC) based on CU status determination and risks. The CU status will generally determine the frequency and intensity of the assessment effort. For example, when a CU falls within the Red Zone, ongoing annual assessment of its status including fishery and habitat impacts may be required. The SACC is developing a database that describes benchmarks, status, major risk factors, resource management objectives, and assessment requirements. Assessment procedures will build on existing programs and local partnerships.

The vast number of stocks and the complex life cycle of salmon present substantial assessment and management challenges. Stock assessment activities are largely project-based and required on an ongoing basis because populations are dynamic and subject to shifts in productivity and abundance in response to environmental, biological, and human-induced factors. Responsible management requires continual updating of assessment information and advice. Scientists use a variety of techniques to generate estimates and forecasts of abundance (e.g., enumeration of juvenile “recruits”, females or adults on the spawning grounds, tagging and mark recapture studies, etc.). For most species, several methods may be used to generate the estimates and forecasts of abundance.

2.5 SCIENCE INFORMATION SOURCES

The Canadian Science Advisory Secretariat (CSAS) serves as the primary departmental forum for peer review and evaluation of scientific research and literature, including Indigenous

knowledge relating to Pacific salmon. CSAS fosters national standards of excellence and coordinates the peer review of scientific assessments and advice for the DFO in the Pacific region. This review body allows for participation by outside experts, First Nations, fisheries stakeholders and the public. CSAS also coordinates communication of the results of the scientific review and advisory processes.

Additional information about CSAS, the peer review process and meeting schedule, reports on the status of salmon, environmental and ecosystem overviews prior to 2014, and existing research documents are available from CSAS web site:

<http://www.dfo-mpo.gc.ca/csas-sccs/index-eng.htm>

The determination of biological benchmarks and status assessments continued with the Fraser Sockeye Salmon integrated biological status re-assessments ([Grant et al, 2020](#)) and estimates of biological benchmarks for the Canadian-origin Yukon River mainstem Chinook salmon stock aggregate ([DFO 2022/007](#)).

Other recent research projects and Science advice processes include:

1. Recovery Potential Assessments for Sakinaw Lake Sockeye Salmon ([Ramshaw et al, 2019](#)), Interior Fraser Coho ([Arbeider et al, 2020](#)), Okanagan Chinook Salmon ([Mahony et al 2021](#)), Fraser River Sockeye Salmon ([Huang et al 2021](#)), Fraser River Chinook Salmon, Part 1 ([Doutaz et al, 2021](#)), Fraser River Chinook Salmon, Part 2 ([Weir et all, 2022](#)), and Cultus Lake Sockeye Salmon ([Selbie et al, 2022](#))
2. Pre-COSEWIC review of southern British Columbia Chinook Salmon (*Oncorhynchus tshawytscha*) conservation units, Part I: Background ([Brown et al, 2019](#))
3. Estimates of a Biologically-Based Spawning Goal and Management Benchmarks for the Canadian-Origin Taku River Sockeye Salmon Stock Aggregate ([Miller, S. E., and Pestal, G. 2020](#))
4. Methodologies and Guidelines for Defining Limit Reference Points for Pacific Salmon ([DFO 2022 \(030\)](#))

Annually, DFO provides a qualitative outlook of status for salmon management, the Salmon Outlook, for planning purposes prior to formal forecasts of abundance. The Salmon Outlook for the current year is available in Appendix 9.

The number of salmon returning to spawn in a river, called “escapement”, has long been an important stock assessment measure of abundance. Salmon escapement data are now available

from the Government of Canada Open Data portal at:

<http://open.canada.ca/data/en/dataset/c48669a3-045b-400d-b730-48aafe8c5ee6>

References

Grant, S.C.H., Holt, C.A., Pestal, G., Davis, B.M. and MacDonald, B.L. 2020. The 2017 Fraser Sockeye Salmon (*Oncorhynchus nerka*) Integrated Biological Status Re-Assessments Under the Wild Salmon Policy Using Standardized Metrics and Expert Judgment. DFO Can. Sci. Advis. Sec. Res. Doc. 2020/035. vii + 211 p

DFO. 2022. Estimates of Biological Benchmarks for the Canadian-Origin Yukon River Mainstem Chinook Salmon Stock Aggregate. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2022/007.

Ramshaw, B., Luedke, W, and Korman, J. 2019. Recovery Potential Assessment for the Sakinaw Lake Sockeye Salmon (*Oncorhynchus nerka*) (2017). DFO Can. Sci. Advis. Sec. Res. Doc. 2019/027. ix + 99 p.

Arbeider, M., Ritchie, L., Braun, D., Jenewein, B., Rickards, K., Dionne, K., Holt, C., Labelle, M., Nicklin, P., Mozin, P., Grant, P., Parken, C., and Bailey, R. 2020. Interior Fraser Coho Salmon Recovery Potential Assessment. DFO Can. Sci. Advis. Sec. Res. Doc. 2020/025. xi + 211 p.

Mahony, A., Challenger, W., Robichaud, D., Wright, H., Bussanich, R., Sharma, R., and Enns, J. 2021. Recovery Potential Assessment for the Okanagan Chinook Salmon (*Oncorhynchus tshawytscha*) (2019). DFO Can. Sci. Advis. Sec. Res. Doc. 2021/009. ix + 106 p.

Huang, A-M., Pestal, G., Guthrie, I. 2021. Recovery Potential Assessment for Fraser River Sockeye Salmon (*Oncorhynchus nerka*) – Nine Designatable Units: Probability of Achieving Recovery Targets - Elements 12, 13, 15, 19-22. DFO Can. Sci. Advis. Sec. Res. Doc. 2021/043. x + 96.

Doutaz, D., Weir, L., Arbeider, M., Braun, D., Jenewein, B., Rickards, K., Labelle, M., Curtis, S., Mozin, P., Whitney, C., Parken, C. and Bailey, R. 2021. Recovery Potential Assessment for 11 Designatable Units of Fraser River Chinook Salmon, *Oncorhynchus tshawytscha*, Part 1: Elements 1 to 11. DFO Can. Sci. Advis. Sec. Res. Doc. 2021/063. xiii + 337 p

Weir, L., Doutaz, D., Arbeider, M., Holt, K., Davis, B., Wor, C., Jenewein, B., Dionne, K., Labelle, M., Parken, C., Bailey, R., Velez-Espino, A., Holt, C. 2022. Recovery Potential Assessment for 11 Designatable Units of Chinook Salmon, *Oncorhynchus tshawytscha*, Part 2: Elements 12 to 22. DFO Can. Sci. Advis. Sec. Res. Doc. 2022/032. x + 125 p

Selbie, D.T., Korman, J., Pon, L.B., Bradford, M.J. 2022. Recovery Potential Assessment for the Endangered Cultus Lake Sockeye Salmon (*Oncorhynchus Nerka*) (2019). DFO Can. Sci. Advis. Sec. Res. Doc. 2022/051. vii + 99 p.

Brown, G.S., Baillie, S.J., Thiess, M.E., Bailey, R.E., Candy, J.R., Parken, C.K., and Willis, D.M. 2019. Pre-COSEWIC review of southern British Columbia Chinook Salmon (*Oncorhynchus tshawytscha*) conservation units, Part I: Background. DFO Can. Sci. Advis. Sec. Res. Doc. 2019/011. vii + 67 p.

Miller, S. E., and Pestal, G. 2020. Estimates of a Biologically-Based Spawning Goal and Management Benchmarks for the Canadian-Origin Taku River Sockeye Salmon Stock Aggregate. DFO Can. Sci. Advis. Sec. Res. Doc. 2020/035. vii + 73 p

DFO. 2022. Methodologies and Guidelines for Defining Limit Reference Points for Pacific Salmon. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2022/030. (Erratum: December 2022)

2.6 PRECAUTIONARY APPROACH

Generally, science advice to fisheries management considers data quality and incorporates uncertainty (i.e. stock status forecasts presented as a statistical distribution rather than point estimate). WSP benchmarks of biological status will inform the development of a precautionary approach to management of salmon resources. Decisions on recovery and fisheries objectives will be made as part of the Strategic Planning Process described under WSP Strategy 4. To date benchmarks have been reviewed for Southern BC Chinook, Interior Fraser River, Georgia Strait Mainland, East Vancouver Island Coho, and Fraser Sockeye CUs. Until benchmarks are determined for each CU, DFO must rely on indicators of status and existing species- and stock-specific constraints established for escapement goals and harvest rates by domestic and international (e.g. Pacific Salmon Treaty) processes.

2.7 SHARED STEWARDSHIP

In the context of fisheries management, stewardship is often considered in terms of “shared stewardship,” whereby First Nations, fishery participants, and other interests are effectively involved in fisheries management decision-making processes at appropriate levels, contributing specialized knowledge and experience, and sharing in accountability for outcomes.

Moving toward shared stewardship is a strategic priority for DFO. This is reflected in a number of policies and initiatives, including the *Wild Salmon Policy* (WSP), the Resource Management Sustainable Fisheries Framework (SFF), Pacific Fisheries Reform, Aboriginal Aquatic Resource and Oceans Management (AAROM) Program, and the Aboriginal Fisheries Strategy (AFS).

DFO is advancing shared stewardship by promoting collaboration, participatory decision-making, and shared responsibility and accountability with resource users and others.

Essentially, shared stewardship means that those involved in fisheries management work cooperatively in inclusive, transparent, and stable processes, to achieve conservation and management goals.

2.8 RESEARCH

An overview of the science & research in the Pacific region is available on the regional website:

<http://www.pac.dfo-mpo.gc.ca/science/index-eng.html>

Current research projects on salmon and environmental and human induced factors affecting their status include:

- Climate change impacts on Pacific salmon are being investigated by multiple sectors within DFO and in collaboration with external partners. In 2011, DFO implemented a science-based climate change program focused on adaptation in decisions and activities to consider the vulnerabilities, risks, impacts, and opportunities associated with a changing climate.
<https://www.dfo-mpo.gc.ca/science/oceanography-oceanographie/index-eng.html>
- An example of this work is the Aquatic Climate Change Adaptation Services Program (ACCASP) which has an emphasis on the development of new science knowledge to support the development of adaptation tools and strategies that will enable the integration of climate change considerations into the delivery of the Department's programs and policies. More information on this program is available at:
<http://www.dfo-mpo.gc.ca/science/rp-pr/accasp-psaccma/index-eng.html>
- State of Salmon Program (SOS): this program integrates information on Pacific salmon (abundance, productivity, size, fecundity, run timing, etc.) and their freshwater and marine ecosystems (water temperatures, river discharge, ocean upwelling, etc.) to understand the state of Pacific salmon, and the factors that contribute to these states. Collaboration across DFO Science, DFO Areas, and other Sectors is foundational to this program.
- Salmon in Regional Ecosystems (SIRE) program investigates the mechanisms controlling recruitment variations and changes in productive capacity of salmon stocks within freshwater and/or marine ecosystems.
- Ongoing research related to improving forecasting ability for salmon stocks and CUs is being conducted by DFO Stock Assessment and the Fisheries & Oceanography Working Group. The annual State of the Pacific Ocean Reports was published by the Canadian Science Advisory Secretariat (CSAS) until 2012. Recent reports are available at:
<http://www.dfo-mpo.gc.ca/oceans/publications/index-eng.html>.

- The Fraser River Environmental Watch program provides scientific advice on the impact of different environmental factors on the migration success of Pacific salmon in fresh water.
<http://www.pac.dfo-mpo.gc.ca/science/habitat/frw-rfo/index-eng.html>
- DFO scientists are studying salmon production, distribution and survival in the North Pacific Ocean including the Salish Sea, and developing leading indicators of salmon returns in collaboration with other organizations, including the North Pacific Anadromous Fisheries Commission (NPAFC), the Pacific Salmon Commission (PSC), and the Pacific Salmon Foundation (PSF) .
- Annual juvenile salmon surveys monitor the distribution, migration, and survival of salmon in their freshwater and early marine life history.
- Ongoing collaborative research between DFO and aquaculture industry to investigate the interactions between wild and cultured salmon through the Program for [Aquaculture Regulatory Research](#) (PARR) and [Aquaculture Collaborative Research and Development Program](#) (ACRDP)
- Ongoing development of quantitative tools to inform rebuilding plans for depleted (red-status) CUs given climate/oceanographic change and variability and constraints from mixed-CU fisheries.

3 STEWARDSHIP, CO-MANAGEMENT, CONSULTATION AND ADVISORY BOARDS

Stewardship refers to the care, supervision or management of something, especially the careful and responsible management of something entrusted to one's care.¹

¹As defined in the Atlantic Fisheries Policy Review (AFPR):

<https://www.dfo-mpo.gc.ca/reports-rapports/regs/afpr-rppa/framework-cadre-eng.htm#toc6>

3.1 PACIFIC SALMON TREATY

In March 1985, the United States and Canada agreed to co-operate in the management, research and enhancement of Pacific salmon stocks of mutual concern by ratifying the Pacific Salmon Treaty (PST). The PST includes several “fishing chapters” contained in Annex IV which set out the specific conservation and harvest sharing (allocation) arrangements for migratory salmon stocks subject to the Treaty. These chapters are critical to the functioning of the Treaty and are periodically renegotiated by the Parties, normally on a 10-year cycle. The bilateral Pacific Salmon Commission (PSC), established under the Pacific Salmon Treaty, consists of four Commissioners and four Alternates from each country, and supported by several bilateral panels and technical committees. The PSC provides regulatory and policy advice as well as recommendations to the Governments of Canada and the United States (U.S.) with respect to interception salmon fisheries. Under the terms of the Treaty, the responsibility for in-season management of all species rests with the Parties to the agreement. One exception is the in-season management of Fraser River Sockeye and Pink salmon which is specifically delegated to the Fraser River Panel with support from the Pacific Salmon Commission Secretariat staff.

Coded-wire tag (CWT) data are essential to the management of Chinook and Coho salmon stocks under the Pacific Salmon Treaty. On August 13, 1985, the U.S. and Canada entered into a Memorandum of Understanding in which “the Parties agree to maintain a coded-wire tagging and recapture program designed to provide statistically reliable data for stock assessments and fishery evaluations”. Both countries recognize the importance of the coded-wire tag program to provide the data required to evaluate the effectiveness of bilateral conservation and fishing agreements. In addition, alternatives to CWT data have been explored by the PSC, including the feasibility of parentage-based genetic tagging.

In August 2018, the PSC recommended new provisions under Annex IV of the PST to the Governments of Canada and the U.S. for review and ratification. Both governments agreed to the provisional application of the new agreements as of January 1, 2019 while the ratification process was completed. Effective May 3, 2019, the Annex IV amendments came fully into force

through the exchange of diplomatic notes between Canada and the U.S., and will remain in place for 10 years.

The renewed chapters are: Chapter 1 (Transboundary Rivers), Chapter 2 (Northern British Columbia and Southeast Alaska), Chapter 3 (Chinook), Chapter 5 (Coho) and Chapter 6 (Chum). Chapter 7 (General Obligations) does not have an expiry date; however, the PSC recommended minor updates to “Attachment E” containing general provisions on salmon habitat.

Chapter 4 (Fraser River Sockeye and Pink) expired on December 31, 2019. The negotiating team, made up of Canadian and U.S. representatives on the PSC’s Fraser River Panel, met regularly between November 2018 and February 2019 to discuss proposed amendments to Chapter 4. In February 2019, agreement-in-principle was reached and the proposed amendments were referred to the Governments of Canada and the U.S. for review and ratification. Both governments agreed to the provisional application of the amendments as of January 1, 2020 while the ratification process was completed in February 2021. The new amendments will remain in place for 9 years, bringing Chapter 4 into alignment with the five other fishing Chapters under the PST.

In addition to direct involvement and representation in the PSC process, the Department consulted extensively with First Nations and stakeholders leading up to, and throughout, the negotiations. Moving forward, DFO will continue to schedule consultation sessions and meetings, as needed, to identify, discuss, and help mitigate potential concerns regarding the agreement.

Key elements from the renewed chapters, under Annex IV, are identified, below:

Chapter 2 (Northern Boundary): Covers marine fisheries for Sockeye, Pink and Chum stocks in Northern B.C. and Southeast Alaska, including the Nass and Skeena rivers. The new chapter includes a joint technical review of escapement goals for Nass River and Skeena River Sockeye, new management measures in Alaska to reduce harvest impacts on Canadian Nass and Skeena Sockeye in years of low abundance, a joint technical review of the impacts of the Alaskan District 4 Pink salmon fishery on Skeena and Nass Sockeye abundances, and a joint review of the effectiveness of the new chapter after five years (to inform a decision by the Commission as to whether further changes may be required for the balance of the regime). This chapter along with Chapter 3 (Chinook) and Chapter 5 (Coho), govern fisheries covered in the North Coast Salmon Integrated Fisheries Management Plan.

Chapter 3 (Chinook Salmon): Provides a framework for bilateral conservation and coordination of Chinook fisheries coastwide from Oregon to Alaska. In response to conservation concerns for Chinook in both countries, several changes were made to the chapter,

including: targeted harvest reductions in both Canadian and U.S. fisheries; adoption of a new metric to manage and evaluate performance in specific Canadian and U.S. individual stock-based management or “inside” fisheries (the calendar year exploitation rate); a renewed commitment (and investment) in the coastwide stock assessment program for Chinook (including the Coded-Wire Tag program); a 10-year Catch and Escapement Indicator Improvement program to provide more robust and timely information for managing Chinook; and, enhanced fishery monitoring.

The harvest reductions are:

- For the U.S., up to a 7.5 per cent reduction in the Southeast Alaska aggregate abundance-based management or “outside, mixed-stock” fishery, as well as reductions of up to 15 per cent from 2009-2015 harvest levels for individual stocks in Washington and Oregon individual stock-based management fisheries.
- For Canada, up to a 12.5 per cent reduction in the West Coast Vancouver Island aggregate abundance-based management fishery and reductions of up to 12.5 per cent from 2009-2015 levels in Canadian individual stock-based management fisheries.

Chapter 4 (Fraser River Sockeye and Pink Salmon): The 2019 amendments are largely operational in nature designed to ensure the long-term sustainability of Fraser River Sockeye and Pink salmon stocks while supporting an economically viable fishing industry on both sides of the Canada-U.S. border. Key adjustments to the Chapter allow for the Panel to make management decisions considering sub-components of the four Fraser River Sockeye management groups, which provides greater flexibility to address stock-specific conservation or harvest objectives, the maintenance of Canada’s share of Fraser River Sockeye and Pink salmon, and the ability of the Panel to consider both the Sockeye and Pink salmon Total Allowable Catch throughout the season for best use of the fisheries resource. Other changes include new language that enables Canada to identify concerns, if they arise, regarding incidental catches of Fraser River Sockeye in Alaska as well as updates to how the Aboriginal Fisheries Exemption is distributed across the Sockeye management groups.

Chapter 5 (Coho Salmon, Southern BC and Washington State): Addresses two geographically defined groupings of Coho salmon stocks originating from British Columbia, Washington, and Oregon. For northern-origin stocks (those originating from waters between Cape Caution (in north-central BC) and Cape Suckling (in southeast Alaska), the Northern Panel’s Technical Committee (Coho sub-Committee) presented an updated state of knowledge report to the bilateral Northern Panel in 2021. This report primarily identified the need for increased assessment programs in the North Coast Area for Coho. The updated information gained from

both the state of knowledge report and ongoing assessment programs will be used to inform the Parties regarding future management actions or recommended conservation measures.

For southern-origin stocks (those origination from Treaty-area waters south of Cape Caution), changes to the chapter implemented in 2019 include the amalgamation of two southern Canadian Coho management units into a single Strait of Georgia management unit, a commitment to implement the status-based management approach for southern Canadian management units (i.e., classification of Canadian Coho management units as low, moderate or abundant) based on the status determination methodology developed for Interior Fraser River Coho, and a commitment to address uncertainties caused by data limitations and variation in environmental conditions.

Chapter 6 (Chum Salmon, Southern BC and Washington State): Covers Chum salmon stocks in Southern B.C. and Washington. The revised chapter includes new management thresholds (“breakpoints”) for Canadian Fraser River Chum stocks, lower U.S. catch ceilings in years of moderate abundance for Fraser Chum and higher catch ceilings in years of high abundance, and new requirements related to stock assessment and escapement monitoring to inform decision-making.

3.2 SALMONID ENHANCEMENT PROGRAM

The Salmonid Enhancement Program (SEP) produces Pacific salmon at enhancement facilities, restores habitat, and undertakes projects that include public participation by local communities and First Nations in fisheries and watershed stewardship activities. Enhanced salmon enable economic, social and cultural harvest opportunities for commercial, recreational and First Nations harvesters, support vulnerable stock rebuilding, and contribute to Canada's stock assessment commitments under the Pacific Salmon Treaty with the United States. Projects with community partners include stewardship activities and the development of integrated local and area watershed plans. SEP also supports school education and public awareness projects.

With respect to projects that undertake fish culture, about 170 projects release fish annually from sites throughout British Columbia and the Yukon. Projects range in size from spawning channels releasing nearly 100 million juveniles annually to school classroom incubators releasing fewer than one hundred juveniles. SEP enhances Chinook, Coho, Chum, Pink, and Sockeye salmon, as well as small numbers of Steelhead and Cutthroat trout. Project types include hatcheries, fishways, spawning and rearing channels, habitat improvements, flow control works, lake fertilization, and small classroom incubators. Projects are operated by DFO staff or by First Nations and community and volunteer groups through partnership with SEP.

The hatchery component of the program is delivered through two components:

- Major Operations (OPS) SEP facilities that produce fish through hatcheries and spawning channels and are operated by DFO;
- The Community Involvement Program (CIP), which includes both Community Economic Development Program (CEDP) projects that operate under contribution agreements with SEP, and volunteer-run Public Involvement Program (PIP) projects. All are operated by First Nations or public/community groups in partnership with DFO and with technical support provided by SEP. The majority of PIPs are smaller projects that focus on outreach, stewardship and educational activities, and do not produce large numbers of fish.

All fish production is subject to the *Pacific Aquaculture Regulations* (PAR) under the *Fisheries Act*. PAR licences for SEP and SEP-licensed facilities establish the maximum numbers of eggs to be collected and juveniles to be released for each enhanced system, using strategies that will produce the number of adults desired to meet specific objectives while considering species interactions, effects on existing stocks, harvest, habitat capacity, project capacity and overall salmon CU objectives.

The information available at the link below outlines production from DFO and DFO-partnered hatcheries. There are three datasets available:

- Post-Season Production from the 2020 brood year (i.e. 2021 and 2022 releases)
- Post-Season Production from the 2021 brood year (i.e. 2022 releases and numbers on hand for 2023 release)
- Final 2023 SEP Production Plan which includes targets for the 2023 brood year.

[IFMP SEP Data Tables | Pacific Region | Fisheries and Oceans Canada \(dfo-mpo.gc.ca\)](https://www.dfo-mpo.gc.ca/fisheries/fisheries/sep/sep_data_tables/pacific_region/)

Significant production adjustment proposals for 2023 are incorporated into the *Enhancement Information* in each Species Overview of the Section 13 Fishing Plans.

3.3 FISHERIES ACT: FISH STOCKS PROVISIONS

Amendments to the *Fisheries Act* (Bill C-68) were passed into legislation in 2019. The *Fishery (General) Regulations* were amended on April 4, 2022 and include requirements to maintain major fish stocks at sustainable levels, and develop and implement rebuilding plans for stocks that have declined to their critical zone. The amended regulation can be found here:

<https://www.gazette.gc.ca/rp-pr/p2/2022/2022-04-13/html/sor-dors73-eng.html>

Three major stocks of Pacific Salmon were prescribed in regulation: West Coast Vancouver Island (WCVI) Chinook, Interior Fraser Coho, and Okanagan Chinook. As per Section 6.2 (1) of the *Fisheries Act*, “if a major fish stock has declined to or below its limit reference point (LRP),

the Minister shall develop a plan to rebuild the stock above that point in the affected area.” Okanagan Chinook and WCVI Chinook are expected to be below their LRP and therefore subject to the fish stocks provisions and require rebuilding plans. Information on the requirements for rebuilding plans is available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precautionary-precaution-eng.htm>

3.4 CONSULTATION

In Pacific Region, DFO consults with and engages First Nations and other interest groups through a wide range of processes. For salmon, the focal point for DFO’s engagement with First Nations, the harvest sectors and environmental interests is around the development and implementation of the annual IFMP.

The Crown has a legal duty to consult and if appropriate, accommodate, when the Crown contemplates conduct that might adversely impact section 35 rights (established or potential) ([Government of Canada and the duty to consult](#)). In addition to the legal duty, consultation supports good governance, sound policy and effective decision making.

In addition, Canada is committed to implementing the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and recognizes the right of Indigenous peoples to participate in decision-making in matters that affect their rights through their own representative institutions and the need to consult and cooperate in good faith with the aim of securing their free, prior, and informed consent.

Canada is guided by the [Principles respecting the Government of Canada's relationship with Indigenous peoples \(justice.gc.ca\)](#) in the consultation and engagement it does with Indigenous peoples. Consultation and engagement with First Nations takes place at a number of levels and through a variety of processes. A significant amount of consultation and dialogue takes place through direct, bilateral meetings between DFO and First Nations at a local level. This can include specific engagement on the draft IFMP or other issues throughout the year. For Treaty Nations, consistent with the Cabinet Directive on the Federal Approach to Modern Treaty Implementation, DFO consults on a broad suite of fish and fishery related items, including shared stewardship arrangements, through formal processes such as Joint Fisheries Committees or Joint Fisheries Management Committees. In addition to consultations at the local level, DFO works with First Nations at the aggregate or watershed level.

3.5 CANADA AND FIRST NATIONS COLLABORATIVE GOVERNANCE

3.5.1 CANADA AND FIRST NATION TREATIES AND RECONCILIATION AGREEMENTS

Collaborative governance between the Government of Canada and Indigenous Peoples can be achieved several ways. Modern treaties provide the structural parameters by which the parties (the First Nation(s), Canada, and the Province) can develop a collaborative governance process. Under each Final Agreement, a Joint Fisheries Committee (JFC) is appointed to provide guidance, make recommendations, and delegate subcommittees to review technical and operational fisheries information to support collaborative governance and treaty implementation. The JFC can also examine ways to build upon and improve the relationships and collaboration among the parties. Further information on treaties can be found under Section 10.4. In addition to negotiating treaties, the Government of Canada and Indigenous peoples can also negotiate Recognition of Indigenous Rights and Self-Determination (RIRSD) agreements, to explore new ways of working together to advance the recognition of Indigenous rights and self-determination. These agreements are led by Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). DFO can also negotiate Fisheries Resources Reconciliation Agreements directly with First Nations to enhance First Nations and DFO collaborative governance and management on fisheries, marine and aquatic matters. Further information on RIRSD and Fisheries Resources Reconciliation Agreements in Section 10.4.

3.6 ADVISORY COMMITTEES AND BOARDS

3.6.1 SALMON COORDINATING COMMITTEE

The First Nations Salmon Coordinating Committee (SCC) facilitates dialogue between First Nations and DFO. First Nations representatives from 13 geographical areas within the Pacific Region meet with DFO resource management to discuss priority issues among BC First Nations as they relate to salmon. SCC priorities include advancing Indigenous fisheries; building First Nations capacity and fisheries governance; and advising on salmon conservation and rebuilding; and the sustainability of pacific salmon fisheries concerns.

3.6.2 INTEGRATED HARVEST PLANNING COMMITTEE

At a broad, Province-wide level, the Integrated Harvest Planning Committee (IHPC) was developed to bring together First Nations, commercial and recreational harvesters, and environmental interest groups to review and provide input on the IFMP, as well as coordinate

fishing plans and (where possible) resolve potential issues between the sectors. The IHPC also meets post-season to review information regarding stocks and fisheries and implementation of the IFMP. The current IHPC advisory membership list is located in Appendix 5.

In addition to integrated dialogue through the IHPC, the Department also works directly with the commercial and recreational sectors, largely through the Commercial Salmon Advisory Board (CSAB) and Sport Fishing Advisory Board (SFAB), respectively. The Department also consults with the Pacific Marine Conservation Caucus, an umbrella group representing nine core environment groups (<http://www.mccpacific.org/>).

3.6.3 COMMERCIAL SALMON ADVISORY BOARD

The Commercial Salmon Advisory Board (CSAB) consists of two representatives from each Area Harvest Committee (Area A-H), as well as representatives from the Native Brotherhood of BC (2), the processing sector (2), and the UFAWU (2). The CSAB serves as the consultative body on issues that affect commercial salmon fisheries. Two representatives from each area are nominated to sit on the DFO Integrated Harvest Planning Committee. The current CSAB members list is available at: <https://www.pac.dfo-mpo.gc.ca/consultation/smon/csab-ccpcs/membs-eng.html>

3.6.3.1 AREA HARVEST COMMITTEES

Area Harvest Committees (AHC) consist of representatives nominated and elected by salmon licence eligibility holders. Elections are normally held every year where half of the board will be up for re-election. AHCs provide pre-season and in-season advice and recommendations on fishing related matters to DFO as appropriate to the area and gear type. Two representatives from the AHC are elected to represent the interests of the specific area and gear type on the CSAB. The current AHC members list is available at: <https://www.pac.dfo-mpo.gc.ca/consultation/smon/csab-ccpcs/ahc-ces-membs-eng.html>

3.6.4 SPORT FISHING ADVISORY BOARD

The Sport Fishing Advisory Board has been an advisory body to Fisheries and Oceans Canada (DFO) on recreational issues since 1964. The Board's role is to provide advice and make recommendations to DFO on matters affecting tidal waters fisheries and non-tidal anadromous fisheries and in tidal waters on matters affecting all species and forms of recreational fishing. A terms of reference for this board is available at:

<https://www.pac.dfo-mpo.gc.ca/consultation/smon/sfab-ccps/index-eng.html>

4 ECONOMIC, SOCIAL AND CULTURAL IMPORTANCE

The intent of this section is to provide a socio-economic overview of the salmon fisheries in British Columbia using available information. In future years, information on the social and cultural context of the various fisheries can be added, where available. This summary addresses salmon in the context of the Indigenous food, social, and ceremonial fishery, the recreational fishery, and commercial fishery (harvest, processing and export activity including that generated by the Indigenous communal commercial fishery). This section does not provide measures of economic value (i.e. consumer and producer surplus). DFO recognizes the unique values of each of the fisheries described here. The overview provided in this profile is intended to help build a common understanding of the socio-economic dimensions of each fishery rather than compare the fisheries. Where possible this summary highlights information specific to the North Coast.

4.1 INDIGENOUS FISHERIES

Fisheries and Oceans Canada recognizes that the following section does not reflect Indigenous perspectives on the economic, social, cultural, educational and health importance of salmon fisheries and their management to First Nations, and is considering how Indigenous perspectives may be better reflected in future Integrated Fisheries Management Plans for salmon. In the interim, further information on the importance of salmon to Indigenous communities can be found in a Special Report to the Pacific Salmon Commission *The Sociocultural Significance of Pacific Salmon to Tribes and First Nations* (<https://www.psc.org/news-announcements/sociocultural-significance-of-salmon-to-tribes-and-first-nations/>).

Section 35(1) of the *Constitution Act*, recognizes and affirms the existing Indigenous and Treaty rights of the Indigenous Peoples in Canada, however it does not specify the nature or content of the rights that are protected. In 1990, the Supreme Court of Canada issued a landmark ruling in the Sparrow decision. This decision found that the Musqueam First Nation has an Indigenous right to fish for food, social and ceremonial (FSC) purposes. The Supreme Court found that where an Indigenous group has a right to fish for FSC purposes, it takes priority, after conservation, over other uses of the resource. The Supreme Court also indicated the duty to consult with Indigenous Peoples when their fishing rights might be affected.

The Aboriginal Fisheries Strategy (AFS) was implemented in 1992 to address several objectives related to First Nations and their access to the resource. These included:

- To provide a framework for the management of fishing by Indigenous groups for food, social and ceremonial purposes.
- To provide Indigenous groups with opportunities and increased capacity to participate in the management of fisheries, thereby improving conservation, management and enhancement of the resource.
- To contribute to the economic self-sufficiency of Indigenous communities.
- To provide a foundation for the development of self-government agreements and treaties.

In the region in 2020/21, there were approximately 85 AFS agreements. AFS fisheries agreements may identify the amounts of species including salmon that may be fished for FSC purposes, terms and conditions that will be included in the communal fishing licence and fisheries management arrangements. AFS continues to be one of the principal mechanisms – in addition to Treaties and reconciliation agreements - to support the development of relationships with First Nations including the consultation, planning and implementation of fisheries, and the development of capacity to undertake fisheries management, stock assessment, enhancement and habitat protection programs. Additional information on AFS implementation for FSC, including harvest target amounts for North Coast are provided in Section 10.2.

Fisheries chapters in modern treaties may articulate a treaty fishing right for domestic purposes that are protected under Section 35 of the *Constitution Act*, 1982. Negotiated through a side agreement, some modern treaty First Nations have been provided commercial access either through the general commercial fishery or a Harvest Agreement outside of the constitutionally protected treaty.

There are four modern treaties in British Columbia, which all have fisheries chapters: Nisga'a Final Agreement, Tsawwassen First Nation Final Agreement, Maa-nulth First Nations Final Agreement, and Tla'amin (Sliammon) Nation Final Agreement. Further information can be found in Section 1.5.

Modern treaty Nations each develop their own unique strategic fisheries objectives. Feedback provided to-date is not exhaustive or complete, but suggests some First Nations economic priorities may include:

- New and continued commercial licence acquisition and access to fisheries.
- Fulsome opportunities for community members to participate in activities in support of commercial fishing opportunities within treaty defined areas, including employment, contracting, training, and education.

- Opportunities for employment and contracts to conduct scientific monitoring, enforcement, and compliance activities.

In addition to modern-day treaties, there are historic treaties in British Columbia: [Douglas Treaties](#) (1850-1852), and [Treaty 8](#) (1899).

4.1.1 ECONOMIC VALUE

In terms of Indigenous commercial harvest opportunities, the Department's general approach is that Indigenous commercial harvest opportunities are managed using the same harvest decision guidelines as the commercial fishery. Indigenous commercial harvest opportunities may be implemented with different times, areas, gears and regulations consistent with the overall management approach for the commercial fishery. The landings and value attributable to Indigenous commercial harvest are included in the values reported for the commercial sector above and this includes inland fisheries. Participation in the commercial salmon fishery provides socio-economic benefits to Indigenous communities and individuals from fishery revenues and employment-generated income.

Indigenous participation within the Indigenous commercial salmon fishery occurs under three licence categories (A, NAG, and FA). Within the category A licence eligibilities, there are full fee and reduced fee licence eligibilities. Reduced fee licence eligibilities are where an Indigenous individual has elected to pay a reduced licence renewal fee for the salmon licence eligibility. Reduced fee licence eligibilities may only be held on a vessel that is owned by an Indigenous individual. Since 2005, an average of 14% of commercial licences in the North Coast have been reduced-fee licences, while the coast-wide average is 11%. Categories NAG and FA licence eligibilities provide similar fishing privileges as category A licence eligibilities, but may not be nominated to another party and are intended to be held for the benefit of the recipient First Nations communities. Both licence categories allow Indigenous communities to designate a vessel to carry out the fishing. The Northern Native Fishing Corporation holds 254 gillnet licences (Category NAG), of which 61 are in the South Coast.

Since 1994, DFO has obtained a total of 492 commercial salmon fishing licence eligibilities through a voluntary relinquishment process. Once obtained by DFO, licence eligibilities are converted to communal commercial (category FA) licence eligibilities and used to support various Indigenous programs and initiatives including the Aboriginal Fisheries Strategy (AFS, see section 10.3), the Allocation Transfer Program (ATP), the Pacific Integrated Commercial Fisheries Initiative (PICFI), First Nations Inland Demonstration Fisheries projects, Economic Opportunity Fishery arrangements and treaties. As of January 2022, 144 communal commercial salmon licence eligibilities were issued to First Nations under the AFS and ATP, 46 were issued under PICFI, 257 were used to offset First Nations demonstration fisheries projects and

Economic Opportunity fishery arrangements with First Nations in the lower Fraser, Somass, Skeena and Nass Rivers, and 33 were used for treaties or other contingencies.

Tsawwassen and Maa-nulth First Nations Treaties came into effect on April 3, 2009 and April 1, 2011, respectively. Most recently, the Tla'amin First Nation's Treaty came into effect on April 5, 2016. For additional information please see Section 10.1.

4.2 RECREATIONAL FISHERY

Recreational fishing for salmon occurs to provide food for personal use, as a leisure activity, or as a combination of the two. These activities provide non-quantifiable benefits to the individual participants as well as contribute directly and indirectly to the economy through fishery related expenditures. This section focuses on economic activity rather than the economic benefits to individual anglers or businesses. Catch levels in the recreational fishery are managed using area specific openings and retention levels.

In the most recent Survey of Recreational Fishing in Canada (2015), tidal water recreational fishing led to nearly \$650 million dollars (2021\$) in expenditures and major purchases in British Columbia. Recreational fishing effort directed toward salmon accounted for an estimated 64% of all angler expenditures, or \$413 million.¹ Of these, \$317 million was spent in Southern BC (Johnstone Strait, Georgia Strait, Barkley Sound, and West Coast Vancouver Island).

However, due to conservation related fishery management measures, the 2019 fishing season experienced significant restrictions which would have lowered participation, catches, and expenditures. In addition to these conservation related management measures, the 2020 season was also significantly impacted by travel restrictions and a downturn in the economy related to the coronavirus pandemic. Similar effects could be expected to have extended into the 2021 and 2022 seasons. Even if BC residents were less likely to be impacted by travel restrictions, it would be reasonable to expect a reduction in their anglings days, distance they traveled to fish, and in their total investments and purchases related to recreational fishing. BC residents make up a majority of active anglers and days fished and are responsible for most of the expenditures generated in the sector. However, sport fishers from outside BC spend more on fishing trip packages and make up an important client base for lodges and charter operations.

In order to fish for salmon recreationally an angler must purchase either a tidal or a freshwater licence. Further, in order to keep this catch the licence must have an attached Pacific Salmon Foundation Salmon Conservation Stamp. The number of licences and stamps that can be sold is

¹ DFO Internal Analysis; note that values paid for final goods (such as angler expenditures on fishing trips) should not be considered measures of economic impact of a sector.

not restricted and is one way to highlight the level of participation of angler groups in the fishery. Licence data show that the total number of licences and salmon stamps sold was relatively stable from 2001 to 2008 (Figure 4-1, below). Starting in 2008, there were consecutive drops in sales of licences specifically to non-residents (i.e. anglers that did not reside in BC). Some of the drop was made up by increased sales to residents and the number of licences sold remained relatively steady at the lower level until 2013/14. Sharp increases in the sale of licences to both residents and non-residents in the 2014/15 season resulted in one of the largest annual licence sales in at least 14 years. Since then, annual licence sales remained relatively steady at this higher level, with a minor drop in 2019 potentially driven in part by management restrictions put in place due to conservation related fishery management measures. Total licence sales in the 2020/21 season were severely impacted due to COVID-19 with respect to travel restrictions leading to zero non-resident licences sold. However, licence sales to residents rose by 2% year over year. General economic impacts of the pandemic likely weighed on participation generally, as can be seen in the recreational catch statistics below. The 2021/22 season saw a sharp 10% year-over-year increase in license sales to residents, and a minor recovery of license sales to non-residents. Lingering discomfort with travelling and travel restrictions, along with inflation, may be the cause for the low number of sales to non-residents.

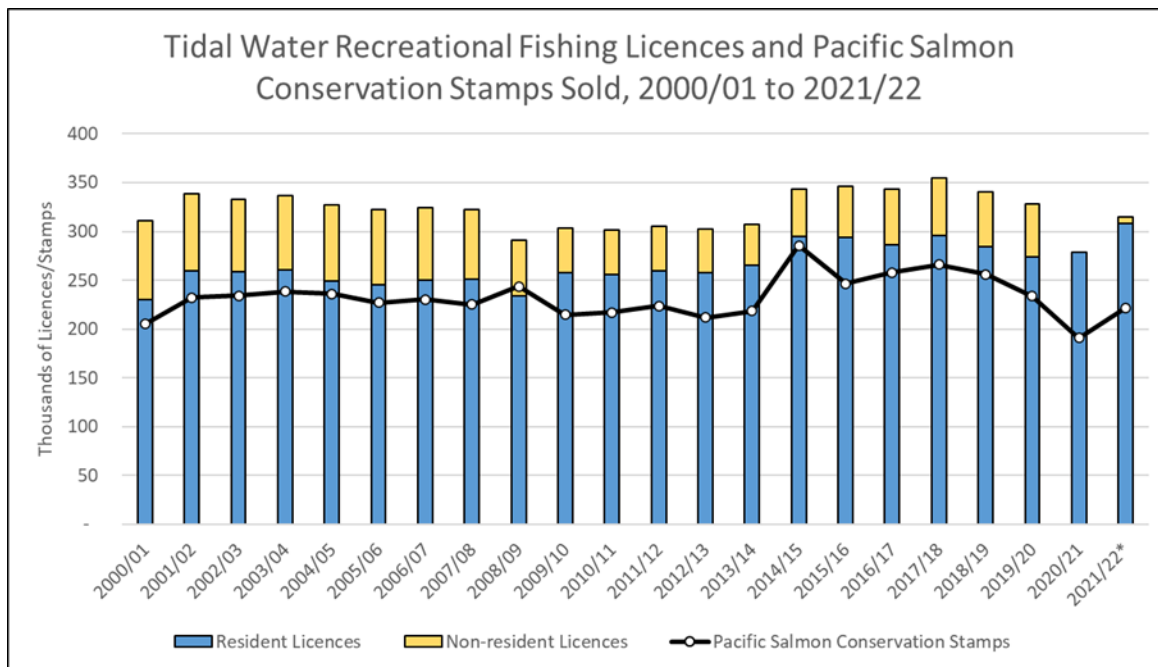


Figure 4-1: Tidal Water Recreational Fishing Licences and Pacific Salmon Conservation Stamps Sold, 2000/01 to 2021/22*

*Note: Licence sales for the 2021/22 season are preliminary and should be treated as such

Source: DFO. <https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/stats-eng.html>

These restrictions will affect participation in the recreational fishery and also the expenditures and economic impacts generated by the sector. The Survey of Recreational Fishing in Canada provides an estimate of individual expenditures and investment for recreational fishing. This information is used when estimating the direct and indirect contribution of recreational fishing to the economy (e.g. GDP, employment). The survey is administered every 5 years, but it is reasonable to expect highlighted trends to be fairly constant from year to year, barring any significant changes in fishing opportunities, like those we have seen in the last two years. Historically, the combined tidal and freshwater fisheries of BC were the second largest recreational fisheries in Canada in terms of direct and package expenditures, and third largest in terms of investments (DFO 2015). While resident anglers have the largest expenditures, recreational fishing by non-residents also contributes to the provincial economy. In 2015, non-resident direct expenditures (including fishing packages) and investments totaled \$171 million (in 2021 dollars). This number understates the contribution of non-resident tidal water anglers to the overall economy, however, as it only includes expenditures directly attributable to their fishing experience². Fishing opportunities in BC's tidal waters draw Canadian and international tourists to the province: of 47,269 non-resident anglers surveyed in 2010, 40% reported that they would not have come to British Columbia at all if there had been no opportunities for tidal water angling³. A further 19% would have shortened their stay in the province.

Recreational salmon catch fluctuates year to year, both as a consequence of user participation as well as ecological/biological factors. On average, from 2016-2019, 819 thousand pieces of salmon were caught recreationally coastwide in BC³. The 2020 season saw a dramatic decline, dropping 36% from the previous 4-year average to 526 thousand pieces. However, preliminary catch estimates for 2021 show a 103% increase over 2020 levels to 1.07 million pieces. It is clear that COVID-19 travel restrictions severely impacted the recreational salmon fishing sector in 2020, but 2021 saw a resurgence that resulted in 31% more catch than the 4 year average between 2016-2019. Although catch numbers have fluctuated in recent years, the proportion of species caught has remained fairly the same. From 2016-2021, more than half of the recreational catch

² The British Columbia's Fisheries and Aquaculture Sector (BC Stats 2013) report, which calculates direct and indirect economic activity, indicates that non-resident participants in recreational tidal water fishing also spend money on, for example, shopping, cultural events and attractions (such as museums and the theatre), and sightseeing at locations other than where they go fishing.

³ This can be further broken down into Canadian non-residents and international non-residents. Opportunities for tidal water recreational fishing are more important to international visitors: 47% of them reported they would not have come to BC had there not been tidal water fishing opportunities, while 32% of Canadian visitors would not have come.

can be attributed to Chinook (54%), followed by Coho (31%), Pink (7%), Sockeye (6%), and Chum (2%).

Figure 4-2 shows the tidal recreational expenditures for all recreational fishing species by resident and non-resident anglers from 2000 to 2015, adjusted to reflect constant 2021 dollars. Though recreational fishing continues to be important to the BC economy, the rate of growth overall has slowed and now declined in the last few years: total expenditures and investments grew by nearly 15% from 2000 to 2005, but by only 1% from 2005 to 2010. From 2010 to 2015, total expenditures and investments in the tidal recreational fishing industry decreased by 26%. This slowdown is due mainly to a drop in visits (and therefore expenditures) to BC by non-resident anglers, particularly other (i.e. international) non-resident anglers whose total expenditures in BC dropped by 48% between 2005 and 2010, and dropped again by 12% between 2010 and 2015. Expenditure on fishing packages by resident anglers increased considerably from 2000-2010; in real terms, it increased by 139% in that time period. However, in the following 5 years, expenditures on fishing packages by resident anglers decreased by 21%, as total expenditures by residents fell by 32%. Nonetheless, BC residents are still the primary consumers of fishing trip packages in the province.

B.C. Tidal Water Recreational Fishing Expenditures for all Species by Angler Type (2021\$)				
2000				
	Direct Expenses	Packages	Investments	Total
Resident	\$ 166,736,879	\$ 26,816,582	\$ 300,490,074	\$ 494,043,535
CDN Non-Resident	\$ 36,425,402	\$ 31,203,358	\$ 37,116,217	\$ 104,744,977
Other non-resident	\$ 78,730,808	\$ 64,657,536	\$ 18,587,961	\$ 161,976,305
Total	\$ 281,893,088	\$ 122,677,477	\$ 356,194,252	\$ 760,764,817
2005				
	Direct Expenses	Packages	Investments	Total
Resident	\$ 202,850,096	\$ 55,419,735	\$ 342,787,268	\$ 601,057,099
CDN Non-Resident	\$ 44,446,762	\$ 51,847,610	\$ 16,289,392	\$ 112,583,764
Other non-resident	\$ 63,863,042	\$ 85,281,353	\$ 10,641,761	\$ 159,786,156
Total	\$ 311,159,899	\$ 192,548,698	\$ 369,718,421	\$ 873,427,018
2010				
	Direct Expenses	Packages	Investments	Total
Resident	\$ 245,302,833	\$ 64,192,708	\$ 392,656,867	\$ 702,152,408
CDN Non-Resident	\$ 39,256,160	\$ 32,840,480	\$ 23,127,246	\$ 95,223,885
Other non-resident	\$ 40,096,858	\$ 36,913,981	\$ 6,228,854	\$ 83,239,693
Total	\$ 324,655,851	\$ 133,947,168	\$ 422,012,966	\$ 880,615,986
2015				
	Direct Expenses	Packages	Investments	Total
Resident	\$ 211,288,176	\$ 50,599,294	\$ 215,067,913	\$ 476,955,382
CDN Non-Resident	\$ 46,149,749	\$ 38,389,233	\$ 13,131,954	\$ 97,670,936
Other non-resident	\$ 41,428,818	\$ 30,488,845	\$ 1,634,473	\$ 73,552,136
Total	\$ 298,866,743	\$ 119,477,372	\$ 229,834,340	\$ 648,178,455

Figure 4-2: Tidal Water Recreational Fishing Direct and Package Expenditures and Investments for all species, in constant (2021) dollars

Source: Survey of Recreational Fishing in Canada (DFO, multiple years)

The past few years since 2019 can be expected to have accentuated the trend in declining expenditures by international anglers, given salmon management restrictions and especially COVID-19 travel restrictions. In 2015, salmon accounted for roughly 67% of expenditures on fishing trip packages and 64% of total expenditures overall in the tidal recreational fishing industry in British Columbia (DFO 2015) (Figure 4-3, below). Given the restrictions highlighted above, participation, expenditures, and economic impacts from the recreational fishing sector will have been significantly impacted. Travel restrictions, impacting both Canadian non-BC residents and non-Canadian anglers, will certainly have led to lower expenditures for the sector.

Additional information on the history and vision for recreational fisheries can be found in the document "Vision for Recreational Fisheries in BC": <http://www.pac.dfo-mpo.gc.ca/consultation/smon/sfab-ccps/docs/rec-vision-eng.pdf>

	2015 North Coast Salmon Tidal Rec. Expenditures (2021\$)			
	Direct Expenditures	Packages	Investments	Total
Residents	\$ 14,813,432	\$ 18,799,202	\$ 13,816,608	\$ 47,429,242
Canadian non-resident	\$ 8,213,606	\$ 17,521,819	\$ 4,025,157	\$ 29,760,582
Other non-resident	\$ 5,971,039	\$ 12,587,096	\$ 148,066	\$ 18,706,201
Total	\$ 28,998,077	\$ 48,908,117	\$ 17,989,831	\$ 95,896,025

	2015 South Coast Salmon Tidal Rec. Expenditures (2021\$)			
	Direct Expenditures	Packages	Investments	Total
Residents	\$ 113,026,490	\$ 14,966,151	\$ 125,860,446	\$ 253,853,087
Canadian non-resident	\$ 21,802,325	\$ 7,594,389	\$ 2,914,246	\$ 32,310,960
Other non-resident	\$ 21,433,585	\$ 8,586,474	\$ 580,328	\$ 30,600,387
Total	\$ 156,262,400	\$ 31,147,014	\$ 129,355,020	\$ 316,764,435

Figure 4-3: Tidal Water Recreational Fishing Direct and Package Expenditures and Investments for Salmon North Coast and South Coast, in constant (2021) dollars

Source: Survey of Recreational Fishing in Canada (DFO, 2015)

4.3 COMMERCIAL FISHERY

4.3.1 HARVEST SECTOR

In BC, the salmon fishery is a limited access fishery, mostly managed as a competitive fishery⁴; however, several parts of the fishery are operated under individual quotas. Since 2005, five areas using seine, troll or gill net gear have participated in demonstration fisheries with alternative implementations of individual quotas or pooling arrangements. In addition, there have been several commercial First Nations economic opportunity and demonstration fisheries. Commercially-harvested salmon supports BC's seafood processing sector, much of which is ultimately exported, bringing new money into the province.

Between 2013 and 2021, salmon contributed an average of 14% of the landed value and 11% of the total volume of BC wild caught seafood (DFO Official Catch, 2013-2021). The real value, in 2020 constant dollars (2021\$), ranged from a high of \$138 million in 2014 to a low of \$20.5 million in 2019 (Figure 4-4 below).

Due to many factors including conservation related fishery management measures, the 2019 fishing season was very poor and saw salmon commercial landed value fall to roughly 25% of the previous 4 year average (2015-2018). All areas were impacted but areas B, E, and H were most restricted with no (or virtually no) catch. Many vessels elected not to take part in the fishery. In fact, the number of active vessels fell from 924 in 2018 (a high return/high participation year) to 601 in 2019, a decrease of 35%.

In 2020, there was a slight resurgence in effort in the commercial fishery, with 635 active vessels. The number remained low due to conservation related fishery management measures continuing, along with pandemic-related health and safety restrictions delaying the start of the fishing season, among other impacts. However, participation has fallen again in 2021 by roughly 40% to 379 active vessels, likely associated with the significant reduction in openings for the fishery, stemming from Pacific salmon conservation measures and continued pandemic-related health and safety restrictions. Preliminary data for the 2022 season shows 484 active vessels, an increase of 28% from the 2021 season, but still well below participation observed in previous years. This increase is expected as the 2022 season includes high Sockeye return due to it being a dominant Sockeye year.

Preliminary landing estimates show a 61% increase from 2021 to 2022 with landed value increasing by 51% to \$32.2 million. This significant increase is mainly the result of 2022 being a Sockeye salmon dominant year, forming 42% of the total landings and 71% of the total value.

⁴ Other names for this style of fishery include derby and Olympic style fishery

In most years, Pink salmon accounts for an average of 21% of total salmon catch. However, in 2013 and 2020, Pink made up 63% of salmon catch, contributing to relatively lower landed value totals in those years. Conservation concerns are expected to continue into future years, negatively impacting the returns to the commercial fleet, while additional closures may further reduce access in the short term.

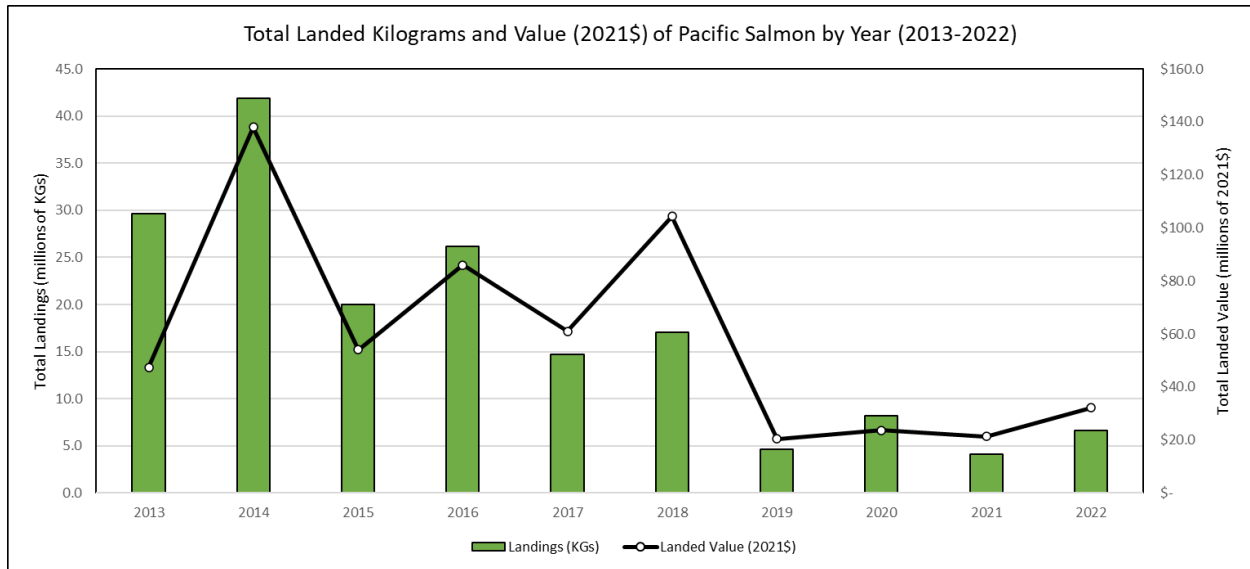


Figure 4-4: Total Landed Kilograms and Value (2021\$) of Pacific Salmon by Year (2013-2022*)

Source: DFO Official Catch matched to the best available price from sales slips.

*Estimates for 2022 are to be treated as preliminary

Note: Salmon landed value estimates may differ slightly from other sources due to varying price estimates. Prices used here are “best available” based on matching criteria using date, gear and area.

Chinook and Chum make up the majority of the landed value in most years, with the exception being years when there is a high return of Sockeye (see Figure 4-5 below).

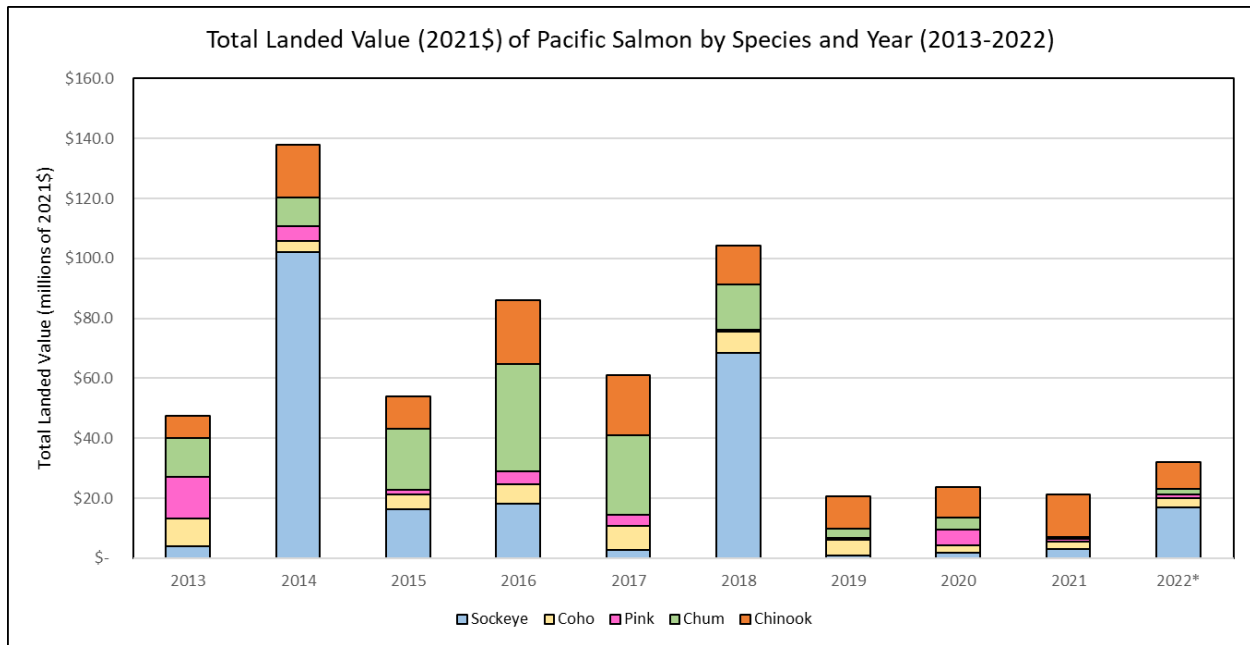


Figure 4-5: Total Landed Value (2021\$) of Pacific Salmon by Species by Year (2013-2022*)

Source: DFO Official Catch matched to the best available price from sales slips.

*Estimates for 2022 are to be treated as preliminary

Note: Salmon landed value estimates may differ slightly from other sources due to varying price estimates. Prices used here are “best available” based on matching criteria using date, gear and area.

Figure 4-6 and Figure 4-7 (below) present landings (kilograms) and landed value (2021\$) of Pacific Salmon by licence area from 2017-2022. For the most part, the graphs coincide with one another; higher landings result in higher landed value. However, salmon licence areas A and F show the opposite story: licence area A has higher landings each year (except for 2019, 2021) compared to licence area F, but area F has higher landed values. This is the result of the majority of catch over the period in area A being Pink Salmon (59%), which has the lowest value in terms of price per kg, and area F landing primarily Chinook (39%) and Coho (40%), which have the highest and third highest value in terms of price per kg in the North Coast, respectively.

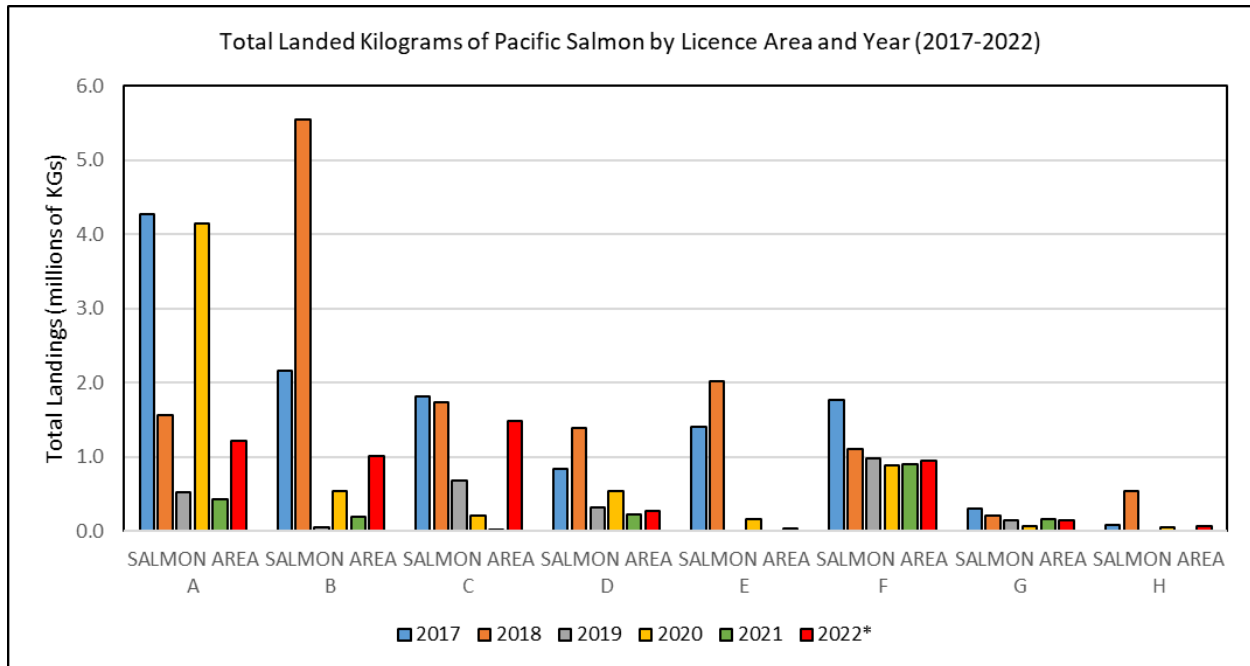


Figure 4-6: Total Landed Kilograms of Pacific Salmon by Licence Area by Year (2017-2022*)

Source: DFO Official Catch matched to the best available price from sales slips.
 *Estimates for 2022 are to be treated as preliminary

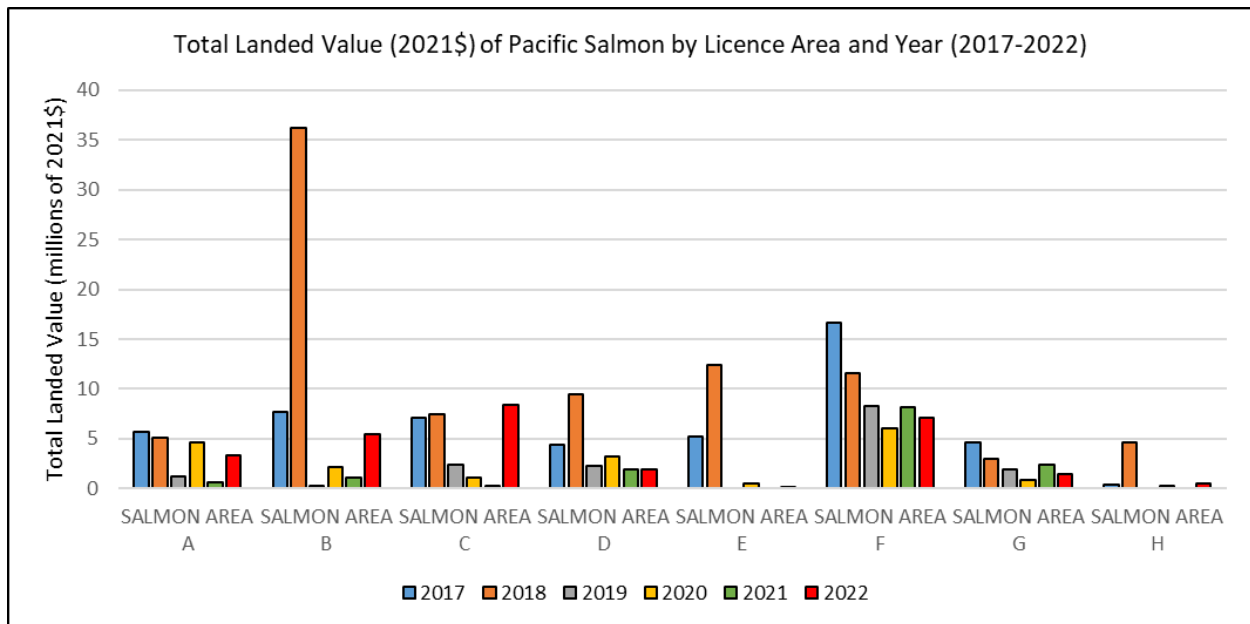


Figure 4-7: Total Landed Value (2021\$) of Pacific Salmon by Licence Area by Year (2017-2022*)

Source: DFO Official Catch matched to the best available price from sales slips.
 *Estimates for 2022 are to be treated as preliminary

Between 2013 and 2022, the South Coast fishery was responsible for an average of 51% of the total volume of salmon landings and total landed value of salmon landings, with the North Coast making up the remainder. In non-Sockeye dominant years, the North Coast catches more salmon than the South Coast, but the South Coast has secured most of the benefits of the large salmon runs in years such as 2014 and 2018. The record Fraser River Sockeye run in 2014 meant that the South Coast accounted for 71% and 78% of the landed volume and value in that year, respectively. With another Sockeye boom in 2018, the South Coast again accounted for 71% and 74% of the landed volume and value, respectively. As Sockeye spawn every four years, the 2022 season was expected to also result in a high Sockeye run. However, preliminary data for 2022 currently shows that the South Coast only accounts for 42% and 40% of the landed volume and value, respectively. This is due to low Fraser River Sockeye return.

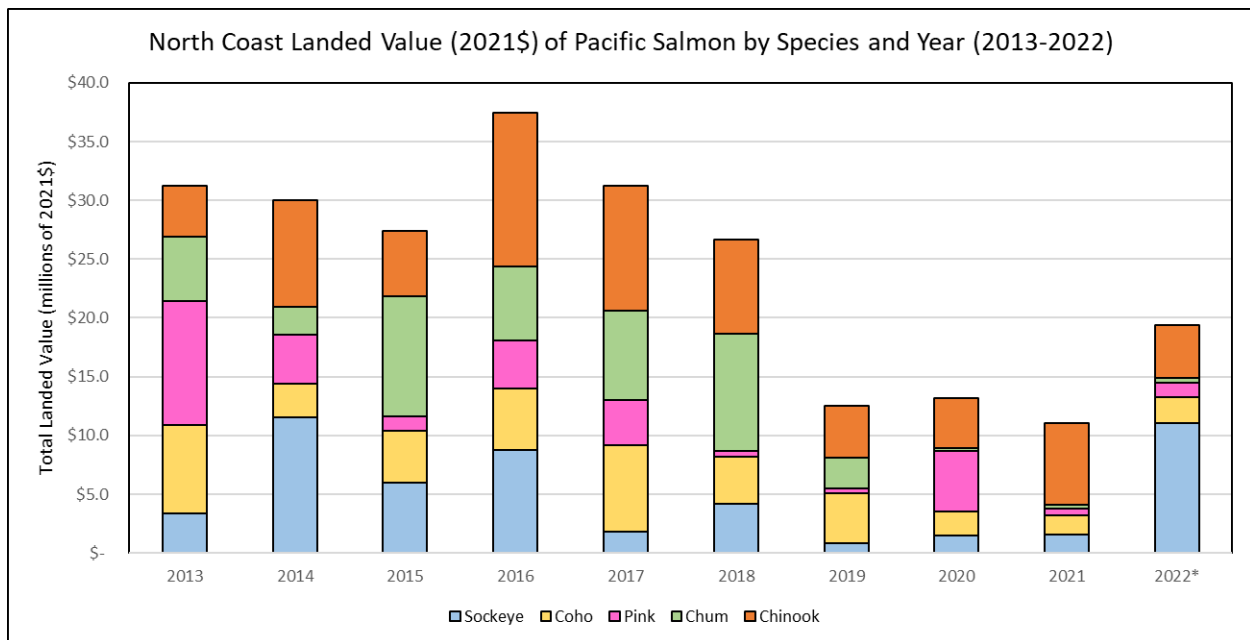


Figure 4-8: North Coast salmon value by species, 2013-2022* (in 2021\$)

Source: DFO Official Catch matched to best available price from sales slips.

*Estimates for 2022 are to be treated as preliminary

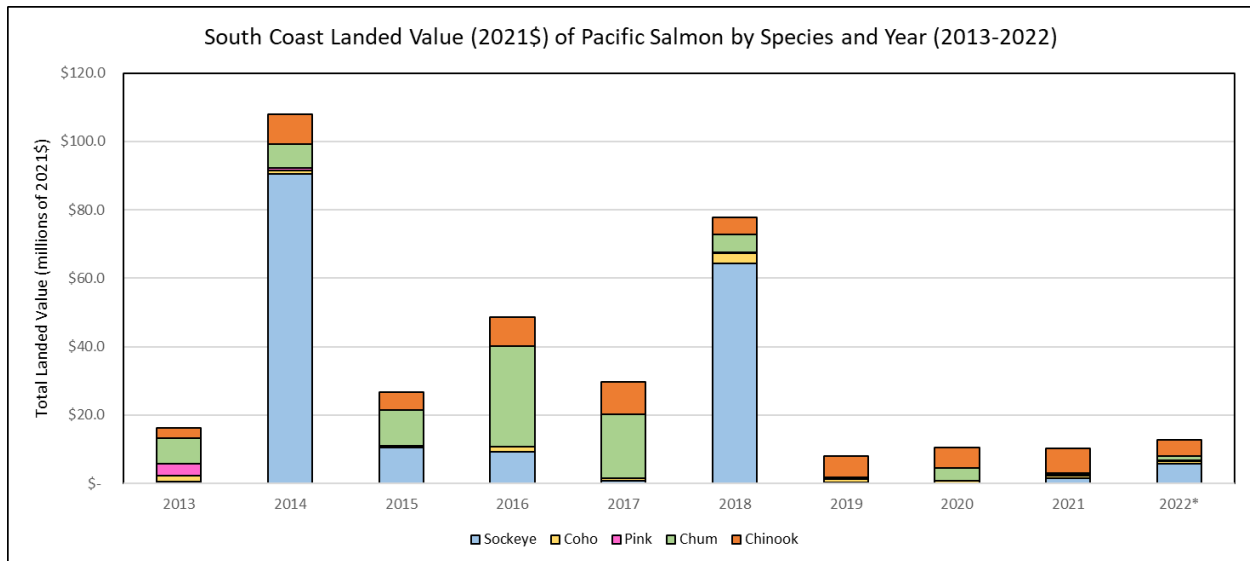


Figure 4-9: South Coast salmon value by species, 2013-2022* (in 2021\$)

Source: DFO Official Catch matched to best available price from sales slips.

*Estimates for 2022 are to be treated as preliminary

Note: Salmon landed value estimates may differ slightly from other sources due to varying price estimates. Prices used here are “best available” based on matching criteria using date, gear and area.

Salmon licence values declined steadily from 2005 to 2010, reflecting poor returns to the fleets (Nelson, various years). Seine licences have recovered somewhat since then, while gillnet and troll licences have been steady with troll showing improvements in 2014. License values are a reflection of expected future financial returns but also of speculation. The value of a seine licence remained constant from 2015-2018 (\$422K) and increased by 26% to \$528K in 2019 (Castlemain, various years). However, in 2020 it decreased by 39% to \$324K before recovering slightly to \$386K in 2021. Gillnet licence values steadily increased from 2015-2018 (\$54K to \$69K), but fell back to \$55K in 2019 and continued to decrease year-over-year thereafter. In 2021, the average gillnet licence value was \$37K. Troll licence values experienced a similar trend to gillnet, increasing from 2015-2018 (\$125K to \$199K), and falling in 2019 to \$166K. It continued to fall in 2020, reaching \$141K before recovering to \$152K in 2021. The salmon fleet’s financial performance is best reviewed over several years, given the fisheries significant annual swing in harvest. For the seine fishery, the percentage of revenue attributed to the diversified fleet fell from 22% to 16%, when comparing the 2017-2020 average to the 2021 year⁵. For the gillnet

⁵ DFO Fleet Diversification Table Tool

fishery, the percentage of revenue attributed to the diversified fleet also fell from 14% to 8% in comparing 2017-2020 average to the 2021 year. For the troll fishery, the percentage of revenue attributed to the troll diversified fleet increased from 49% to 61% in comparing the 2017-2020 average to the 2021 year. The troll fishery is more diversified than the other gear types due to loss of opportunity and the troll gear lending itself well to other fisheries, such as halibut. The cost structure of salmon fleets in BC is available through various reports (Nelson, 2009 & 2011 as well as Gislason 2011).

4.3.2 PROCESSING SECTOR

In previous years, wild salmon accounted for an average of 22% of the total wholesale value of wild caught seafood in BC (SYIR, 2014-2019). Although more recent estimates are not yet available, they would likely reflect the change in salmon harvest in these years – both in magnitude and species mix – relative to 2019.

The latest study on linkages between seafood harvesting and processing prepared by GS Gislason & Associates in August 2017 allows estimation of the total labour wages in salmon processing sector in 2016, by salmon species. Between 2017-2020, Sockeye accounted for over half of processing sector wages (53%), mainly due to the 2018 Sockeye bump year. In that same time period, Chum accounted for the majority of the remaining processing sector wages (41%), followed by Pink (11%), Chinook (11%) and Coho (9%). In 2021, processing sector wages were down 65% compared to the previous 4-year average due to relatively low landings across the salmon species. However, in 2022, processing sector wages doubled over 2021. Applying the Gislason & Associates (2017) estimates to 2022 DFO logbook information, processing of salmon species delivered about \$2.7M (Sockeye), \$0.8M (Pink), \$0.7M (Chinook), \$0.4M (Chum), and \$0.3M (Coho) in processing sector labour wages in 2021 constant dollars (Figure 4-10).

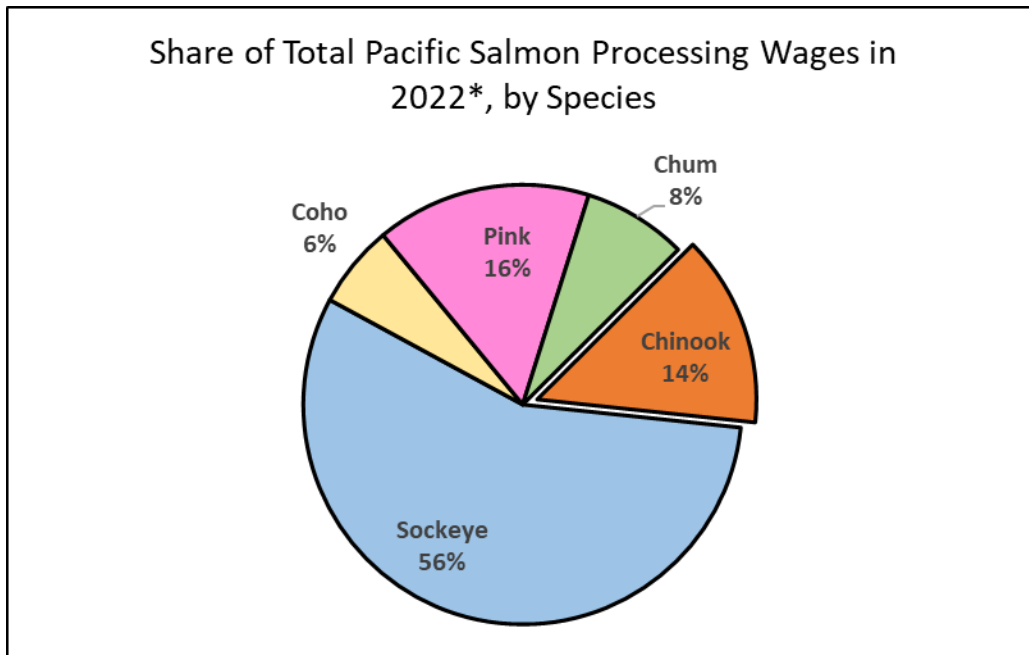


Figure 4-10: Share of the total value of processing sector wages in 2022* (by salmon species)

Source: Gislason and Associates (2017), DFO Official Catch

*Estimates for 2022 are to be treated as preliminary

Sockeye was the most processed salmon species by volume and total value of processing sector wages among all BC wild salmon in 2022. The elevated volume was due to 2022 being a Sockeye bump year. Additionally, Sockeye was estimated as the most labour intensive species in processing with a labour intensity of about 34 hours per metric tonne (MT) (GSGislason & Associates, 2017).

The GSGislason 2017 study also indicates that salmon processing is frequently pursued in a different region than the area where landings are loaded off the fishing vessels. For example, while Chinook landings occur mostly on the North Coast, its processing happens mainly in the Lower Mainland (about 65% of all processed Chinook). Similarly, landings of Coho also happen mainly on the North Coast (80%), but its processing is pursued mainly in the Lower Mainland (74%). Pink salmon is landed mainly in the North Coast (about 60%) and is processed in the North Coast and Lower Mainland (45% and 40%, respectively). Chum landings (63%) and processing (75%) occurs mostly in Lower Mainland. Sockeye landings and processing occurs mostly on Vancouver Island (58% and 55%, respectively) (GSGislason & Associates, 2017).

4.4 EXPORT MARKET

The province of British Columbia benefits from strong seafood exports that in 2022 were valued at roughly \$1.5 billion, a 5% increase when compared to 2020, and a 6% increase over the annual average between 2018-2021.⁶ This total value was realized via a combination of seafood supplied by domestic wild harvest and aquaculture (Statistics Canada EXIM Database).

Sockeye, Chinook, and Chum salmon were among the most widely exported Pacific salmon species in 2022 (by volume). They constituted 40%, 27% and 17% of the total volume of Pacific salmon exports from BC, respectively. While Chinook is generally the most exported Pacific salmon, Sockeye overtakes it every four years during Sockeye dominant years, such as in 2022 and 2018.

In 2022, Sockeye was exported to 13 countries, with the largest proportions of exports going to the US and Japan (by value). Chinook was shipped to 12 countries and Pink salmon to 13 countries, with the largest proportions of both Chinook and Pink salmon exported to the US and China (by value). Chum was shipped to 11 countries, down from 14 countries the previous year, with the largest proportions exported to the US and Kazakhstan (by value). Coho was exported to only 7 countries, with the largest proportions exported to the US and Belgium (by value).

Notwithstanding the above, salmon exports in recent years have been affected by the lower harvest levels. The annual value of all Pacific salmon exports from 2011-2018 averaged \$141M annually, while the average annual value between 2019-2022 was roughly \$81M, or approximately 57% of the previous 8-year average (in 2021\$). Chinook made up approximately 32% of the average annual export value of Pacific salmon between 2011 and 2018, while it made up 55% of the annual value on average between 2019 and 2022. Further, the proportion of total annual export value attributable to Chum went from 18% to 9% between 2011 and 2018 and between 2019 and 2022, respectively. The proportion attributable to Coho went from 6% to 7%, while Pink went from 15% to 5% and Sockeye went from 29% to 25% between the two time periods, respectively. (See Figure 4-11, Figure 4-12 below).

⁶ Statistics Canada EXIM Database; value in nominal terms.

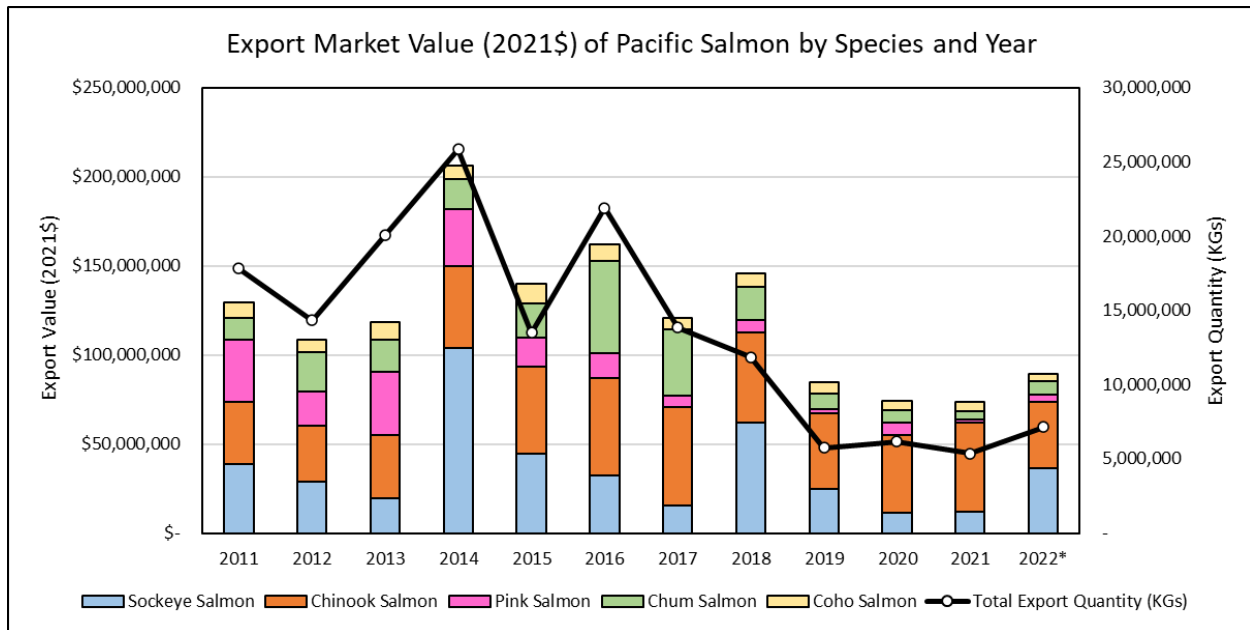


Figure 4-11: Total value and quantity of Pacific salmon exports (in 2021 constant dollars), 2011-2022*

Source: Statistics Canada EXIM database accessed on Jan 30, 2023.

*Estimates for 2022 are to be treated as preliminary

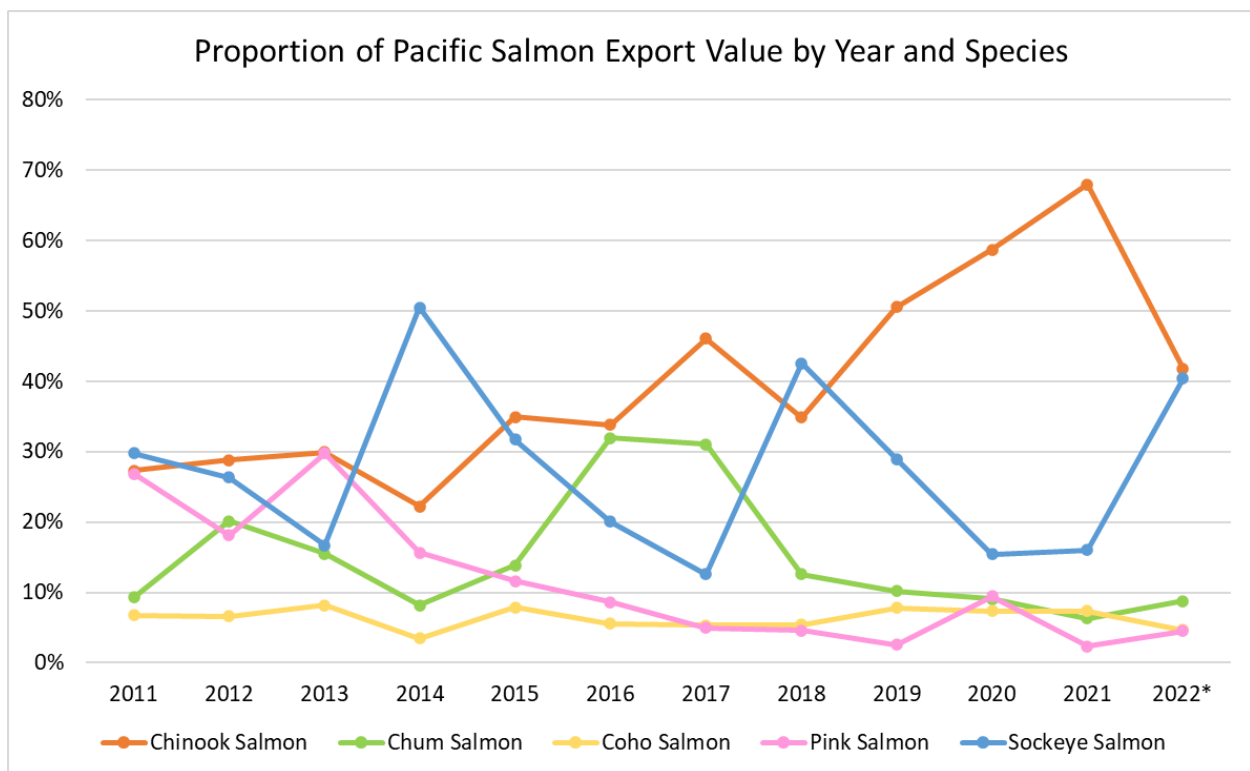


Figure 4-12: Proportion of Pacific salmon annual export value by species, 2011-2022*

Source: Statistics Canada EXIM database accessed on Jan 30, 2023.

*Estimates for 2022 are to be treated as preliminary

Note: this total includes all exports of wild Pacific salmon and exports of all farmed Pacific salmon. There might be slight differences in total export value when comparing exports in previous versions/previous years of IFMP due to changing products definitions in EXIM data. In this data only Pacific salmon species were included.

Overall, over the past five years (2018 to 2022), BC exported Pacific salmon to 54 countries. The US accounted for about 69% of the total export value in that period, followed by Japan (14%) and China (3%). The UK and France were the next largest individual importers of BC Pacific salmon in that period (2% each). For more details, please refer to Figure 4-13 below.

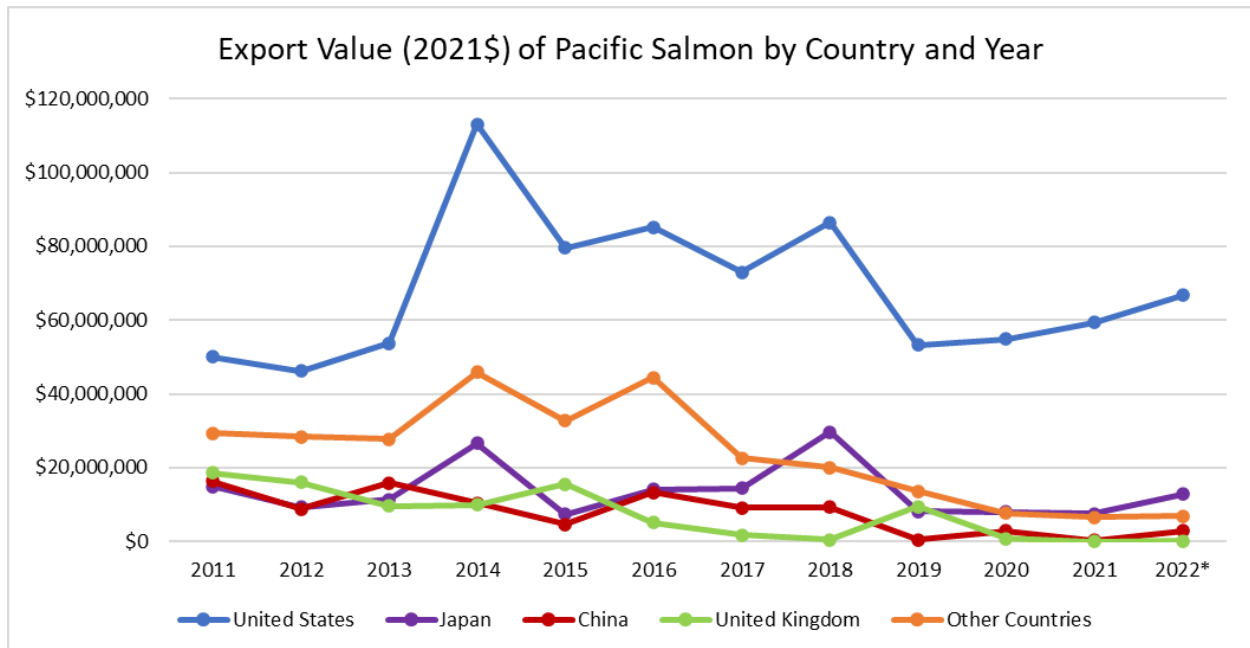


Figure 4-13: Total value of Pacific salmon exports from BC per main importers, 2011-2022* (in 2021\$)

Source: Statistics Canada EXIM database accessed on Jan 30, 2023.

*Estimates for 2022 are to be treated as preliminary

Figure 4-14 below shows the proportions of Pacific Salmon exported by value by destination country in 2022. In that year, approximately \$89.4m worth of Pacific salmon was exported from BC. This represents a slight rebound of 21% in export value from the 2021 export value of \$73.8m, which was the lowest value in the past decade. Export value began decreasing on a year-over-year basis beginning in 2019. Of the total \$89.4m, about 75% of the total export value

of Pacific salmon is attributable to the United States (\$66.8m), 14% to Japan (\$12.8m), 3% to China (\$2.8m), 1% to Kazakhstan (\$1m), and the remaining 7% to all other countries (\$6.1m).

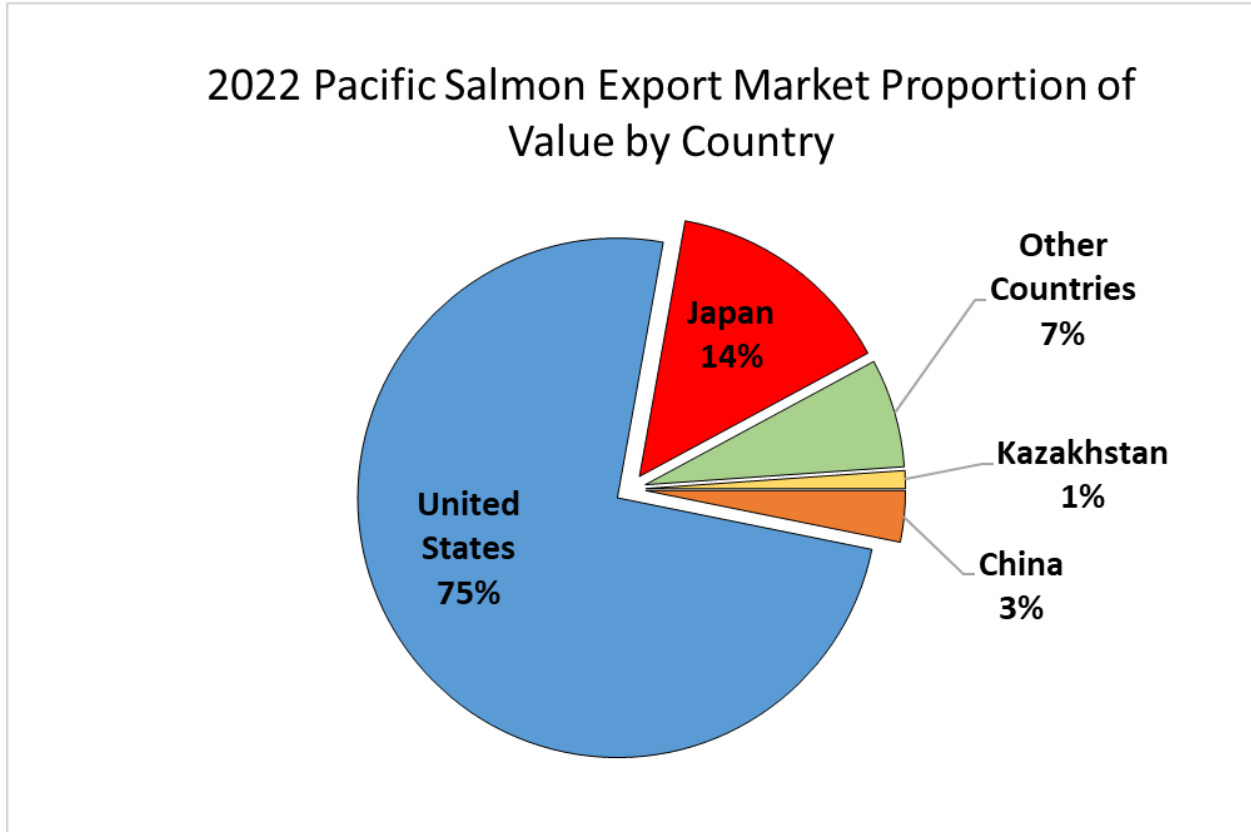


Figure 4-14: Proportions of total value of Pacific salmon exports from BC by main destination countries in 2022*

Source: Statistics Canada EXIM database accessed on Jan 30, 2023.

*Estimates for 2022 are to be treated as preliminary

REFERENCES:

1. BC Ministry of Agriculture, Food, and Fisheries (BCMOAFF). Various years. Sector Snapshot: B.C. Seafood. <https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/statistics/agriculture-and-seafood-statistics-publications>
2. BC Ministry of Agriculture (BCMOA). Various years. British Columbia Seafood Industry Year in Review. <https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/statistics/agriculture-and-seafood-statistics-publications>
3. BC Stats. 2018. British Columbia's Fisheries and Aquaculture Sector, 2016 Edition. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/statistics/industry-and-sector-profiles/sector-reports/british_columbias_fisheries_and_aquaculture_sector_2016_edition.pdf
4. Castlemain. Various Years. Analysis of Commercial Fishing Licence, Quota, and Vessel Values.
5. Fisheries and Oceans Canada (DFO). Various years. Survey of Recreational Fishing in Canada. <http://www.dfo-mpo.gc.ca/stats/rec/canada-rec-eng.htm>
6. Gislason, G. 2011. The British Columbia Salmon Fleet Financial Profile 2009. <http://waves-vagues.dfo-mpo.gc.ca/Library/343812.pdf>
7. Gislason, G and Associates. 2017. Linkages between seafood harvesting and processing. pp.1-7.
8. Nelson, Stuart. Various Years. West Coast Fishing Fleet: Analysis of Commercial Fishing Licence, Quota, and Vessel Values. <http://waves-vagues.dfo-mpo.gc.ca/waves-vagues/>
9. Nelson, Stuart. 2009. Pacific Commercial Fishing Fleet: Financial Profiles for 2007. <http://www.dfo-mpo.gc.ca/Library/343814.pdf>
10. Nelson, Stuart. 2011. Pacific Commercial Fishing Fleet: Financial Profiles for 2009. <http://www.dfo-mpo.gc.ca/Library/343762.pdf>

5 MANAGEMENT ISSUES

5.1 CONSERVATION

Given the importance of Pacific salmon to the culture and socio-economic fabric of Canada, conservation of these stocks is of utmost importance. In order to achieve this, specific actions are taken to not only ensure protection of fish stocks, but also freshwater and marine habitats. Protecting a broad range of stocks is the most prudent way of maintaining biodiversity and genetic integrity.

Management of a natural resource like salmon has a number of inherent risks. Uncertain forecasting, environmental and biological variability as well as changes in harvester behavior all add risks that can threaten conservation. Accordingly, management actions will be precautionary and risks will be specifically evaluated where possible.

5.1.1 WILD SALMON POLICY

Canada's Policy for Conservation of Wild Pacific Salmon (the Wild Salmon Policy) sets out the vision regarding the importance and role of Pacific wild salmon as well as a strategy for their protection.

To communicate the work the Department is doing in support of the policy, Canada's Minister of Fisheries, and Oceans, and the Canadian Coast Guard released the *Wild Salmon Policy 2018-2022 Implementation Plan* in October 2018. This collaboratively developed plan was consulted on broadly throughout fall 2017, and lays out nine overarching approaches to implementation and specific activities that DFO would undertake. The plan is organized under three key themes: Assessment; Maintaining and Rebuilding Stocks; and Accountability. The 2020/2021 Annual Report can be found at <https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/annual-annuel/2020-2021-eng.html>. In 2023, DFO will also release a five-year review of the Implementation Plan.

For a copy of the *Wild Salmon Policy*, the *Wild Salmon Policy 2018-2022 Implementation Plan*, information on what we heard during consultations and response, annual reports, and other Wild Salmon Policy related materials, please see: <https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/index-eng.html>

5.1.2 SPECIES AT RISK ACT

The *Species at Risk Act* (SARA) came into force in 2003 “to prevent wildlife species from being extirpated or becoming extinct, and to provide for the recovery of a wildlife species that are

extirpated, endangered or threatened as a result of human activity and to manage species of special concern to prevent them from becoming endangered or threatened.”

SARA contains several prohibitions to protect species listed on Schedule 1 of SARA. Under sections 32 and 33 of SARA, it is an offence to: 1) kill, harm, harass, capture or take an individual of a wildlife species listed as extirpated, endangered or threatened under SARA; 2) possess, collect, buy, sell or trade an individual (or any part or derivative of such an individual) of a wildlife species listed as extirpated, endangered or threatened under SARA; and 3) damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered or threatened species, or that is listed as an extirpated species if a recovery strategy has recommended its reintroduction into the wild in Canada. These prohibitions apply unless a person is authorized, by a permit, licence or other similar document issued in accordance with SARA, to engage in an activity affecting the listed species or the residences of its individuals.

Species listed as special concern are not included in these prohibitions. Section 58(1) contains provisions to prohibit the destruction of any part of the critical habitat of listed endangered or threatened species or of any listed extirpated species if a recovery strategy has recommended the reintroduction of the species in the wild in Canada. Critical habitat is the habitat necessary for the survival or recovery of a listed wildlife species and is identified to the extent possible in the recovery strategy or an action plan for the species.

For information on aquatic species listed under SARA or assessed as at risk by the Committee on the Status of Endangered Wildlife in Canada, please visit the Species at Risk Public Registry at <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html>.

A species identification guide can be found here: <https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/identify-identifier-eng.html>

5.2 OCEAN AND HABITAT CONSIDERATIONS

5.2.1 CANADA’S MARINE AND COASTAL AREAS CONSERVATION MANDATE

To protect biodiversity and meet its marine conservation targets, Canada is establishing marine protected areas and other effective area-based conservation measures (OECMs), in consultation with First Nations, other levels of government, industry, non-governmental organizations, and the public.

More information is available online for: Canada’s marine conservation targets: <https://www.dfo-mpo.gc.ca/oceans/conservation/index-eng.html>

Canada's marine protected and conserved areas: <https://www.dfo-mpo.gc.ca/oceans/conservation/areas-zones/index-eng.html>

Marine refuges and fisheries management measures that qualify as OECMs: <https://www.dfo-mpo.gc.ca/oceans/oecm-amcepz/index-eng.html>

5.2.2 MARINE PROTECTED AND CONSERVED AREAS

Canada uses a variety of legislative tools for marine conservation, depending on the lead federal department or agency and their coastal mandates. As goals, objectives, and management plans are finalized for these initiatives, DFO's management of fisheries will be adapted as appropriate, in consultation with interested parties through initiative-specific consultations and annual Integrated Fisheries Management processes. The implementation of spatial marine conservation initiatives is informed by considerations under the Oceans Act, Fisheries Act and the Sustainable Fisheries Policy suite, and mandate commitments to the Blue Economy Strategy and Reconciliation with First Nations.

For more information on Canada's marine conservation tools: <https://www.dfo-mpo.gc.ca/oceans/conservation/plan/index-eng.html>

For more information see relevant legislation: Marine refuges and other measures - Fisheries Act: <https://laws.justice.gc.ca/eng/acts/f-14/page-1.html>

Marine Protected Areas - Oceans Act: <https://laws-lois.justice.gc.ca/eng/acts/O-2.4/>

National Wildlife Areas - Canada Wildlife Act: <https://laws.justice.gc.ca/eng/acts/w-9/page-1.html>

National Marine Conservation Areas (Reserves): National Marine Conservation Areas Act: https://laws.justice.gc.ca/eng/annualstatutes/2002_18/page-1.html

An overview map of federal marine conservation initiatives in Pacific region is provided in Figure 5-1, followed by a table outlining relevant details by initiative – both established and in progress. Many initiatives are types of marine protected areas (MPAs) or marine refuges (OECMs). See site-specific regulations and management plans for any restrictions on activities, or fisheries notices where applicable.

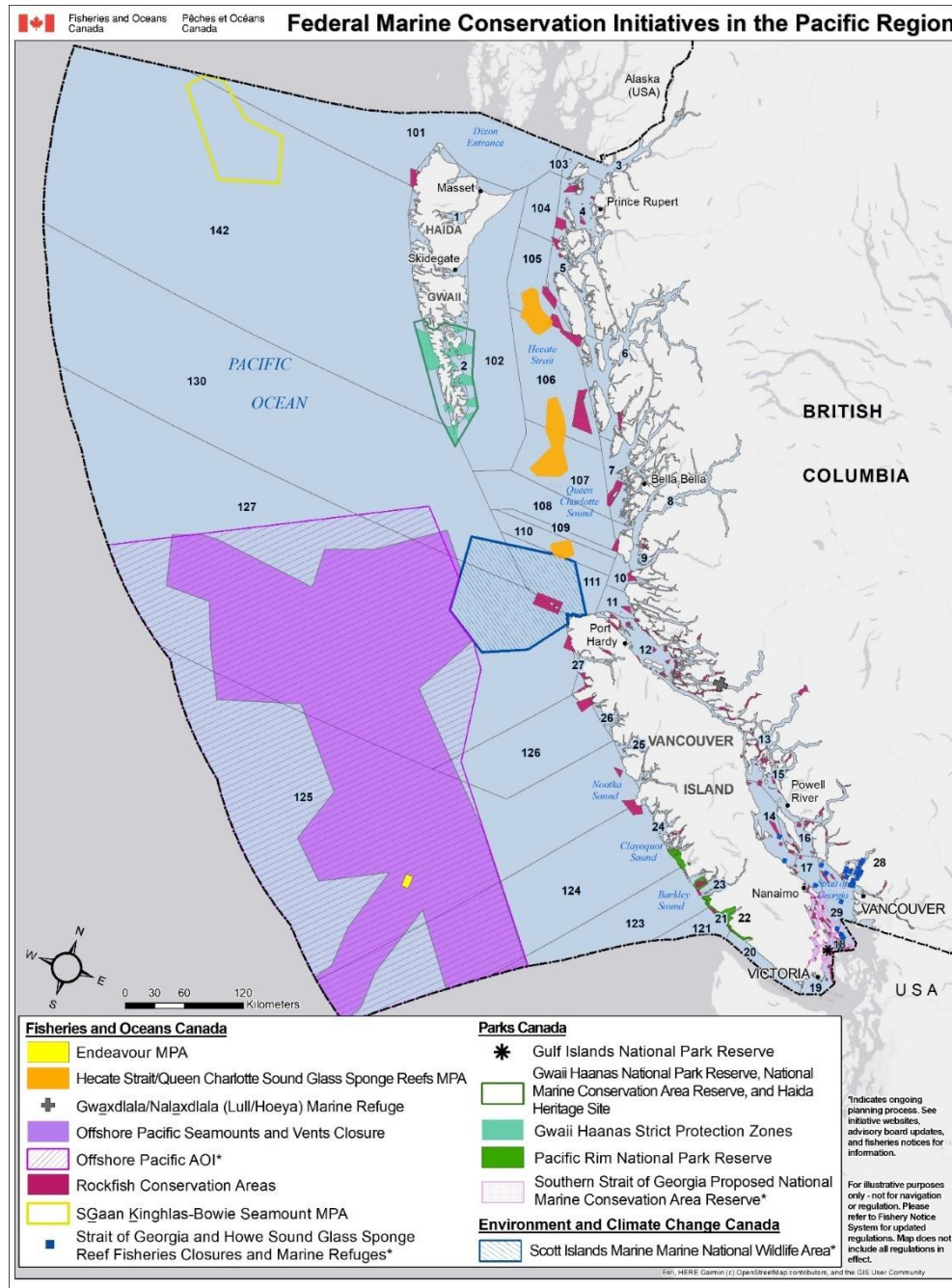


Figure 5-1: Pacific Fisheries Management Areas and Federal Marine Conservation Initiatives and Closures

Table 5-1: Overview of Federal Marine Conservation Initiatives in DFO Pacific Region (see Figure 5-1 map)

Name	Type	Lead	Weblinks	Contact	Fishery Considerations
Fisheries and Oceans Canada, Ocean's Act and Fisheries Act					

5 MANAGEMENT ISSUES

<p>Endeavour Hydrothermal Vents MPA (EHV MPA)</p>	<p>MPA</p>	<p>DFO</p>	<p>http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/endeavour/index-eng.html</p>		<p>See MPA regulations for details: https://laws-lois.justice.gc.ca/eng/regulations/SOR-2003-87/ The EHV MPA is closed to all commercial and recreational fishing activities.</p>
<p>SGaan Kinghlas – Bowie Seamount MPA (SK-B MPA)</p>	<p>MPA</p>	<p>DFO & Council of Haida Nation</p>	<p>http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/bowie-eng.html</p>	<p>Email: DFO.BowieMPA-ZPMBowie.MPO@dfo-mpo.gc.ca></p>	<p>See MPA regulations for details: https://laws-lois.justice.gc.ca/eng/regulations/SOR-2008-124/ The SK-B MPA is closed to all commercial fishing activities. The SK-B MPA is also closed to recreational and FSC bottom-contact fishing activities.</p>
<p>Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs MPA (Hecate MPA)</p>	<p>MPA</p>	<p>DFO</p>	<p>http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/hecate-charlotte/index-eng.html</p>	<p>Email: DFO.HSQCSTMPA-ZPMDHBRC.MPO@dfo-mpo.gc.ca></p>	<p>See MPA regulations for details: https://laws-lois.justice.gc.ca/eng/regulations/SOR-2017-15/index.html In the Hecate MPA there are 3 different management zone types: The entire MPA is closed to commercial bottom-contact fishing activities. Core Protection Zones (CPZ) are closed to anchoring and all fishing activities. Vertical Adaptive Management Zones (VAMZs) and Adaptive Management Zones (AMZs) are closed to some commercial and recreational fishing activities.</p>
<p>Offshore Pacific Area of Interest & Fishery Closure*</p>	<p>Area of Interest for future MPA</p>	<p>DFO</p>	<p>https://www.dfo-mpo.gc.ca/oceans/oecm-amcepz/refuges/offshore-hauturiere-eng.html</p>		<p>Specific details of the Offshore Pacific Seamounts and Vents Closure (Offshore Fishery Closure) can be found in the Fishery Notice FN1241 (2017). All bottom-contact commercial and recreational fishing activities are prohibited.</p>

5 MANAGEMENT ISSUES

<p>Strait of Georgia and Howe Sound Glass Sponge Reef Marine Refuges*</p>	<p>Marine Refuges</p>	<p>DFO</p>	<p>https://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/closures-fermetures-eng.html</p>		<p>Specific details of the closures and restrictions on a site-by-site basis can be found in Fisheries Notices FN0205 (2019), FN0571 (2015), and FN0039* (2022). Prohibited commercial, recreational and Indigenous food, social and ceremonial (FSC) bottom-contact fishing activities include:</p> <ul style="list-style-type: none"> • prawn and crab by trap • shrimp and groundfish by trawl • groundfish by hook and line • use of downrigger gear in recreational salmon trolling (in select sites via Condition of Licence). (Restrictions vary by site)
<p>Rockfish Conservation Areas (RCAs)</p>	<p>RCAs</p>	<p>DFO</p>	<p>https://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/rca-acis/index-eng.html</p>	<p>DFO.RCA-ACS.MPO@dfo-mpo.gc.ca</p>	<p>There are 162 Rockfish Conservation Areas (RCAs) in British Columbia, covering roughly 4,350km² of the Canadian Pacific Coast. These areas are closed to a range of recreational and commercial fisheries to protect inshore rockfish and their habitat. On website, see individual RCAs by area for details.</p>
<p>Gwaxdlala/ Nalaxdlala (Lull/Hoeya)</p>	<p>Marine refuge</p>	<p>DFO</p>	<p>Gwaxdlala/Nalaxdlala (Lull/Hoeya) marine refuge (dfo-mpo.gc.ca)</p>	<p>Email: Dan.Leus@dfo-mpo.gc.ca</p>	<p>Specific details of the closures and restrictions on a site-by-site basis can be found in Fisheries Notices FN 0118 (2023). The Gwaxdlala/Nalaxdlala (Lull/Hoeya) marine refuge is closed to all fisheries (commercial,</p>

5 MANAGEMENT ISSUES

					recreational and FSC fishing activities).
Parks Canada, National Marine Conservation Areas Act					
Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site	NMCAR	Parks Canada	https://www.pc.gc.ca/en/pn-np/bc/gwaiihaanas	gwaiihaanas@pc.gc.ca	Refer to Fishery Notice FN0536 (2019) , released June 13, 2019 for a detailed description of the Strict Protection Zones. There is "no extraction or harvesting by anyone of the resources of the lands and non-tidal waters of the Archipelago for or in support of commercial enterprise" (s3.3). Contact the Gwaii Haanas administration office: 1-877-559-8818
Pacific Rim National Park Reserve	National park marine area	Parks Canada	https://www.pc.gc.ca/en/pn-np/bc/pacificrim	Pacrim.info@pc.gc.ca	Park regulations can be found at: https://laws-lois.justice.gc.ca/eng/acts/N-14.01/page-8.html#h-362395
Southern Strait of Georgia National Marine Conservation Area Reserve*	NMCAR	Parks Canada	https://www.pc.gc.ca/en/amnc-nmca/cnamnc-cnmca/dgs-ssg	straitofgeorgianmca@pc.gc.ca	The most up to date information can be found at: https://www.pc.gc.ca/en/amnc-nmca/cnamnc-cnmca/dgs-ssg/savoir-learn
Environment and Climate Change Canada, Canada Wildlife Act					
Scott Islands Marine National Wildlife Area*	mNWA	ECCC	https://www.canada.ca/en/environment-climate-change/services/national-wildlife-areas/locations/scott-islands-marine.html	DFO.ScottIslands-llesScott_MPO@dfo-mpo.gc.ca	The Scott Islands Protected Marine Area Regulations can be found at: https://laws-lois.justice.gc.ca/eng/regulations/SOR-2018-119/index.html
<i>*Indicates ongoing planning process. See initiative websites, advisory board updates, and fisheries notices for information.</i>					

5.2.3 MARINE SPATIAL PLANNING IN CANADA

Marine spatial planning aims to improve coordination across jurisdictions and activities in the marine space. It is a practical, internationally-recognized process that enables the Government

of Canada to plan and coordinate ocean activities in collaboration with provincial, territorial, and Indigenous governments. Marine spatial planning considers the range of human activities planned for a given marine area over time (such as fishing, cultural uses, conservation areas, energy development, etc.) to keep our oceans healthy and productive for generations to come.

For more information on marine spatial planning in Canada: <https://www.dfo-mpo.gc.ca/oceans/management-gestion/msp-psm/index-eng.html>

5.2.4 PACIFIC NORTH COAST INTEGRATED MANAGEMENT AREA (PNCIMA)

Endorsed in 2017, the Pacific North Coast Integrated Management Area (PNCIMA) plan was developed, in collaboration with the Province of British Columbia, First Nations and stakeholders to help coordinate various ocean management processes and to complement existing processes and tools, including IFMPs.

The PNCIMA Plan is available online at: <https://www.dfo-mpo.gc.ca/oceans/management-gestion/pncima-zgicnp-eng.html>

5.2.5 NORTHERN SHELF BIOREGION MARINE PROTECTED AREA NETWORK PLANNING PROCESS

The Government of Canada, the Province of BC and First Nations are working together to develop a planned approach for a Network of marine protected areas for the Northern Shelf Bioregion. The planning process is being developed under the policy direction outlined in the National Framework for Canada's Network of MPAs, the Canada-British Columbia MPA Network Strategy, and is informed by previously developed First Nation marine plans and the BC Marine Planning Process.

More information on the MPA Network planning process is available at:

<http://www.mpanetwork.ca>

5.2.6 MARINE SPATIAL PLANNING SOUTHERN BC

As part of a national marine spatial planning (MSP) initiative, DFO in collaboration with the Province of BC, federal departments (Transport Canada, Natural Resources Canada, Environment and Climate Change Canada, Parks Canada and others), Indigenous groups, and stakeholders are amidst 'early planning' efforts in the Strait of Georgia and Southern Shelf bioregions (Southern BC planning area). Early Planning is focused on gathering information and setting the stage for working collaboratively.

Marine spatial planning is a collaborative process that brings federal and provincial governments, indigenous communities as well as organizations, and stakeholders together to coordinate how we collectively use marine spaces to achieve ecological, cultural, social, and economic objectives. Key deliverables for the Southern BC MSP process include the Canada Marine Planning Atlas (Pacific) and a Framework (or guide) that gathers information from the ‘early planning’ phases to inform future planning phases.

More information on marine spatial planning can be found at: <https://www.dfo-mpo.gc.ca/oceans/management-gestion/msp-psm/index-eng.html>

5.2.7 GHOST GEAR PROGRAM

One of the biggest threats to oceans internationally is marine litter, and in particular, ghost fishing gear. Ghost gear refers to any fishing equipment or fishing-related litter that has been abandoned, lost or otherwise discarded and is some of the most harmful and deadly debris found in oceans. It is estimated that between 5% - 30% of harvestable fish stocks are impacted by ghost gear across the world, posing a major threat to human health and livelihoods as well as to global food security. Additionally, ghost gear can cause large-scale damage to marine ecosystems through habitat disturbance and causes direct harm to the welfare and conservation of marine animals via entanglement and/or ingestion.

In support of international efforts to reduce marine litter, Canada signed the G7 Charlevoix Blueprint for Healthy Oceans, Seas and Resilient Coastal Communities. In addition to this commitment, Canada committed to the implementation of the Oceans Plastics Charter and strengthened our domestic and international commitment to addressing marine litter by signing on to the Global Ghost Gear Initiative.

These commitments were further strengthened in the Canadian Council of Ministers of the Environment’s Canada-Wide Action Plan on Zero Plastic Waste Phase 2 and DFO’s recent Minister’s Mandate Letters (2021 and 2022), emphasizing the importance of this work to Canadians.

For more information on the Ghost Gear program, visit: <https://www.dfo-mpo.gc.ca/fisheries-peches/management-gestion/ghostgear-equipementfantome/index-eng.html>

5.2.7.1 CONDITIONS OF LICENCE TO REPORT LOST AND RETRIEVED GEAR

All commercial harvesters must report their lost and subsequently retrieved fishing gear. While the Department is taking a stewardship approach to ghost gear and working with harvesters to

reduce the effects of ghost fishing, the inclusion of the reporting requirement in conditions of licence does mean that not reporting lost and/or retrieved gear is now a chargeable offence.

Lost gear can be reported through the online Fishing Gear Reporting System, available at: <https://www.dfo-mpo.gc.ca/fisheries-peches/commercial-commerciale/reporting-declaration-eng.html>

To learn more about the DFO Ghost Gear Fund, go to: <https://www.dfo-mpo.gc.ca/fisheries-peches/management-gestion/ghostgear-equipementfantome/program-programme/projects-projets-eng.html>

5.3 CONSERVATION OF SPECIES THAT MAY BE AFFECTED BY SALMON FISHERIES

5.3.1 ROCKFISH

2023/2024: The management objective for Bocaccio and inshore rockfish species (which include Yelloweye, Quillback, Copper, China, and Tiger) is to continue conservation strategies that will ensure stock rebuilding over time. **These inshore rockfish species are currently non-retention in the commercial salmon troll fisheries.**

In 2002, an inshore rockfish conservation strategy was established with initial measures introduced for recreational and commercial fisheries. The strategy addresses four areas under the fisheries management and stock assessment regime:

- a) Protect a part of inshore rockfish populations from harvest through the use of rockfish conservation areas.
- b) Collect information on total fishery mortalities through improved catch monitoring programs.
- c) Reduce harvests to levels that are less than the estimates of natural mortality (i.e. less than two percent).
- d) Improve the ability to assess the status of inshore rockfish populations and monitor changes in abundance.

5.3.1.1 ROCKFISH CONSERVATION AREAS

There are 162 Rockfish Conservation Areas (RCAs) in British Columbia, covering roughly 4,350km² of the Canadian Pacific Coast. These areas are closed to a range of recreational and commercial fisheries to protect inshore rockfish and their habitat.

Canada uses a variety of legislative tools for marine conservation, depending on the lead federal department or agency and their coastal mandates. As goals, objectives, and management plans are finalized for these initiatives, DFO's management of fisheries will be adapted as appropriate, in consultation with interested parties through initiative-specific consultations and annual Integrated Fisheries Management processes. The implementation of spatial marine conservation initiatives is informed by considerations under the *Oceans Act*, *Fisheries Act* and the Sustainable Fisheries Policy suite, and mandate commitments to the Blue Economy Strategy and Reconciliation with First Nations.

For more information on Canada's marine conservation tools: <https://www.dfo-mpo.gc.ca/oceans/conservation/plan/index-eng.html>

For more information see relevant legislation:

Marine refuges and other measures - *Fisheries Act*: <https://laws.justice.gc.ca/eng/acts/f-14/page-1.html>

Marine Protected Areas - *Oceans Act*: <https://laws-lois.justice.gc.ca/eng/acts/O-2.4/>

National Wildlife Areas - *Canada Wildlife Act*: <https://laws.justice.gc.ca/eng/acts/w-9/page-1.html>

National Marine Conservation Areas (Reserves): *National Marine Conservation Areas Act*: https://laws.justice.gc.ca/eng/annualstatutes/2002_18/page-1.html

5.3.1.2 ROCKFISH REBUILDING PLANS

Fisheries and Oceans Canada (DFO) has developed "A Fisheries Decision-Making Framework Incorporating the Precautionary Approach" (PA Policy) under the auspices of the Sustainable Fisheries Framework. It outlines the departmental methodology for applying the precautionary approach (PA) to Canadian fisheries. A key component of the PA Policy requires that when a stock has declined to or below a limit reference point (LRP), a rebuilding plan must be in place with the aim of having a high probability of the stock growing above the LRP within a reasonable timeframe.

In addition, under section 6.2 of the Fish Stocks provisions (FSP) in the amended *Fisheries Act* (2019), rebuilding plans must be developed and implemented for prescribed major fish stocks that have declined to or below their LRP. This legislated requirement is supported by section 70

of the Fishery (General) Regulations (FGR), which set out the required contents of those rebuilding plans and establish a timeline for each rebuilding plan's development.

The purpose of rebuilding plans is to identify the main rebuilding objectives for any species below its LRP (i.e., in the "critical zone" of the PA Policy), as well as the management measures that will be used to achieve these objectives. This plan provides a common understanding of the basic "rules" for rebuilding the stocks. The Integrated Fisheries Management Plan for Groundfish outlines rebuilding plans for groundfish species that (a) have been identified by peer reviewed stock assessments as currently in the critical zone under the PA Policy and (b) are not covered by other management planning tools for depleted species, such as *Species At Risk Act*-listed species that require a recovery strategy or management plan.

The objectives and measures outlined in the rockfish rebuilding plan are applicable until the stock(s) has reached its rebuilding target. Once the stock is determined to be at the target, the stock(s) will be managed through the standard Integrated Fisheries Management Plan (IFMP) or other fishery management process in order to fulfil the requirements of the FSP. Management measures outlined in this rebuilding plan are mandatory, and may be modified or further measures added if they fail to result in stock rebuilding.

More information on the Bocaccio and Yelloweye Rockfish Rebuilding Plans is available in Appendix 9 of the Groundfish IFMP.

5.3.2 MARINE MAMMALS

In order to address conservation concerns with marine mammals, it is important that measures are taken to reduce the harm to and mortality of marine mammals resulting from primary threats they face, including those that may be associated with fishing activity, as well as to improve data quality of any interactions. As such, commercial fishing licenses have been amended to include a Condition of License for Marine Mammals that specify mitigation measures and reporting requirements. This includes mandatory reporting of all interactions with marine mammals, prohibition to disturb marine mammals and requirement for minimum approach distances to marine mammals as set out under the *Marine Mammal Regulations* (see Section 5.6), prohibition of encirclement of marine mammals in purse seine fisheries, and prohibition against the lethal removal of nuisance seals.

5.3.3 TURTLE AND BASKING SHARK INCIDENT AND SIGHTINGS REPORTS

5.3.3.1 INCIDENT REPORTING

Marine Mammal Incident Reporting Hotline

The Department is responsible for assisting marine mammals and sea turtles in distress. If your vessel strikes a whale, or if you observe an entangled, sick, injured, distressed, or dead marine mammal in B.C. waters, please contact the B.C. Marine Mammal Response Network Incident Reporting Hotline immediately:

1-800-465-4336 OR VHF CHANNEL 16

What to report:

- Your name and contact information
- Date and time of incident
- Location: Latitude/Longitude coordinates, landmarks
- Species
- Animal alive/dead (animal condition)
- Nature of injury and supporting details (if possible)
- Pictures/Video taken



Best practices to reduce entanglement and reporting an incident: <https://www.pac.dfo-mpo.gc.ca/fm-gp/mammals-mammiferes/whales-baleines/docs/entanglements-empetrements-pub-eng.html>

5.3.3.2 SIGHTING REPORTING

The Department appreciates your assistance in tracking the sightings of live cetaceans (whales, dolphins, and porpoises), sea turtles, and Basking Sharks. While there are many whale species found in Pacific Canadian waters, sightings of Basking Sharks and Leatherback Sea Turtles are infrequent. The collection of sighting data is useful to scientists in determining population size and species distribution and aids in recovery efforts under the *Species at Risk Act* (SARA).

To report whale or turtle sightings, contact the BC Cetacean Sightings Network:

Toll free: 1.866.I.SAW.ONE (1-866-472-9663)

Email: sightings@ocean.org

Website: <http://wildwhales.org/>

App: WhaleReport

To report Basking Shark sightings contact the Basking Shark Sightings Network:

Toll free: 1-877-50-SHARK (1-877-507-4275)

Email: sharks@dfo-mpo.gc.ca

Website: www.pac.dfo-mpo.gc.ca/SharkSightings

5.3.4 SEABIRDS

Environment and Climate Change Canada (ECCC) is looking for your help to measure gill net fishing's impact on local seabird populations.

Populations of a number of seabird species around the world have declined in recent years; seabird bycatch is a part of the reason.

Seabird bycatch has been reported in all types of fisheries in BC and in fisheries in Alaska and Washington State. However, the number of local seabirds getting entangled in gill nets as a result of the BC salmon gill net fishery is not well known.

ECCC wants to know how, when and where gill net fishing may impact local seabirds and to find ways to reduce impacts. ECCC, with Fisheries and Oceans Canada, fishermen, First Nations, non-government organizations, and other coastal communities, have a program to answer these questions. Without this information, it will be difficult to determine if there is a significant impact. Should impacts be determined this information helps support solutions that benefit both the fishery and healthy bird populations.

To help us, we would like to be informed about any dead birds found or reported in gill nets and/or found floating dead on fishing grounds. Please report all incidents to our 24-hour reporting line: 1-866-431-BIRD (2473).

For additional information, please contact:

Laurie Wilson

Wildlife Biologist, Environment and Climate Change Canada

Canadian Wildlife Service, Delta, BC

Telephone: (604) 862-8817

Email: laurie.wilson@ec.gc.ca

5.3.5 SHARKS

Out of the fourteen shark species in Canadian Pacific waters, three species are listed under SARA. The Basking Shark (*Cetorhinus maximus*) is listed as Endangered, and the Bluntnose Sixgill Shark (*Hexanchus griseus*) and Tope Shark (*Galeorhinus galeus*) are listed as species of Special Concern. The primary threats to shark species have been identified as bycatch and entanglement. In order to address the conservation concerns with shark species, it is important that measures are taken to reduce the mortality of sharks resulting from these primary threats. As such, commercial fishing licences have been amended to include a Condition of Licence for Basking Sharks that specify mitigation measures in accordance with SARA permit requirements.

Additionally, a Code of Conduct for Shark Encounters and Code of Conduct for Basking Shark Encounters have been developed to reduce the mortality of Basking Shark, Bluntnose Sixgill Shark, Tope Shark, and other Canadian Pacific shark species resulting from entanglement and bycatch in commercial and recreational fisheries, and aquaculture. These guidelines include boat handling procedures during visual encounters with Basking Sharks and best practices for handling Canadian Pacific shark species during entanglement encounters.

These documents have been posted online and can be found at the following URL links:

Code of conduct for sharks: <https://www.dfo-mpo.gc.ca/species-especies/publications/sharks/coc/coc-sharks/index-eng.html>

Code of conduct for Basking Sharks: <https://www.dfo-mpo.gc.ca/species-especies/publications/sharks/coc/coc-basking/index-eng.html>

5.3.6 SARA LISTED AND COSEWIC ASSESSED SPECIES

In the Pacific Region, the following SARA-listed species may be encountered by salmon fisheries:

BIRDS

[Ancient Murrelet](#) – Special Concern

[Marbled Murrelet](#) – Threatened

[Black-footed Albatross](#) – Special Concern

[Short-tailed Albatross](#) – Threatened

[Pink-footed Shearwater](#) – Endangered

[Cassin Auklet](#) – Special Concern

FISH

[Basking Shark, Pacific population](#) – Endangered

[Bluntnose Sixgill Shark](#) – Special Concern

[Bull Trout](#) - South Coast population – Special Concern

[Green Sturgeon](#) – Special Concern

[Longspine Thornyhead](#) – Special Concern

[Rougheye Rockfish Types I & II](#) – Special Concern

[Tope Shark](#) – Special Concern

[White Sturgeon](#) – Upper Columbia River population – Endangered

[White Sturgeon](#) – Upper Fraser River population – Endangered

[White Sturgeon](#) – Nechako River Population – Endangered

[White Sturgeon](#) – Upper Kootenay River population – Endangered

Yelloweye Rockfish, Pacific Ocean [inside](#) waters and [outside waters](#) populations – Special Concern (re-assessed by COSEWIC as Threatened in 2020)

MAMMALS

[Blue Whale, Pacific population](#) – Endangered

[Fin Whale, Pacific population](#) – Threatened (re-assessed by COSEWIC as special concern in 2019)

[Grey Whale – Eastern North Pacific Population](#) – Special Concern (reassessed and split into two populations by COSEWIC in 2017: Northern Pacific Migratory, assessed as Not at Risk, and Pacific Coast Feeding Group, assessed as Endangered)

[Harbour Porpoise, Pacific Ocean population](#) – Special Concern

[Humpback Whale, North Pacific population](#) – Special Concern

Killer Whale, Northeast Pacific – [northern resident population](#) – Threatened

Killer Whale, Northeast Pacific – [southern resident population](#) – Endangered

Killer Whale, Northeast Pacific – [offshore population](#) – Threatened

Killer Whale, Northeast Pacific – [transient population](#) – Threatened

[North Pacific Right Whale](#) – Endangered

[Sea Otter](#) – Special Concern

[Sei Whale, Pacific population](#) – Endangered

[Steller Sea Lion](#) – Special Concern

REPTILES

[Leatherback Sea Turtle](#) – Endangered

Marine or anadromous species assessed by COSEWIC that are currently under consideration for listing under SARA include:

FISH

[Bocaccio](#) – assessed as Endangered

[Darkblotched Rockfish](#) – assessed as Special Concern

[Eulachon](#) – Fraser River Designatable Unit (DU) – assessed as Endangered

[Eulachon](#) – Central Pacific Coast DU – assessed as Endangered

[Eulachon](#) – Nass/Skeena Rivers DU – assessed as Special Concern

[North Pacific Spiny Dogfish](#) – assessed as Special Concern

[Salmon, Chinook](#) (Okanagan population) – assessed as Endangered; engagement and consultation planned in 2023

[Salmon, Coho](#) (Interior Fraser population) – assessed as Threatened; DFO management scenarios in development

[Salmon, Sockeye](#) (Sakinaw population) – assessed as Endangered; engagement and consultation planned in 2023

Salmon, Sockeye (19 Fraser River DUs) – assessed as Endangered (10 DUs), Threatened (2 DUs), Special Concern (7 DUs); DFO management scenarios in development

Salmon, Chinook (21 Southern BC DUs) - assessed as Endangered (12 DUs), Threatened (7 DUs), Special Concern (2 DU); DFO management scenarios in development

Interior Fraser Steelhead ([Chilcotin](#) & [Thompson](#) populations) – assessed as Endangered (2 DUs); DFO and BC coordinating updated science information

[Quillback Rockfish](#) – assessed as Threatened

[White Sturgeon](#)- Lower Fraser River DU - assessed as Threatened

White Sturgeon – Mid-Fraser Nationally Significant Population – assessed as Endangered as part of the Upper Fraser DU

MAMMALS

[Northern Fur Seal](#) – assessed as Threatened

[Grey Whale, Pacific Coast Feeding Group population](#) – assessed as Endangered (this population represents a portion of the currently listed Special Concern Eastern North Pacific Grey Whale population)

[Grey Whale, Western Pacific population](#) – assessed as Endangered

5.3.6.1 SARA LISTING PROCESS FOR PACIFIC COAST FEEDING GROUP AND WESTERN PACIFIC GREY WHALE POPULATIONS

The Grey Whale is a medium- to large-sized baleen cetacean. As of 2017, COSEWIC recognizes three Grey Whale populations in Canadian Pacific waters. The Eastern North Pacific population, currently Special Concern on Schedule 1 of SARA, was split into two populations. A broader Northern Pacific Migratory population, which migrates from winter breeding grounds in Mexico to summer feeding areas in the Bering Sea and Arctic waters, was assessed by COSEWIC as Not at Risk. A small population which over-winters in Mexico and resides and feeds in British Columbia waters in summer and fall, the Pacific Coast Feeding Group, was assessed as Endangered. A new Western Pacific population, which was recently found to contain individuals that migrate through British Columbia waters to breeding areas in Mexico, was also assessed as Endangered.

The two COSEWIC-assessed Endangered Grey Whale populations are under consideration for SARA listing. Consultations on these proposed amendments under SARA and the potential impacts of SARA listing are anticipated to be held in 2023. For further information, please contact the Species at Risk Program at DFO.PACSAR-LEPPAC.MPO@dfo-mpo.gc.ca.

5.4 KILLER WHALE

5.4.1 RESIDENT KILLER WHALE

Two distinct populations of Resident Killer Whales, known as the Northern and Southern Residents, occupy the waters off the west coast of British Columbia. These two populations have overlapping ranges but are acoustically, genetically, and culturally distinct from each other. Since 2003, the Northern and Southern Resident Killer Whales have been listed in Schedule 1 of the *Species at Risk Act* (SARA), as threatened and endangered respectively. The

“Recovery Strategy for the Northern and Southern Resident Killer Whales (*Orcinus orca*) in Canada” was finalized and published on the Species at Risk Public Registry in 2008, amended in 2011 to clarify critical habitat attributes, and amended in 2018 to include two additional areas protected under the SARA Critical Habitat Order.

The principal threats identified in the [recovery strategy](#) for Northern Resident Killer Whales (NRKW) and Southern Resident Killer Whales (SRKW) include: reduced prey availability, environmental contaminants, and physical and acoustic disturbance. An additional emerging threat, vessel strikes, was identified during a science-based review of recovery actions for SRKW.

The [Action Plan](#) identifies 98 recovery measures to support recovery of Resident Killer Whales. These measures were developed to support recovery and to address the three primary threats to the population – including prey availability.

Relevant Key Threats:

Reduced Prey Availability

Northern and Southern Resident Killer Whales are dietary specialists and feed primarily on salmon. The seasonal distribution and movement patterns of Resident Killer Whales are strongly associated with the availability of their preferred prey, Chinook salmon (*Oncorhynchus tshawytscha*), and secondarily, Chum salmon (*O. keta*). Trends in the mortality rates of Southern and Northern Resident Killer Whales are also both strongly related to fluctuations in the abundance of Chinook Salmon. Key foraging areas for SRKW were identified in SRKW critical habitat using best available science to inform salmon fishery management measures to support Chinook Salmon prey availability for SRKW. In 2021, analyses of SRKW behaviour confirmed Haro Strait as a foraging area and identified foraging as the dominant behaviour in the waters surrounding Swiftsure Bank and Juan de Fuca Strait⁷.

DFO and other researchers continue to advance new scientific information and analyses to address the three principal threats to RKW, including prey availability.

Physical and Acoustic Disturbance:

All cetaceans, including Resident Killer Whales, have been subjected to increasing amounts of disturbance from vessels and anthropogenic noise in recent years. This includes chronic noise

⁷ DFO. 2021. Identification of areas for mitigation of vessel-related threats to survival and recovery for Southern Resident Killer Whales. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/025.

from shipping, and acute noise from industrial activities such as dredging, pile driving, and construction, as well as seismic testing, military sonar, and vessel use of low and mid-frequency sonars and high frequency echosounders. Killer whales use echolocation to detect prey, to communicate and to acquire information about their environment. Underwater noise can interfere with all these activities in critically important ways, such as disrupting communication, reducing the distance over which social groups can detect each other, masking echolocation and hence reducing the distance over which the animals can detect their prey, potentially displacing them from preferred feeding habitats, displacing prey, impairing hearing, either temporarily or permanently and in extreme cases causing death. While Resident Killer Whales travel in high vessel traffic areas such as Johnstone Strait and the Strait of Georgia, they must also coexist with both commercial and recreational sports fishing boats specifically targeting salmon in 'hot spots' that are also feeding areas for Killer Whales. Conflict for space may force Killer Whales to alter their foraging behaviour in order to successfully capture prey or to avoid collision or entanglement.

5.4.2 SOUTHERN RESIDENT KILLER WHALE MANAGEMENT MEASURES TO ADDRESS REDUCED PREY AVAILABILITY, AND PHYSICAL AND ACOUSTIC DISTURBANCE

The Government of Canada taking important steps to protect and recover the Southern Resident Killer Whale population, in keeping with recovery measures identified in *Species at Risk Act* (SARA) recovery documents. In May 2018, the Minister of Fisheries, Oceans and the Canadian Coast Guard and Minister of Environment and Climate Change determined the Southern Resident Killer Whale population faces imminent threats to its survival and recovery. Since 2018, the Government of Canada, with input from the Indigenous and Multi-Stakeholder Advisory Group, Technical Working Groups and consultation with Indigenous groups, stakeholders and the public, has implemented a number of management measures aimed at increasing prey availability for Southern Resident Killer Whales – particularly Chinook salmon – and reducing threats related to physical and acoustic disturbance with a focus in key foraging areas within Southern Resident Killer Whale critical habitat. These measures include fishing closures, Interim Sanctuary Zones (i.e., no-go zones), Seasonal Slowdown Areas for vessels, vessel approach distances and a number of voluntary measures in the presence of killer whales.

For the 2023 fishing season, the Department is working with Indigenous groups and stakeholders to inform potential changes for 2023. The Department intends for actions for the 2023 season be implemented to coincide with the return of Southern Resident Killer Whales in typically greater numbers to Canadian Pacific waters. For up-to-date information regarding the

Southern Resident Killer Whale management measures, please visit:

<https://www.canada.ca/southern-resident-killer-whales>.

The Government of Canada is asking vessel operators to respect the following voluntary measures year-round and in all Canadian Pacific waters:

Stop fishing (do not haul gear) within 1,000 metres of killer whales and let them pass;

Reduce speed to less than 7 knots when within 1,000 metres of the nearest killer whale;

When safe to do so, turn off echo sounders and fish finders; and

Place engine in neutral idle and allow animals to pass if your vessel is not in compliance with the approach distance regulations.

For more information on the best ways to help whales while on the water, when on both sides of the border, please visit: bewhalewise.org.

For more information regarding the Southern Resident Killer Whale management measures to support recovery, please contact the Marine Mammal Team (DFO.SRKW-ERS.MPO@dfo-mpo.gc.ca) or visit www.pac.dfo-mpo.gc.ca/southern-resident-killer-whale

5.4.3 DEPREDATION BY KILLER WHALE

Depredation (the removal of fish from fishing gear) by killer whales and sperm whales has been reported by groundfish longline, salmon troll, and recreational harvesters in BC.

Depredation is a learned behaviour that can spread throughout whale social groups and, once established, is impossible to eliminate. It is critical that BC harvesters do not encourage this learning by allowing whales to associate obtaining fish with fishing activity; encouraging this behaviour will quickly lead to significant losses for harvesters.

The most important approach to prevent this from spreading is by NOT feeding whales directly or indirectly and not hauling gear in the vicinity of killer whales. It is prohibited to approach marine mammals to feed or attempt to feed them under s. 7 of the *Marine Mammal Regulations*. Typically killer whales pass quickly through an area allowing fishing to resume. It is also recommended that you advise other fish harvesters in the area if you encounter depredation. Additional tips on avoiding depredation events can be found in the DFO Marine Mammal

Bulletin #2. DFO link:

<http://www.pac.dfo-mpo.gc.ca/publications/marinemammals/depredation-4-2010-eng.pdf>

If you experience depredation by whales, please report the incident by calling 1-800-465-4336, by email at Mammals.Marine@dfo-mpo.gc.ca by [reporting accidental contact through the marine mammal interaction form](#). Reporting all incidents will assist DFO and fish harvesters in understanding this problem and help in developing strategies to avoid it.

5.5 U.S. MARINE MAMMAL PROTECTION ACT FISH AND FISH PRODUCT IMPORT PROVISIONS

In 2016, the U.S. published new regulations (80 FR 54390) pursuant to the *Marine Mammal Protection Act* which focus on the reduction of marine mammal bycatch in foreign commercial fishing operations. These Import Provisions regulations, provided foreign nations a five-year exemption period to develop, as appropriate, regulatory programs governing the bycatch of marine mammals that are comparable in effectiveness to U.S. regulations.

Under these regulations, harvesting nations intending to continue to export fish and fish products to the USA after January 1, 2024, must apply to the U.S. National Oceanic and Atmospheric Administration (NOAA) for a comparability finding for each of its commercial fisheries listed in the 2020 US List of Foreign Fisheries. Harvesting nations must demonstrate: 1) the prohibition of intentional mortality or serious injury of marine mammals in the course of commercial fishing operations; and 2) the implementation of a regulatory program comparable in effectiveness to the U.S., including mandatory reporting of marine mammal bycatch, monitoring programs and management/mitigation measures where appropriate.

Depending on information provided, foreign commercial fisheries that export fish and fish products to the United States can be classified as either “export” or “exempt” based on the frequency and likelihood of incidental mortality and serious injury of marine mammals. On October 8, 2020, the 2020 US List of Foreign Fisheries was published on the [NOAA public registry](#). For the Pacific Region, all Salmon Gillnet fisheries are classified as *Export* (LOFF pg.97), all Salmon Trolling Line fisheries are classified as *Exempt* (LOFF pg.31), and all Salmon Purse Seine fisheries are classified as *Exempt* (LOFF pg.48).

On November 26, 2021, Fisheries and Oceans Canada, in collaboration with the Canadian commercial wild-capture fishing industry, submitted to the U.S., Comparability Finding Applications for 323 Canadian fisheries (including aquaculture) that export products to the U.S.

Recent Updates:

On October 20, 2022, NOAA extended the exemption period under the U.S. MMPA Fish and Fish Product Import Provisions to December 31, 2023. NOAA continues to review and evaluate comparability finding applications towards making its final determinations, and will notify nations of its findings. These comparability findings are important because they ensure that foreign nations' bycatch programs meet U.S. standards as a condition to allow import of the fish and fish products from these fisheries.

NOAA's official posting regarding "Modification of Deadlines Under the Fish and Fish Product Import Provisions of the *Marine Mammal Protection Act*" can be accessed at the following link: <https://www.federalregister.gov/documents/2022/10/21/2022-22965/modification-of-deadlines-under-the-fish-and-fish-product-import-provisions-of-the-marine-mammal>.

DFO will continue to share information about the U.S. Marine Mammal Protection Act Import Provisions and the process for ensuring continued access to U.S. markets. Further information can be found on the NOAA website, or by contacting the Regional Fisheries Coordinator or the DFO Marine Mammal Unit (MMU) (Mammals.Marine@dfo-mpo.gc.ca).

5.6 MARINE MAMMAL REGULATIONS

The *Marine Mammal Regulations* provide direction on conservation and protection of marine mammals, provide guidance for recovery of at-risk species under the *Species at Risk Act*, and set out provisions related to reducing human disturbance of marine mammals (e.g., viewing of marine mammals) and mandatory reporting requirements in the case there is accidental contact with a marine mammal and a vessel or fishing gear. These regulations were amended in 2018 and now specify mandatory requirements to reduce disturbance of marine mammals.

As per section 7(2) of the *Marine Mammal Regulations*, disturbance is defined as a number of human actions, including:

- Feeding, swimming or interacting with a marine mammal;
- Moving a marine mammal (or enticing/causing them to move);
- Separating a marine mammal from its group or going between them and a calf;
- Trapping marine mammals between a vessel and the shore, or between a vessel and other vessels; and
- Tagging or marking a marine mammal.

Boats are required to maintain a minimum approach distance of 100 metres for whales, dolphins or porpoises, 200 metres when whales, dolphins or porpoises are in a resting position or with a calf, and 200 metres from all Killer Whales in Pacific Canadian waters except when in

southern BC coastal waters which requires a 400m minimum approach distance to all killer whales in support of Southern Resident Killer Whale recovery. Please visit the Southern Resident Killer Whale management measures website for more information on the management measures: <https://www.canada.ca/southern-resident-killer-whales>

Any operator of a vessel or fishing gear involved in accidental contact with a marine mammal must notify DFO of the incident, as per section 39 of the *Marine Mammal Regulations*. Incident reporting includes:

- Reporting an injured, stranded, entangled or dead marine mammal to the BC Marine Mammal Response Network (Observe, Record, Report): 1-800-465-4336
- Reporting as bycatch in a logbook
- [Reporting accidental contact through the marine mammal interaction form](#)
- Depredation reporting to DFO by email at Mammals.Marine@dfo-mpo.gc.ca, by calling 1-800-465-4336 or reporting accidental contact through the reporting accidental contact through the [marine mammal interaction form](#).

Please note, incidents involving abuse or harassment of a marine mammal should be reported as a [fisheries violation](#), while injured, stranded, entangled or dead marine mammals should be reported to the [BC Marine Mammal Response Network](#) to enable a response if appropriate.

For more information on safe boating behaviour around whales, please visit: [Watching Marine Mammals](#) and [Be Whale Wise](#), or by contacting the DFO Marine Mammal Unit (MMU) (Mammals.Marine@dfo-mpo.gc.ca).

5.7 AQUACULTURE MANAGEMENT

REGULATORY REGIME:

In December 2010 the *Pacific Aquaculture Regulations* (PAR) came into effect, giving DFO the authority to govern the management and regulation of aquaculture activities at marine finfish, shellfish, freshwater/land-based and enhancement facilities. The *Aquaculture Activities Regulations* (AAR), which came into force in 2015, further clarify conditions under which aquaculture operators may treat their fish for disease and parasites, as well as deposit organic matter.

DFO also administers the provisions of the *Fishery (General) Regulations* (FGRs) including sections 54 to 57 in regard to licencing introductions and transfers of fish. These provisions include requirements relating to disease. All aquaculture operators must be authorized under the FGRs to bring fish onto the farm site, whether it is on land or in the marine environment. After fish are introduced to the farm site, fish health is addressed through conditions of licence

under the PARs throughout the rearing process. The Framework on the Transfer of Live Fish developed in 2019 provides further guidance related to licencing under the FGRs. This is nested under the Framework for Aquaculture Risk Management.

The Province of British Columbia continues to have authority over land tenures and workplace safety related to aquaculture in BC. New applications, amendments and related referrals are coordinated through FrontCounter BC. More information is available on the BC Government's website: <http://www.frontcounterbc.gov.bc.ca>. DFO approves and issues aquaculture licences.

As part of adaptive management, DFO Aquaculture Management continues to refine management approaches. The marine finfish aquaculture conditions were amended in March 2020 to improve sea lice management, and further updates were made when licences were reissued in June 2022. In spring 2023, DFO also updated marine finfish aquaculture conditions to address how incidental bycatch, such as herring, is managed and reported while conducting sea lice treatments. DFO Aquaculture Management is also exploring an Area-based Aquaculture Management approach, with a goal of managing aquaculture in a way that ensures environmental, social, and economic factors are considered.

In response to 2019 mandate commitments, DFO is developing a responsible plan to transition from open net-pen salmon farming in coastal British Columbia waters by 2025. A commitment towards introducing Canada's first-ever Aquaculture Act is temporarily on hold while DFO focuses on the transition plan.

DFO requires comprehensive environmental monitoring to be undertaken by the marine finfish industry, and the department also conducts additional monitoring, audits, and investigations (where warranted) to verify information submitted by licence holders and to obtain samples for analysis. Public reporting is undertaken to ensure the transparency and accountability aquaculture management in BC. Associated reporting can be found on this DFO web page: <http://www.pac.dfo-mpo.gc.ca/aquaculture/reporting-rapports/index-eng.html>.

There are multiple units within the BC Aquaculture Regulatory Program dedicated to aquaculture compliance, which monitor the activities of industry on an ongoing basis. The Program provides oversight and works to ensure the orderly management of the industry, including planning and licensing, linkages with national and regional policy, and consultation and communications. Contact information for staff with responsibilities related to aquaculture management within DFO can be found in the [Department Contacts](#) section of this plan.

INTEGRATED MANAGEMENT OF AQUACULTURE PLANS:

Integrated Management of Aquaculture Plans (IMAPs) provide an overview of each aquaculture sector and associated management and regulation. IMAPs are available on the DFO

website: [Aquaculture regulations and compliance | Pacific Region | Fisheries and Oceans Canada \(dfo-mpo.gc.ca\)](https://www.dfo-mpo.gc.ca/aquaculture-regulations-and-compliance/Pacific-Region/Fisheries-and-Oceans-Canada/).

IMAPs complement IFMPs and the two are reviewed periodically to ensure consistency of management approaches.

For more information on IMAPs, please contact: <mailto:IMAPS@dfo-mpo.gc.ca>
DFO.PACAquacultureEngagement-EngagementdelaquaculturePAC.MPO@dfo-mpo.gc.ca.

5.8 FISHING VESSEL SAFETY

Commercial fishing is recognized as a very dangerous activity. Concerns over fishing related injuries and deaths have prompted DFO to proactively work with Transport Canada and WorkSafe B.C. to ensure coordinated approaches to improving fish harvester safety. See Appendix 2 for more information.

5.9 CATCH MONITORING

DFO released the national *Fishery Monitoring Policy* in 2019, replacing the regional *Strategic Framework for Fisheries Monitoring and Catch Reporting* in the Pacific Fisheries (2012). The national policy seeks to provide dependable, timely and accessible fishery information through application of a common set of steps used to establish fishery monitoring requirements across fisheries. Available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fishery-monitoring-surveillance-des-peches-eng.htm>

The 2012 Pacific *Strategic Framework for Fisheries Monitoring and Catch Reporting* is available at: <https://www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework-monitoring-cadre-surveillance-eng.html>

To ensure consistent national application, further guidance is provided through in the *Introduction to the Procedural Steps of Implementing the Fishery Monitoring Policy*, available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fmp-implementation-psp-mise-en-oeuvre-eng.htm>

5.9.1 ENHANCED MONITORING, REPORTING, AND SAMPLING REQUIREMENTS FOR SALMON BYCATCH IN THE OPTION A TRAWL FISHERY

Beginning Fall 2022, enhanced monitoring, reporting, and sampling requirements were implemented in the groundfish Option A trawl fishery to assess the risk and potential impact of

the Option A trawl fishery on salmon stocks of concern. Salmon remain prohibited under Option A conditions of licence, but authorization to retain salmon for biological sampling purposes is permitted through scientific licence under Section 52 of the Fishery (General) Regulations.

Monitoring, reporting, and sampling requirements are subject to change as implementation continues and improvements or additional needs of the program are identified. Refer to the [Appendix 9 of the Groundfish Integrated Fishery Management Plan](#) and fishery notices for more information and in-season updates.

6 FISHERY MANAGEMENT OBJECTIVES FOR STOCKS OF CONCERN

Section 6 outlines fishery management objectives for those salmon stocks of concern in Northern BC whose status affects management of fisheries throughout the region. This section is not intended to provide a complete listing of all Northern BC salmon stocks of concern. Stock status and management measures implemented to protect stocks of concern not covered in Section 6 will be outlined in the species specific portions of Section 13.

6.1 RIVERS AND SMITH INLET SOCKEYE

The objective for Rivers and Smith Inlet Sockeye salmon is to allow rebuilding of these stocks to consistently reach escapement goals and achieve a sustainable stock that will support harvest.

Smith Inlet Sockeye: Beginning in 2022, this fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

Future openings are unlikely until a clear trend towards higher productivity and consistently better escapements is established and documented by the annual surveys of spawning adults.

Rivers Inlet Sockeye: Beginning in 2022, this fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

Future openings are unlikely until a clear trend towards higher productivity and consistently better escapements is established and documented by the annual surveys of spawning adults. Currently, there is not an established in-season assessment tool to estimate run size in this area.

Updated upper and lower biological escapement targets for Rivers Inlet Sockeye are under development and a process is underway to review the available information, and identify data gaps and associated uncertainties, with the final steps including a full science review of the updated benchmarks through the Canadian Science Advice Secretariat (CSAS) and establishment of updated Management Reference Points.

6.2 SKEENA RIVER SOCKEYE

The objective for Skeena River Sockeye is to maintain sustainable stocks consistent with the WSP and support FSC, commercial, and recreational harvests.

Over the past five years, the Skeena First Nations Technical Committee (SFNTC) has provided recommendations to guide management of First Nations FSC fisheries in the Skeena River and approach waters. The Skeena Sockeye abundance (Total Return to Canada TRTC) trigger level for First Nations Section 35(1) fisheries closures will be maintained at 400,000. Technical work by the SFNTC has identified that the total aggregate escapement of 600,000 Skeena Sockeye is required to meet the interim lower biological benchmark of 240,000 for wild Skeena Sockeye stocks. As proposed in previous SFNTC fishing plans, Skeena First Nations may choose to close or curtail First Nations section 35(1) FSC Sockeye fisheries anytime if the in-season TRTC estimate is below 600,000.

A review of biological benchmarks for all Skeena Sockeye CUs is being undertaken as a part of the obligations resulting from the updates to Chapter 2 of the Pacific Salmon Treaty. This work will further inform both updated biological benchmarks for individual Sockeye CUs as well as Management Reference Points for the Skeena Sockeye aggregate.

Skeena Sockeye directed commercial fisheries have been identified as needing additional mitigation measures to protect co-migrating wild Sockeye stocks, and to reduce bycatch interceptions, including of Steelhead and Coho. Harvest rates will continue to be based on an abundance-based formula that accounts for the forecasted aggregate Skeena Sockeye return to Canada and the status of Skeena Sockeye stocks where information is available, and additional measures are described in Section 13.

6.3 NASS RIVER SOCKEYE

The objective for Nass Sockeye is to maintain sustainable stocks that will meet WSP objectives and support FSC and Treaty harvests, as well as commercial and recreational harvests. In particular, management objectives to reduce harvest impacts on weak stocks such as Kwinageese and Damdochax Sockeye will remain until improvements are observed. Nass Sockeye will be managed to achieve an aggregate spawning escapement target of 200,000.

Returns in excess of the escapement target may be harvested in FSC, Nisga'a Treaty, recreational, and commercial harvest opportunities. Beginning in 2022 and continuing in 2023, additional mitigation measures will be implemented in Nass sockeye directed fisheries to increase protection for stocks of conservation concern. These measures include implementation of a delayed fishing date to when in-season escapement estimates become more accurate and a

season end date in late July to avoid wild Area 3 Chum. See Appendix 10 for a complete list of fisheries where additional mitigations measures will be implemented.

6.4 NORTH COAST CHUM

The objective for wild North Coast Chum is to rebuild weak wild stocks while providing opportunities to harvest surplus stocks.

North Coast wild Chum stocks remain depressed and management actions in Areas 3 to 6 will continue to be taken to maintain low fishery impacts. Specific Chum rebuilding plans have been developed for Skeena and Nass stocks. Please see Appendix 7 and Appendix 8 for more details.

6.5 SKEENA AND NASS CHINOOK

The objective for Skeena and Nass Chinook is to promote Chinook conservation and support rebuilding.

Most Skeena and Nass River Chinook conservation units (CUs) experienced declines in abundance in 2016 and 2017, followed by increases in 2018, and weaker escapements since 2019. A continued precautionary approach remains in place for Northern Chinook for the 2023 season, with a focus on Skeena Chinook to address concerns for the longer term decline in overall abundance of these stocks, and uncertain environmental conditions. The Department is implementing management actions consistent with those implemented in 2022, including continued precautionary measures in commercial troll fisheries, temporal and spatial closures, and quota reductions in the recreational fishery. Additional measures will be implemented in net fisheries in Area 3 to 5 to reduce Chinook interception. Please see Section 13 for more details.

Beginning in 2022, the Area C Chinook-directed gillnet fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

6.6 NORTHERN COHO

The objective for Northern Coho is to reduce exploitation in domestic fisheries to promote Coho conservation and support rebuilding.

Returns of Northern Coho in 2018 were the second lowest recorded since the mid 1990's. While preliminary estimates of escapement in 2020 through 2022 showed modest improvement for some CUs, there is still broad concern for most of the Coho CUs across the North Coast.

Reduced survival rates, productivity, and uncertain marine conditions are all potential causes for the persistent poor returns.

From 2019 to 2021, reductions to Coho exploitation were implemented in Northern commercial and recreational fisheries. In 2021, the Area F Coho mixed-stock directed fishery was closed as an interim measure to support stock rebuilding under PSSI.

Beginning in 2022, the North Coast mixed-stock Coho directed commercial troll fishery and the Central Coast Coho demonstration fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

Please see Section 13 for more details.

6.7 WEST COAST OF VANCOUVER ISLAND (WCVI) CHINOOK

The objective for West Coast of Vancouver Island (WCVI) Chinook is to manage Canadian ocean fisheries (specified below) to an exploitation rate of 10%. The objective for North Coast Chinook is to manage in accordance with the allocation policy, and to manage the northern troll fishery to a WCVI Chinook exploitation rate of 3.2%.

For the past two decades WCVI wild Chinook have experienced poor marine survival rates and low spawner levels despite improved returns of enhanced stocks in recent years. WCVI wild Chinook continue to be stocks of concern.

Management actions will continue to be required consistent with the exploitation rate objective. For purposes of calculating the WCVI exploitation rate for North Coast Chinook fisheries, all WCVI Chinook caught and kept in Canadian fisheries are assumed to be returning in the present year. Fisheries that this limit applies to are the northern troll, Haida Gwaii recreational, WCVI troll and WCVI recreational. The exploitation rate is measured by Coded Wire Tag (CWT) data gathered from these fisheries. The exploitation rate limit includes Chinook caught and kept, as well as an estimate of fishing related mortalities.

DFO will manage commercial troll fisheries in the North Coast to a 3.2% exploitation rate ceiling on total WCVI Chinook return to Canada. The harvest rate of WCVI Chinook in the Area F troll fishery is calculated based on 3.2% of the total WCVI return to Canada and is used as an in-season proxy for exploitation rate. The in-season harvest rate will be estimated using the mean effort-harvest rate relationship developed from historical DNA analysis. The fishery will be further constrained by remaining closed during the first half of June and parts of August as these periods are known to have higher proportions of WCVI Chinook in the total catch. DNA

analysis and coded-wire tag analysis of catch will be used to assess the 3.2% exploitation rate objective post season.

Chinook will be managed as per Annex IV provisions of the 2019 PST agreement. The harvest reductions are:

- For the U.S., up to a 7.5 percent reduction in the Southeast Alaska aggregate abundance-based management or “outside, mixed-stock” fishery, as well as reductions of up to 15 per cent from 2009-2015 harvest levels for individual stocks in Washington and Oregon individual stock-based management fisheries.
- For Canada, up to a 12.5 percent reduction in the West Coast Vancouver Island aggregate abundance-based management fishery and reductions of up to 12.5 per cent from 2009-2015 levels in Canadian individual stock-based management fisheries.

6.8 SKEENA STEELHEAD

DFO and the province of B.C. have renewed discussions on a joint approach to the management of Steelhead returning to the Skeena watershed consistent with the 1999 fisheries management protocol between the federal and provincial governments. This work is intended to specify clear management objectives, management responses and mechanisms for technical support, management planning, communication and dispute resolution. Work on this approach will include consultations with First Nations and stakeholders. Very low numbers of Skeena steelhead in 2021 have highlighted the importance of these discussions.

7 GENERAL DECISION GUIDELINES, ACCESS AND ALLOCATION

The Minister can — for reasons of conservation or for any other valid reasons — modify access, allocations, and sharing arrangements as outlined in this IFMP in accordance with the powers granted pursuant to the *Fisheries Act*.

7.1 ACCESS AND ALLOCATION OBJECTIVES

7.1.1 INTERNATIONAL OBJECTIVES

The objective is to manage Canadian treaty fisheries to ensure that obligations within the Pacific Salmon Treaty (PST) are achieved. As of January 1, 2019, treaty fisheries were managed in accordance with new amendments under the PST, which were being provisionally applied until the treaty formally entered into force as of May 3, 2019.

Details can be found at the Pacific Salmon Commission (PSC) website at:

<https://www.psc.org/>.

Review of the performance of the PST provisions occurs annually at two bilateral meetings of the Northern Panel of the PSC and those results are published post-season.

7.1.2 DOMESTIC ALLOCATION OBJECTIVES

The objective is to manage fisheries in a manner that is consistent with the constitutional protection provided to existing Aboriginal and treaty rights and An Allocation Policy for Pacific Salmon.

An Allocation Policy for Pacific Salmon can be found on-line at:

<https://waves-vagues.dfo-mpo.gc.ca/Library/240366.pdf>

An Allocation Policy for Pacific Salmon sets out principals for allocation between the recreational and commercial sectors and also identifies sharing arrangements for commercial fisheries. An explanation of some of the features of Allocation planning is set out in Section 7.2.

An update on the review of the Salmon Allocation Policy can be found in Section 1.6.1.

7.2 ALLOCATION GUIDELINES

Allocation decisions are made in accordance with *An Allocation Policy for Pacific Salmon*:

<https://waves-vagues.dfo-mpo.gc.ca/Library/240366.pdf>

An update on the review of the Salmon Allocation Policy can be found in Section 1.6.1.

Table 7-1: Allocation guidelines

	Low Abundance		High Abundance		
First Nations FSC	Non-retention / closed	Bycatch Retention	Directed	Directed	Directed
Recreational	Non-retention / closed	Non-retention	Bycatch Retention	Directed	Directed
Commercial	Non-retention / closed	Non-retention	Bycatch Retention	Bycatch Retention	Directed

NOTE: This table describes conceptually how First Nations, recreational and commercial fisheries might be undertaken across a range of returns. It does not imply that specific management actions for all stocks exactly follow these guidelines, but rather is an attempt to depict the broad approach.

The allocation guidelines above refer to target stocks. The application of *An Allocation Policy for Pacific Salmon* on non-target stocks is case specific. The inadvertent harvest of different species is referred to as *bycatch*. The inadvertent harvest of stocks of concern within the same species (i.e. Cultus Lake Sockeye when harvesting Summer Run Sockeye) is referred to as *incidental harvest*. Both *bycatch* and *incidental harvest* are factored into the calculation of exploitation rates on various stocks, and therefore, fishing plans are designed to be consistent with existing policies and to keep exploitation rates on stocks of concern within the limits described in the fishery management objectives.

The Department does not allocate bycatch or portions of the acceptable exploitation rate on stocks of concern. The Department considers a number of fishing plan options and attempts to address a range of objectives including minimizing bycatch and incidental catch.

7.2.1 FIRST NATIONS – FOOD, SOCIAL, AND CEREMONIAL (FSC) AND TREATY DOMESTIC HARVEST

An Allocation Policy for Pacific Salmon provides that after requirements for conservation, the first priority in salmon allocation is to treaty rights for harvest opportunities for domestic purposes (consistent with Treaty Final Agreements) and for FSC for harvest opportunities (under communal FSC licences issued to First Nations). The Department has announced plans to review *An Allocation Policy for Pacific Salmon*; further details can be found in Section 1.6.1. The Department remains committed to respecting First Nations' Aboriginal right to fish for food,

social and ceremonial (FSC) purposes, or domestic purposes under Treaty which has priority – after conservation – over other uses of the resource.

While these opportunities will be provided on a priority basis, it does not necessarily mean that fishery targets for First Nations will be fully achieved before other fisheries can proceed. For example, many First Nations conduct their FSC fisheries in terminal areas while other fisheries are undertaken in marine or approach areas. The general guideline is that fishing plans must adequately provide for the First Nations' FSC and/or domestic Treaty harvests that will occur further along the migration route over a reasonable range of potential run sizes.

7.2.2 TEST FISHERIES

DFO uses a range of methodologies to determine in-season stock abundance and composition. Test fisheries play an essential role in providing information to support in-season abundance estimation, driving determination of TACs, and ensuring that conservation objectives are met in fisheries management. From 2007 to 2012, \$58 million (Larocque Relief Funding) was provided to support the test fishery programs. In 2012, an amendment to the *Fisheries Act* granted the Minister the authority to allocate fish for financing purposes. To implement this authority, DFO adopted a two-track approach.

Track one included a transition where feasible for existing projects previously funded by Larocque relief funding to the new use-of-fish authority for a period starting April 1, 2013 pending completion of Track two.

Track two included the development of a national policy framework to provide a standardized, rigorous and transparent process for all existing and new project evaluations and approvals. The draft National Policy for Allocating Fish for Financing Purposes has been implemented since 2013 and the Policy has recently been finalized.

While an objective of the use-of-fish arrangements is for fish revenues to address program costs, in a number of cases since 2013, low salmon stock abundance has curtailed test fish revenues, and alternative funding arrangements to support programs have been pursued.

There is one project proposed for the North Coast for 2023; the Tye Test Fishery in Area 4 (Skeena River Gillnet), which the North Coast Skeena First Nations Stewardship Society will continue to administer the test fishery via a collaborative agreement with the Department.

Salmon Test Fisheries - Pacific Region Webpage:

<https://www.pac.dfo-mpo.gc.ca/pacific-smon-pacifique/science/research-recherche/testfishery-pechedessai-eng.html>

DFO will work in close collaboration with resource users to ensure that the fisheries data collections necessary to set TACs and ensure conservation will continue to be undertaken.

7.2.3 RECREATIONAL FISHERIES

Recreational fisheries are managed to maintain opportunity wherever stock status allows and to allow fisheries to be managed in a predictable manner, where possible. Under *An Allocation Policy for Pacific Salmon*, after FSC fisheries, the recreational sector has priority to directed fisheries for Chinook and Coho salmon. For Sockeye, Pink, and Chum salmon, the policy states that recreational harvesters be provided predictable and stable fishing opportunities.

Recreational harvest of Sockeye, Pink, and Chum will be limited to a maximum of 5% of the combined recreational and commercial harvest of each species on a coast-wide basis averaged over a rolling five-year period.

If stock abundance information suggests that conservation objectives cannot be attained, closures or non-retention regulations will generally be applied. In some cases, recreational fisheries with a non-retention restriction in place may remain open provided the recreational fishery is not directed on any stocks of concern, nor is the impact on any stocks of concern significant in accordance with the *Selective Fishing Policy*.

Prior to a directed commercial fishery on specific Chinook and Coho stocks, the fishing plan will provide for full daily and possession limits for the recreational sector on those stocks. Decision guidelines may also identify considerations for changing the area of the fishery, modifying dates, or changing daily limits.

7.2.4 COMMERCIAL FISHERIES

Commercial fisheries are managed to optimize the economic performance of the fisheries, to provide certainty to participate where possible and to optimize harvest opportunities. However, stocks of concern will continue to constrain opportunities in many fisheries.

An Allocation Policy for Pacific Salmon provides for a commercial harvest of Sockeye, Pink, and Chum of at least 95% of the combined recreational and commercial harvest of each species on a coast-wide basis over time. Commercial harvest of Chinook and Coho salmon will occur when abundance permits and First Nations and recreational priorities are considered to have been addressed.

Please see Section 13– Species Specific Salmon Fishing Plans for the commercial allocation plan with shares by species, fleet, and fishery production area. The ability to achieve allocations is often limited by conservation constraints and other factors. Low impact fisheries (limited number of vessels) often occur prior to those having a higher impact (full fleet), particularly at

low run sizes, at the start of the run when run sizes are uncertain or when stocks of concern have peaked but continue to migrate through an area. Appendix 6 provides further information on updates to commercial sharing arrangements.

When one commercial gear type is unlikely to achieve its allocation, the usual approach will be that the same gear type, but in a different area, will be provided opportunities to harvest the uncaught balance.

Allocation targets are not catch targets for each sector. While the Department will usually plan and implement fisheries to harvest fish in accordance with allocation targets, opportunities may be provided that are inconsistent with the allocation targets.

7.2.5 FIRST NATIONS ECONOMIC OPPORTUNITY AND CSAF AND INLAND DEMONSTRATION FISHERIES

The Allocation Transfer Program (ATP) facilitates the voluntary retirement of commercial licences and the issuance of licences to eligible First Nation groups in a manner that does not add to the existing fishing effort on the resource, thereby providing First Nation groups with employment, income, and increasing participation in commercial fisheries as part of relationship-building with the Department. First Nations' economic opportunities are managed under the same allocation guidelines as commercial fisheries under *An Allocation Policy for Pacific Salmon*.

Since 1994–95, when the ATP was first launched and including PICFI starting in 2007, 506 commercial licences have been relinquished for First Nation groups. For a more detailed description of First Nations' commercial fishing opportunities please refer to Section 13 — Species Specific Salmon Fishing Plans.

7.2.6 EXCESS SALMON TO SPAWNING REQUIREMENTS FISHERIES

Salmon fisheries are managed with the objective of reaching escapement targets or harvesting a certain proportion of the run. Uncertain forecasts, unanticipated differences of in-season run size estimates, and mixed-stock concerns can result in escapement to terminal areas that are in excess of their required habitat or hatchery spawning capacity. In these cases, Excess Salmon to Spawning Requirements (ESSR) fisheries may occur.

The Department will attempt, wherever practical, to eliminate or minimize ESSRs by harvesting in the FSC, recreational, and commercial fisheries. It is not the intention of the Department to establish new ESSR fisheries to displace existing fisheries.

First priority will be to use identified surpluses to meet outstanding FSC requirements, which cannot be met through approved FSC fisheries. This may be done under a communal licence. As

a second priority, the local band or Tribal Council may be offered the opportunity to harvest all or part of the surplus under an ESSR licence, which authorizes the sale of the surplus.

7.3 GENERAL DECISION GUIDELINES

The following comprehensive decision guidelines outline management responses that will be invoked under a range of in-season circumstances, and the general rationale to be applied in making management decisions.

Decision guidelines are meant to capture general management approaches with the intention of working towards multi-year management plans.

Specific fishing plans are described in Section 13 — Species Specific Salmon Fishing Plans.

7.3.1 PRE-SEASON PLANNING

Development of decision guidelines is part of the pre-season planning process. Development is guided by relevant departmental policies, scientific advice, consultation with First Nations, commercial and recreational harvesters, and other interests, and the experience of fishery managers and stock assessment staff.

Pre-season decisions include the development of escapement targets, exploitation rate limits, sector allocations, and enforcement objectives.

7.3.2 IN-SEASON DECISIONS

In-season decision points vary from fishery to fishery depending on type, availability, and quality of in-season information; and the established advisory, consultation, and decision-making processes. Decisions include opening and closing of fisheries, level of effort deemed acceptable, gear type restrictions, deployment of special projects, etc.

Where possible, in-season decisions will be consistent with guidelines established pre-season; however, the implementation and applicability of decision guidelines and pre-season plans can be influenced in-season by a number of factors. These include unanticipated differences between pre-season forecasts and in-season run size estimates, unexpected differences in the strength and timing of co-migrating stocks, unusual migratory conditions, and the availability and timeliness of in-season information.

7.3.3 SELECTIVE FISHERIES

Selective fishing is defined as the ability to avoid non-target fish, invertebrates, seabirds, and marine mammals or — if encountered — to release them alive and unharmed (see [Policy for](#)

[*Selective Fishing in Canada's Pacific Fisheries*](#)). Selective fishing technology and practices will be adopted where appropriate in all fisheries in the Pacific Region and there will be attempts to continually improve harvesting gear and related practices.

7.3.4 POST-RELEASE MORTALITY RATES USED TO ACCESS FRIMS

The salmon conservation and fisheries management measures in this IFMP are based on many considerations, including estimates of the mortality rates of salmon that are released from the various types of fishing gear that are used in commercial, recreational, and First Nations fisheries. Post-release mortality rates can vary substantially and depend on many factors, including the location of the fishery, the unique characteristics of each type of fishing gear and method, and the species of salmon that is captured and released. In April 2001 DFO announced revisions to the post-release mortality rates that had been used by DFO in previous years. The mortality rates applied by DFO to each gear type and fishery prior to 2001, and the revised rates announced by DFO in 2001 with some more recent revisions are summarized in Table 7-2. The revised rates reflected the results of additional research on post-release mortality rates that were available at that time. DFO has generally continued to use these post-release mortality rates each year in the development of annual fishing plans including this salmon IFMP.

DFO will review the post-release mortality rates currently used for salmon fisheries in Canadian waters and update Table 7-2 as new information becomes available. Since 2001 additional research has been conducted on post-release mortality rates of salmon, and additional fishing methods and gear types have been implemented (e.g. beach seining, recreational catch, and release study for Fraser Sockeye salmon) in some salmon fisheries. The pre-2001 post-release mortality rates are included for historical comparison indicating which fisheries rates have changed. The 2001 post-release mortality rates currently applied by DFO for salmon fisheries, in some cases, are not the same as the rates that are currently applied by the bi-lateral Chinook Technical Committee under the Pacific Salmon Treaty. The results from the DFO review of mortality rates will be used to inform any additional revisions to the post-release mortality rates that are required to address these issues in the development of salmon IFMPs in future years.

For post-season assessments of Chinook salmon, DFO uses the exploitation rates developed by the Pacific Salmon Commission Chinook Technical Committee, which employs the mortality rates reported by the PSC (2007).

Table 7-2: Post-Release Mortality Rates

Fishery	Pre 2001 Post-Release Rates (for historical comparison)	Post 2001-Release Rates
First Nations Fisheries	Note: When using the same gear and methods noted below the same mortality rates were applied.	Various – Depending on gear used and fishery Gill net – 60% same as commercial below Beach seine – 5% for Sockeye and Coho in-river Fraser Modified Shallow Seine- 10% for Sockeye and Coho in-river Fraser Tooth Tangle net – 3.5” mesh is 10% Sockeye and 15% Coho Fishwheel - 5% for Sockeye and Coho in-river Fraser
Recreational troll gear – Sockeye, Coho, Pink and Chum	10%	10% except 3% for Sockeye in-river Fraser
Recreational Troll gear – Chinook	15%	15%
Recreational mooching gear – Coho and Chinook	10% for Coho; 15% for Chinook	10% for Coho in South Coast areas; 15% for Chinook in all areas
Commercial gill net (South Coast)	60% to 70%	60% with provision for rates as low as 40% where selective techniques warrant
Commercial seine – South Coast (Areas 11 to 29)	15% to 25%	25% Johnstone Strait; 50%* Area 20 – Coho; 25% all areas for Sockeye
Commercial troll – All Areas	26%	10% Sockeye, 15% Coho and Chinook

7 GENERAL DECISION GUIDELINES, ACCESS AND ALLOCATION

Fishery	Pre 2001 Post-Release Rates (for historical comparison)	Post 2001-Release Rates
Commercial tooth tangle net 3.5" mesh	n/a	10% Sockeye, 15% Coho

*Work by researchers from Carleton University, the University of British Columbia, and the Area B Harvest Committee has been undertaken in 2012 and 2013 to re-evaluate the release mortality rates for Coho caught using purse seine gear in Area 20. Results to-date indicate that short-term release mortality rates are less than the current 70% estimate. For the 2023 fishery, the Department will use a 50% release mortality estimate for planning purposes subject to at-sea-observer coverage to assess Coho encounter rates and fish condition during any commercial fishery openings.

8 COMPLIANCE PLAN

8.1 COMPLIANCE AND ENFORCEMENT OBJECTIVES

CONSERVATION AND PROTECTION PROGRAM DESCRIPTION

Conservation and Protection (C&P) is mandated to protect fisheries, waterways, aquatic ecosystems and resources from unlawful exploitation and interference. Fishery officers provide compliance promotion and enforcement services in support of legislation, regulations and management measures implemented to achieve the conservation and sustainable use of Canada's aquatic resources, the protection of species at risk, fish habitat and oceans.

In carrying out activities associated with the compliance and enforcement of Pacific salmon fisheries, outlined in this management plan, C&P will utilize intelligence-led and principle-based approaches and practices consistent with the *Three Pillars of the C&P National Compliance Framework* and the *DFO Compliance Model*:

- I. Voluntary **compliance promotion** through education, stewardship and stakeholder engagement;
- II. Intelligence-led **monitoring, control and surveillance** activities;
- III. Management of **major cases /special investigations** in relation to complex compliance issues.

8.2 REGIONAL COMPLIANCE PROGRAM DELIVERY

C&P utilizes a broad scope of activities to deliver compliance and enforcement services within Pacific Region salmon fisheries. The main activities of C&P include:

Prioritizing compliance and enforcement measures that support DFO management objectives which aim to sustain the salmon stocks and fisheries;

Developing and maintaining positive relationships with First Nations communities, recreational groups and commercial interests through dialogue, education and shared stewardship;

Ensuring the development and supporting of a professional fishery officer complement that is skilled, well-equipped, well-informed, safe and effective;

Ensuring that salmon fisheries participants are aware of their obligations to comply with the various Acts, Regulations and licence conditions.

Inspecting fishers, vessels, vehicles, totes and containers, fish processors, cold storage facilities, restaurants and retail outlets to verify compliant product and compliance with Federal and Provincial Acts and Regulations.

Collecting and analysing required samples for inspection or investigative purposes

Conducting high-profile fishery officer presence during patrols by vehicle, vessel and aircraft to detect and deter violations;

Maintaining a violation reporting 24-hour hotline to facilitate the reporting of violations;

Supporting traceability initiatives within the salmon fishery for enhanced accountability, e.g., monitoring and verifying salmon catches and offloads to ensure accurate and timely catch reporting and accounting, including coverage of dual-fishing opportunities;

Collecting and utilizing intelligence to identify and target repeat and more serious offenders for enforcement effort, including laundering and illegal sales of salmon;

Use of enhanced surveillance techniques, technology and covert surveillance techniques as a means to detect violations and gather evidence in salmon fisheries-of-concern;

Responding to the most serious habitat violations identified by the DFO Fish and Fish Habitat Protection Program;

Continue to utilize restorative justice forums to reduce harm to fisheries, species-at-risk, and fisheries habitat.

8.3 CONSULTATION

Education, information and shared stewardship activities are the foundation for achieving voluntary compliance. C&P fishery officers regularly participate in consultations with resource users and the general public. C&P participates in all levels of the advisory process and is committed to including local fishery officers to provide users and the community-at-large with specific information related to compliance and enforcement perspectives. C&P will continue to meet with individual First Nations at the local level through the First Nations Liaison Program and with First Nations planning committee meetings where many First Nations gather.

8.4 COMPLIANCE STRATEGY

Salmon fishery compliance and enforcement continues to be a significant priority for C&P. Concurrent to the salmon season, compliance and enforcement attention may be required to address violations related to fisheries habitat, shellfish harvest in contaminated areas, Whale initiative/response and the protection of species at risk. In order to balance multiple program demands, C&P applies a risk-based integrated work planning process at the Regional and Area levels. This process identifies priorities so that resources are allocated to the areas of greatest need.

9 PERFORMANCE/EVALUATION CRITERIA

This section is intended to outline measurable indicators to determine whether or not those management issues outlined in the IFMP are being addressed. These indicators may include those specifically developed for the IFMP, as well as from existing evaluation processes.

Potential performance indicators will be required for assessing conservation and fishery sustainability; WSP objectives; domestic and international objectives; First Nations, commercial and recreational objectives; allocation objectives; enhancement objectives, as well as other indicators of interest.

The Department intends to work collaboratively with First Nations and stakeholders to review existing and/or develop new performance indicators that should be included as part of the performance/evaluation criteria.

The results of the previous year's annual review (e.g. 2022 season) follow below:

9.1 2022/2023 POST SEASON REVIEW FOR STOCKS OF CONCERN

NOTE: The objectives shown in **bold** below is the wording from the previous year's Integrated Fisheries Management Plan.

9.1.1 RIVERS AND SMITH INLET SOCKEYE

2022/2023: The objective for Rivers and Smith Inlets Sockeye salmon is to continue allowing rebuilding of these stocks to reach escapement goals and achieve a sustainable stock that will support harvest.

There have been no commercial or recreational fisheries targeting River Inlet Sockeye for many years. Escapements, except for 2011 and 2016, have fallen short of target levels and thus commercial and recreational fisheries remain unlikely until a trend towards consistently higher productivity has been established. This trend will be established from the adult spawner survey and a process is underway to establish updated biological benchmarks for Rivers Inlet Sockeye and associated Management Reference Points. The Docee Fence has not operated as an in-season management tool since 2017. Efforts are underway to re-establish a program using alternate in-season methods to determine run strength. Rivers and Smith Inlet Sockeye directed commercial fisheries were identified for longer-term closures starting in 2022.

9.1.2 SKEENA RIVER SOCKEYE

2022/2023: The objective for Skeena River Sockeye is to maintain sustainable stocks consistent with the WSP and support FSC, commercial, and recreational harvests.

The preliminary post-season estimate of the Skeena Sockeye total return for 2022 was 4,358,330 (4,008,330 estimated total return to Canada).

In 2022, there were Skeena Sockeye directed commercial gill net and seine fisheries starting on July 15. The commercial fishing opportunities closed in the marine areas on August 7 to protect weak later-timed stocks and bycatch species, such as Skeena Steelhead. In addition to marine commercial fisheries, there were four demonstration fisheries implemented in 2022. A large Sockeye-directed ESSR fisheries occurred in Babine Lake with a total harvest of 469,128. The recreational fishery opened on July 19, 2022 to one (1) per day in the Skeena River watershed. On July 20, 2022 the Sockeye daily limit was increased to two (2) per day on the Skeena River watershed.

Skeena River mainstem waters only then increased to four (4) Sockeye per day on July 27. On August 19, 2022 the Babine Lake Sockeye daily limit was increased to four (4) per day.

The preliminary total Skeena Sockeye FSC catch estimate for 2022 is 109,341 pieces.

9.1.3 NASS RIVER SOCKEYE

2022/2023: The objective for Nass Sockeye is to maintain sustainable stocks that will meet WSP objectives and support FSC and Treaty harvests, as well as commercial and recreational harvests.

Nisga'a Fisheries Program assessment activities continued providing DFO and Nisga'a stock assessment managers with valuable information (e.g., run size and Nisga'a catch) required to successfully manage the Nisga'a fishery and assess Nass area stocks.

The preliminary post-season estimate of the Nass Sockeye total return for 2022 was 614,516 and the Total Return to Canada estimate 519,516. As a result of high water levels delaying fish passage past the Nass fishwheels in 2022, as a result no Sockeye directed opportunities were identified. Two of the four Pink targeted seine openings in July had Sockeye retention with a total catch of 2,347. One Sockeye-directed demonstration fishery was implemented in the Nass River in 2022 on the Meziadin River.

Recreational fishing on the Nass River watershed started with normal daily limits and opening times for Chinook, Coho, Pink and Sockeye.

On June 15, 2022 the Department reduced the recreational Chinook daily limit to two (2) Chinook per day, only one of which could be over 65cm.

As per the triggers set out in the 2022/23 NC Salmon IFMP, on Aug 2, 2022 Meziadin Lake opened to one (1) Sockeye per day and then increased to two (2) per day on Aug 13, 2022. The fishery closed on Sept 7, 2022.

First Nations FSC fisheries for Nass Sockeye were open in the marine approaches and the Nass River for the duration of the season. Four individual sale fisheries were conducted in 2022 by Nisga'a Fish and Wildlife Department, there were 42,149 Sockeye harvested under the Nisga'a Treaty.

9.1.4 NORTH COAST CHUM

2022/2023: The objective for wild north coast Chum is to rebuild weak wild runs, while providing opportunities to harvest surplus stocks.

Chum stock status remained a concern in 2022. There were no commercial net fisheries that targeted wild Chum from Areas 3 to 6 in 2022. Retention of Chum was permitted in the Pink targeted seine fishery in accordance with the Area 3 Chum Rebuilding Plan. There were 4 seine fisheries openings held on July 12, 18, 19, and 25, with a total Chum retention of 19,616 fish. Preliminary estimates indicate that exploitation rates have remained below the 10% rebuilding exploitation rate objective.

9.1.5 WCVI CHINOOK

2022/2023: The objective for West Coast of Vancouver Island (WCVI) Chinook is to manage Catch Year Exploitation Rate (CYER) in specified Canadian ocean fisheries (see below) to an exploitation rate of 10%. The objective for North Coast fisheries is to manage in accordance with the allocation policy, and to manage the northern troll fishery to a WCVI Chinook exploitation rate limit of 3.2%.

The Catch Year Exploitation Rates (CYER) are based on analysis of Estimated Coded-Wire-Tags (CWT) within the Pacific Salmon Commission process. Annual results are available on www.psc.org under the Chinook Technical Committee publications. With respect to 2021 CYER in Canadian fisheries of the indicator stock Robertson Creek Hatchery, the total in the specified Canadian ocean fisheries (AABM fisheries, including all WCVI sport outside Barkley Sound) was 11.8% including 2.2% in the northern BC troll fishery, 2.5% in the Haida Gwaii recreational fishery, 5.5% in the WCVI recreational fishery, and 0.5% in the WCVI troll fishery.

Post season estimates of coastwide exploitation of WCVI origin Chinook using DNA are expected to be available in the near future. The total Area F Troll Chinook catch in 2021 was 64,470 pieces which contained 8,795 WCVI Chinook estimated from DNA analysis of the

catch. The post-season reconstructed WCVI Chinook return to Canada in 2021 was estimated at 267,556 Chinook salmon.

9.1.6 INSHORE ROCKFISH

2022/2023: The management objective for Bocaccio and inshore rockfish species (which include Yelloweye, Quillback, Copper, China, and Tiger) is to continue conservation strategies that will ensure stock rebuilding over time. These species are currently non-retention in the commercial salmon troll fisheries.

Based on science information, the Department implemented stepped reductions of total Bocaccio harvest from the estimated total catch mortality of 137 metric tonnes (MT) in 2013 to a mortality cap of 75 MT over 3 years (2013-14 to 2015-16). Through the process of regular evaluation of the rebuilding plan, science advice on stock status and rebuilding strategies for Bocaccio was peer-reviewed in autumn 2019. More information on the Bocaccio Rebuilding Plan is available in Appendix 9 of the Groundfish IFMP.

The Department has also implemented stepped reductions of total Yelloweye Rockfish (outside population) harvest from the estimated total catch mortality of 287 MT in 2014 to a mortality cap of 100 MT over 3 years (2016/17 to 2018/19). Through the process of regular evaluation of the rebuilding plan, science advice on stock status and rebuilding strategies for Yelloweye Rockfish outside population was peer-reviewed in autumn 2019. More information on the Yelloweye Rebuilding Plan is available in Appendix 9 of the Groundfish IFMP.

The Department is working collaboratively with all fishing interests to achieve rockfish conservation and rebuilding. For the salmon troll, recreational, and FSC fisheries, the current emphasis is on increasing awareness, given the limited data available on catch. Current work with these fisheries is focused on:

- Improving rockfish identification among fishers, technicians, guides, lodges, creel surveyors, and other catch monitors; and
- Improving fishery monitoring and catch reporting of rockfish by species.

9.2 2022/2023 POST SEASON REVIEW FOR ACCESS AND ALLOCATION OBJECTIVES

9.2.1 INTERNATIONAL OBJECTIVES

The objective was to manage Canadian treaty fisheries to ensure that obligations within the Pacific Salmon Treaty (PST) are achieved.

Review and performance of the PST provisions for Sockeye, Coho, Chum and Chinook salmon occur annually at bilateral meetings. Results of the meetings are published in the annual post-season reports available from the Pacific Salmon Commission (PSC). More information is available on the PSC website at:

<http://www.psc.org/index.htm>

9.2.2 DOMESTIC ALLOCATION OBJECTIVES

The objective was to manage fisheries in a manner that is consistent with the Allocation Policy for Pacific Salmon and the Pacific Salmon Commercial Allocation Implementation Plan.

Fisheries were generally conducted in a manner consistent with the Allocation Policy for Pacific Salmon. Post-season reviews were conducted to provide information on stock status, catches and other fishery information.

9.2.3 FIRST NATIONS OBJECTIVES

The objective was to manage fisheries to ensure that, after conservation needs are met, First Nations' food, social and ceremonial requirements and treaty obligations to First Nations have first priority in salmon allocations in accordance with the Pacific Salmon Allocation Policy.

Fisheries were generally conducted in a manner consistent with the Allocation Policy for Pacific Salmon. Post-season reviews were conducted to provide information on stock status, catches and other fishery information.

9.2.4 RECREATIONAL AND COMMERCIAL OBJECTIVES

The objective was to manage fisheries for sustainable benefits consistent with established policies.

The primary objective in the recreational fishery to maintain the expectation and opportunity to catch fish in a stable manner was achieved. In the commercial fishery, harvest opportunities were planned based on the identification of commercial surpluses and based on the commercial allocation plan.

9.3 2022/2023 POST SEASON REVIEW OF COMPLIANCE MANAGEMENT OBJECTIVES

Fishery officers carry out inspections on vessels, buying stations, processors, transporters, cold storage facilities, brokers, restaurants and retailers. In-season and future compliance and enforcement activities are adjusted, in consideration of the outcomes of the inspections program. The annual post-season review of the inspection program further informs C&P about the successes of the program and where to align resources to provide the greatest value to Canadians.

10 NORTHERN BC FIRST NATIONS FISHERIES

10.1 CATCH MONITORING AND REPORTING INITIATIVES

DFO released the national *Fishery Monitoring Policy* in 2019, replacing the regional *Strategic Framework for Fisheries Monitoring and Catch Reporting* in the Pacific Fisheries (2012). The national policy seeks to provide dependable, timely and accessible fishery information through application of a common set of steps used to establish fishery monitoring requirements across fisheries.

The 2012 Pacific *Strategic Framework for Fisheries Monitoring and Catch Reporting* is available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fmp-implementation-ppsp-mise-en-oeuvre-eng.htm>

To ensure consistent national application, further guidance is provided through in the *Introduction to the Procedural Steps of Implementing the Fishery Monitoring Policy*, available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fmp-implementation-ppsp-mise-en-oeuvre-eng.htm>

10.1.1 ABORIGINAL HARVEST MANAGEMENT SYSTEM

Since the year 2000, Fisheries and Oceans Canada have been working with First Nations groups to design and develop electronic recording and reporting systems for First Nations FSC catch data, to improve the efficiency and accuracy of reporting FSC catch and other fishing information used by Aboriginal fishery managers and the Department. The software has incorporated recommendations from numerous First Nations members and is based on their reporting requirements within their communities and those required by the Department. The application also has a harvester designation system, allowing First Nations to track FSC effort and harvest as well as other fishing information for their members.

The initiative first utilized a Microsoft Access database used by interested First Nations groups within the Pacific Region, including the BC Interior area, South Coast, and the Central Coast. In the late 2000s, approximately 34 First Nations groups employed this software application with different success rates, with a few sending FSC data to DFO's Regional catch database. In 2010, work started on compiling all aspects of the 34 current MS Access databases into one system called the Aboriginal Harvest Management System (AHMS) that could be customizable for each Nation's needs. Since 2010, new Nations have been brought onboard each year, bringing the total in 2022 to 17 First Nation's currently using AHMS throughout the Region, with up to 6 First Nations still using MS Access databases. The current DFO Regional Database where First Nation's FSC data is managed is called KREST (the Kept and Released Estimation Survey Tool

(KREST). AHMS users have the option to export data directly into KREST or submit catch reports via other means.

For more information please contact Aleta Rushton at 250-230-1227.

10.1.2 CHINOOK AND COHO CODED WIRE TAG (CWT SAMPLING)

CWT target sample rates are established by the Department to meet bilateral Pacific Salmon Treaty standards. The minimum required sample rates are 20% of the estimated catch of the fishery to recover a minimum quantity of CWTs from indicator stocks. CWT sampling programs in First Nations fisheries are comparable in overall design to CWT sampling in commercial and recreational fisheries but may be different in some aspects to recognize the differences in First Nations economic or demonstration fisheries and FSC fisheries, to recognize regional differences in priorities for CWT sampling, and to integrate sampling into First Nations catch monitoring programs.

In economic and demonstration fisheries, sampling for CWTs is a mandatory catch monitoring requirement in Chinook and Coho retention fisheries that intercept CWT indicator stocks.

Where needed, the Department will:

- Count the landed Chinook and Coho catch by adipose fin-clip status of approximately 20% randomly selected landings or at fish processing plants using designated observers and sample the entire landed catch of each vessel selected to collect snouts from fish that contain CWTs, or
- Work with First Nations catch monitoring programs to establish comparable requirements.

In FSC fisheries, the success in achieving the 20% target sample rate relies on CWT sampling that is integrated into the catch monitoring program or on individual submissions of Chinook or Coho heads to local First Nations fisheries organizations, catch monitors, guardians, or to First Nations Salmon Head Depots. Sample rates may also be called submission rates in these fisheries. Essential requirements for the “head-submission-style” sampling for CWTs are:

- Submission of heads from hatchery-marked (adipose fin-clipped) Chinook and Coho. With mass marking, not all hatchery-marked Chinook and Coho contain a CWT, but the missing adipose fin is the only external clue to identify the possibility of an internal CWT.
- Completed head label(s) attached to each head with required catch information including location caught and date caught. For salmon caught together (same date and location), one label may be placed in a sealed bag with multiple heads.

- Provision of catch information by mark status (number of hatchery marked kept Chinook and Coho) to catch monitoring programs.

In head-submission-style programs, if fisher names, Nation, Band or Monitoring Organization is provided, information about the origin of their fish will be provided to individuals and First Nations when CWT dissection results are available.

For additional information or locations of First Nations Salmon Head Depots:

Salmon Head Recovery Program

Telephone: 1-866-483-9994 (toll-free)

10.1.3 FISHERY MONITORING AND CATCH REPORTING RISK ASSESSMENT TOOL

The Department finalized the “Strategic Framework for Fisheries Monitoring and Catch Reporting in the Pacific Fisheries” (the Framework) in the spring of 2012. The Framework directs that an ecological risk assessment be undertaken for all fisheries to determine the level of monitoring required to provide information necessary to manage for the ecosystem risks posed by a fishery, while allowing for final monitoring and reporting programs to reflect the fishery's unique characteristics.

Risk assessments are performed using an Excel-based tool that provides for a consistent approach to a structured conversation regarding ecological risk and other resource management considerations. For salmon, the draft risk assessments are planned to be initially completed by DFO, then presented to harvesters for review, comment, and revision through existing advisory processes established for fisheries management purposes.

Should the risk assessment indicate a gap between the current level and target level of monitoring identified through the risk assessment, options to address the monitoring gap are to be identified through discussion between DFO and harvesters. The feasibility of these options (e.g. cost, technical considerations etc.) is also to be considered through these discussions. The Strategic Framework directs that monitoring and reporting programs must be both cost-effective and tailor-made for a fishery; as such, a collaborative approach is required.

Where monitoring options are determined to be feasible, the current monitoring and reporting program is to be revised to incorporate these options so the program provides sufficient information to resource managers to manage the ecological risk of the fishery effectively. Where monitoring options are not feasible, alternative management approaches are required to reduce the ecological risk posed by the fishery. If there is no gap between the current and target level of monitoring, then the management approach would not require any change.

As of January 2019, the Department is in the process of gathering feedback on and will subsequently be finalizing a draft national Fishery Monitoring Policy. This national Policy—an evolution of the existing Strategic Framework—looks to bring consistency in the development, delivery and evaluation of monitoring programs for all federally-managed wild fisheries in Canada, and will ultimately supersede the existing Pacific Framework.

More information on the Pacific Framework and risk assessment is available on the internet at:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework-monitoring-cadre-surveillance-eng.html>

10.2 COMMUNAL LICENCE HARVEST TARGET AMOUNTS

First Nations opportunities to harvest salmon for food, social and ceremonial (FSC) purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings and describe the details of the FSC fishery including the dates, times, methods, locations of harvest. Communal licences for Northern Coastal First Nations are typically multi-species and are issued on an annual basis. Shorter duration amendments to licences are also issued on occasion.

Fisheries and Oceans Canada seeks to provide for the effective management and regulation of First Nations fisheries through the negotiation of mutually acceptable and time-limited Fisheries Agreements, frequently referred to as AFS agreements. Where agreement is reached, agreed-to fisheries provisions form the basis of the communal licence issued by DFO. Where agreement cannot be reached, Fisheries and Oceans Canada will nonetheless issue an Aboriginal communal fishing licence to the group based on DFO's best understanding of the group's Aboriginal fishery.

Target harvest amounts for communal licences in Northern BC are outlined in Table 10-1 below. These are initial amounts and may change through ongoing consultation and collaboration with First Nations about their communities FSC needs and how their fishing plan supports meeting those needs. Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Where a proposal for a change to a First Nation's FSC access is received, the Department will evaluate the proposal against the common set of principles and considerations outlined in the Pacific Region's Framework for changes to Food Social and Ceremonial Fisheries Access. The Department will consult and work with First Nations on FSC access towards a balance between

the diversity and abundance of resources that are locally available, community needs and preferences, and operational management considerations. The Department’s operational approach and criteria can be found online at:

<http://www.pac.dfo-mpo.gc.ca/consultation/fn-pn/fnc-2014/docs/aboriginal-fishing-peches-autochtones-eng.pdf>

Table 10-1: Communal Licence Harvest Target Amounts

	Areas 1 & 2	Areas 3 to 6 North	Areas 6 South to 10	Total
Sockeye	20,000	209,250	50,000	279,250
Coho	5,000	8,650	8,470	22,120
Pink	2,500	32,425	13,270	48,195
Chum	2,500	4,975	12,520	19,995
Chinook	3,000	15,860	7,970	26,830
Total Salmon	33,000	271,160	92,230	396,390

10.3 INDIGENOUS COMMERCIAL FISHING OPPORTUNITIES

The AFS was implemented to address several objectives related to First Nations and their access to the resource. One of these objectives was to contribute to the economic self-sufficiency of Aboriginal communities. An integral component of the AFS is the Allocation Transfer Program (ATP). This Program facilitates the voluntary retirement of commercial licences and the issuance of licences to eligible Aboriginal groups in a manner that does not add to the existing fishing effort on the resource, thereby providing Aboriginal groups with much needed employment and income, and increasing participation in commercial fisheries as part of relationship-building with the Department. Since 1994-95, when the ATP was first launched and including PICFI, 481 commercial licences have been relinquished for Aboriginal groups.

Discussions regarding demonstration fisheries that provide commercial opportunities for First Nations and allow for experimentation and testing of inland fisheries are on-going with First Nations and stakeholders through the Commercial Salmon Allocation Framework process. For 2023, as in previous years, the focus with First Nations will be on experimenting mainly in terminal areas on abundant stocks. These fisheries will be conducted separately from FSC

fisheries, using the same harvest decision guidelines as the commercial fishery and fish harvested will be off set with licences voluntarily relinquished from the commercial fishery.

10.3.1 ALLOCATION TRANSFER PROGRAM (ATP)

The AFS was implemented to address several objectives related to First Nations and their access to the resource. One of these objectives was to contribute to the economic self-sufficiency of Indigenous co-income, and increasing participation in commercial fisheries as part of relationship-building with the Department. Since 1994-95, when the ATP was first launched and including PICFI starting in 2007, 503 commercial licences have been relinquished for Indigenous groups.

10.3.2 PACIFIC INTEGRATED COMMERCIAL FISHERIES INITIATIVE (PICFI)

The Pacific Integrated Commercial Fisheries Initiative (PICFI) was initially launched in 2007 as a five-year program designed to increase First Nations' access to commercial fisheries in British Columbia and Yukon. In Budget 2017, PICFI received permanent long-term funding and committed to expanding the program to allow participation from a greater number of First Nations. The program provides funding and support to First Nations-groups and communities in Canada's Pacific region to maximize the potential of their communal fishing enterprises and to strengthen community economic self-sufficiency within the framework of an orderly, stable integrated commercial fishery.

The program seeks to build BC and Yukon First Nations communities' capacity to fish and operate commercial fishing enterprises (CFEs) and aquaculture businesses. It also seeks to strengthen community economic self-sufficiency within the framework of an orderly, stable integrated commercial fishery. CFEs participating in PICFI can apply for funding under two different components: capacity building and business development that includes support on aquaculture development. In addition, eligible First Nations in Pacific Region can apply for aquaculture development funding, a third funding envelope in the program to support First Nations in developing their aquaculture operations.

In its first 5 years, the Government of Canada committed \$175 million to implement the initiative. To continue to build on the progress achieved to date and to continue promoting the integration of commercial fisheries, Economic Action Plan 2014 announced a two-year renewal of PICFI, with resources of \$22.05M per year. The 2016/17 federal budget supported a one-year renewal of the PIFCI program at the same funding level (\$22.05M) until March 31, 2017. Budget 2017 proposed to provide \$250 million over five years, and \$62.2 million ongoing, to Fisheries and Oceans Canada to renew and expand the successful Pacific and Atlantic Integrated

Commercial Fisheries Initiatives and to augment Indigenous collaborative management programming. In 2017, PICFI received ongoing, permanent funding of \$22.05M annually. In 2018/19, an Aquaculture Development Source (ADS) funding envelope with an annual budget of \$1M was launched to support aquaculture projects under PICFI, and the annual budget increased to \$1.6M in 2021/22 and projected at \$3M in 2023/24. In 2021/22, PICFI program expanded to include four new entrant CFEs through a formal application process.

PICFI works with eligible participants, Indigenous organizations, and other stakeholders to co-design, co-develop and co-deliver the program that achieve DFO's intended results of improved outcomes for Indigenous Peoples. The six key structures in place to support to the delivery of the program and the use of a collaborative approach of co-design, co-develop and co-deliver are the Business Development Management Committee (BDMC), Business Development Team (BDT), Capacity Development & Training Advisor, Independent Third Party Evaluator (ITPE), Application Review Committee (ARC), and Special Planning Sessions. The governance of PICFI delivery model contributes to effective collaboration with Indigenous communities. The BDMC is co-chaired by a DFO senior official and an executive of a First Nations organization First Nations Fishery Council and includes other DFO personnel, Indigenous organizations, and program delivery partners to set direction, provide guidance to program delivery, and oversees work of program delivery partners. Further, key delivery partners, such as the BDT, the Training Advisor, the ITPE, and the ARC, operate at arm's length from DFO, limiting direct government involvement, which adds an element of independence to provide ongoing, transparent support to CFEs and First Nations in the program.

10.3.3 FIRST NATIONS DEMONSTRATION FISHERIES

Discussions regarding demonstration fisheries that will provide commercial opportunities for First Nations and allow for experimentation and testing of inland fisheries are on-going with First Nations and stakeholders through the Commercial Salmon Allocation Framework process. For 2023, as in previous years, the focus with First Nations will be on experimenting mainly in terminal areas on abundant stocks. These fisheries will be conducted separately from FSC fisheries, using the same harvest decision guidelines as the commercial fishery and fish harvested will be off-set with licences voluntarily relinquished from the commercial fishery. The demonstration fisheries proposed are described in Appendix 6.

As part of the reform of Pacific fisheries, DFO is looking for opportunities to increase First Nations participation in commercial fisheries through an interest-driven business planning process. New planning approaches and fishing techniques will be required to ensure an economically viable fishery. In recent years some First Nations inland demonstration fisheries

have occurred in order to explore the potential for inland fisheries targeting terminal runs of salmon.

10.3.3.1 TRANSITION OF FIRST NATION INLAND DEMONSTRATION FISHERIES TO REGULAR COMMERCIAL FISHERIES

In 2014, an independent review and evaluation of the Pacific Integrated Commercial Fisheries Initiative (PICFI) was completed by Malatest and Associates and a number of recommendations were made.

Recommendation four was related to developing a transition strategy, moving demonstration fisheries to regularized fisheries. In response to the review, the Department has developed a transition strategy for the in-river First Nation demonstration component of PICFI. The Department identified criteria to be incorporated into an evaluation framework which will enable the transition of Inland First Nations Demonstration fisheries to regular commercial fisheries in the future.

A transition strategy has been approved to proceed on a case-by-case basis of successful inland demonstration fisheries developed through the Pacific Integrated Commercial Fisheries Initiative (PICFI). The evaluation criteria in the strategy will assess their sustainability and ability to meet management objectives, including the ability to harvest fish allocations, conservation objectives, and fishery management requirements. If the criteria are met, the transition to an ongoing commercial fishery would occur and may be defined in an Access Agreement. This work is intended to improve consistency and transparency in how the Department assesses, implements, and reviews demonstration fisheries while supporting integrated commercial fisheries consistent with the vision and principles of Pacific Fishery Reform.

10.3.4 DUAL FISHING

Many First Nations have expressed a strong interest in conducting dual fishing to support self-determination, cultural practices and methods of fishing (particularly avoiding wasted fish); to increase flexibility in harvesting practices; to eliminate inefficiencies; and to reduce cost of conducting FSC fisheries by eliminating the need for separate fishing trips.

In 2023, DFO will be considering limited opportunities to pilot *Type B* (bycatch-type) dual fishing in salmon economic opportunity and demonstration fisheries. These pilots would enable retention of non-target bycatch for FSC purposes that the First Nation would otherwise be licenced to harvest under their FSC licenses, where there is commercial TAC identified to initiate a directed commercial fishery of a different target species. Retention of bycatch for FSC

would be permitted subject to available allocation, sufficient abundance, a valid FSC licence for the fishing area, compliance with communal licence areas, and mandatory landing requirements, including any additional catch monitoring and reporting requirements to separately account for FSC and sale harvests.

DFO is engaging First Nations who have expressed an interest to explore potential bycatch-type dual fishing pilots for 2023. Evaluations of proposals will be conducted, informed by criteria related to four key objectives: conservation and sustainable harvest, FSC priority, orderly and manageable fisheries, and transparency and predictability. Based on these evaluations, recommendations will be put to the Regional Director General for decision in June 2023. Should pilots be implemented, results from dual fishing pilots will be reviewed and evaluated post-season.

10.4 TREATY AND RECONCILIATION AGREEMENT FISHERIES

10.4.1 TREATIES

NISGA'A FISHERIES

The Nisga'a Final Agreement came into effect on May 11, 2000. Under the treaty an Annual Fishing Plan (NAFP) is developed by the Joint Fisheries Management Committee (JFMC) and governed by the terms of the Nisga'a Final Agreement and the Nisga'a Harvest Agreement. The NAFP defines the escapement goals required to guide management decisions for Nass salmon stocks, calculates Nisga'a allocations for each salmon species and provides the general regulatory requirements for catches of each salmon species. The Annual Fishing Plan remains in effect until replaced the following year. The fishing plan applies to persons who harvest fish, other than Steelhead, in Nisga'a fisheries.

More information on this Treaty can be found at:

Nisga'a Final Agreement

https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/99002_00

More information on the Treaty process can be found at:

<https://www.rcaanc-cirnac.gc.ca/eng/1100100028568/1529354090684>

Refer to Section 13 – Species Specific Salmon Fishing Plans for the specific domestic and commercial allocations.

See the BC Treaty Commission at <https://www.bctreaty.ca/index.php> and CIRNAC for more information on current treaty tables at <https://www.rcaanc->

[cirnac.gc.ca/eng/1100100028574/1529354437231](https://www.cirnac.gc.ca/eng/1100100028574/1529354437231) and for current RIRSD tables at <https://www.rcaanc-cirnac.gc.ca/eng/1511969222951/1529103469169>.

10.4.2 RECONCILIATION AGREEMENTS

Refer to section 3.5.1.

Framework Agreements:

- *GayGahlda “Changing Tide” Framework Agreement* between Haida and Canada

Reconciliation Agreements:

- *Haílcištut Incremental House Post Agreement* between Heiltsuk and Canada
- *Coastal First Nations Fisheries Resource Reconciliation Agreement* between Canada and Metlakatla, Gitxaala, Gitga’at, Kitasoo/Xai-Xais, Nuxalk, Heiltsuk, Wuikinuxv, and Haida Nations

As DFO and First Nations develop and implement new fisheries and collaborative governance arrangements, DFO works with these Nations to engage neighbouring First Nations and stakeholders (e.g. commercial and recreational sectors).

II NORTHERN BC RECREATIONAL FISHERIES

Recreational fisheries are managed to maintain opportunity wherever stock status allows and to allow fisheries to be managed in a predictable manner, wherever possible.

II.1 RECREATIONAL VISION

In May 2018, the Sports Fish Advisory Board created '*Vision 2021 - A Strategic 10-point framework to grow Canada's recreational fishing sector on the Pacific coast*'. It serves as a framework for developing initiatives and actions to support achievement of a collective vision for the recreational fishery in BC. The recreational fisheries Vision 2021 document is available from the Regional Manager Recreational Fisheries Greg Hornby at Greg.Hornby@dfo-mpo.gc.ca.

II.1.1 TSIINEE TLA'ANDA/CHIINAAY TLLXANDA CODE OF CONDUCT OF RECREATIONAL FISHING ON HAIDA GWAI

Tsiinee Tla'anda/Chiinaay Tllxanda Code of Conduct of Recreational Fishing on Haida Gwaii has been developed as a collaborative initiative between the Council of the Haida Nation, the Province of BC, and DFO. It is intended to educate recreational fishers of Haida perspectives and issues, and to recommend best practices when fishing within Haida territory. Engagement and consultation with the Haida Gwaii Sports Fishing Advisory Committee (SFAC), recreational fishing services providers, and Haida knowledge holders have been a significant focus of this initiative. See Appendix 12 for further information.

II.2 LICENCING

The recreational harvest of various fish and invertebrate species in BC is regulated via the *British Columbia Sport Fishing Regulations, 1996* made under the *Fisheries Act*. A DFO Tidal Waters Sport Fishing licence is required for the recreational harvest of all species of fish and marine invertebrates.

Tidal Waters Sport Fishing licences may be purchased for a 1 day, 3 day, or 5 day period, or as an annual licence, covering the period April 1 (or date of purchase, whichever is later) to March 31 the following year. The annual licence fee is not pro-rated for annual licences purchased mid-season. Fees depend on licence duration, age (senior, adult, juvenile), residency status and the consumer price index (CPI) increase that is applied annually. Licences for juveniles (under 16 years old) are free. Concessionary fees are not otherwise available. There were over 297,000 adult fishers participating in BC's tidal waters recreational fishery in 2022/23.

Alternatively, licences may be purchased over the counter at Independent Access Providers (IAPs) in many areas (note that the IAP may charge an additional service fee).

Licences may be purchased online via the National Recreational Licensing System:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/application-eng.html>.

A list of IAPs is available at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/iap-fai-eng.html>.

11.2.1 INFORMATION ON OPENINGS AND CLOSURES

The regulations for recreational fishing are provided online in the British Columbia Tidal Waters Sport Fishing Guide, which lists open and closed times, catch limits, size limits (where applicable), and open and closed areas. Changes to regulations are issued in Fishery Notices which are posted online and sent to subscribers by email.

The printed Sport Fishing Guide booklet is no longer being produced or distributed to reduce costs and environmental impacts. The online Sport Fish Guide allows for in-season regulations to be accurately provided and ensures all the regulations are current. Staff at local DFO offices can also provide regulatory information.

The British Columbia Tidal Waters Sport Fishing Guide is available at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

Viewing Fishery Notices and application to receive Fishery Notices by email is available at:

<http://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm>

Contact information for DFO offices is available at:

<https://www.dfo-mpo.gc.ca/contact/regions/pacific-pacifique-eng.html>

For questions or comments of a general nature regarding DFO in the Pacific Region, call 604-666-0384 or email info@dfo-mpo.gc.ca

11.2.1.1 CHINOOK HEAD-OFF CONDITION OF LICENCE

Recreational Chinook Salmon regulations specify a variety of minimum and maximum overall length thresholds. In 2022, the Department introduced equivalent minimum and maximum head-off length measurements for each threshold for Chinook and Coho to the conditions of license. This enables fishers to remove heads for transport and to contribute to the Salmon Head Recovery Program for coded wire tag recoveries prior to returning home, while allowing enforcement of size-specific daily and possession limits.

Head-off lengths for Chinook and Coho will be measured from the fork of the tail to the anterior (front) of the insertion of the pectoral fin; this measure is the same as that used to determine compliance with size limits in recreational halibut. A description of how this measure would be taken by enforcement officers inspecting recreational catches, as well as the specific head-off equivalent lengths corresponding to each overall (head-on) length used in regulations, will be specified on the Tidal Water Sport Fishing licences beginning with the 2022-23 licence season and into the future.

11.2.1.2 FISHERY NOTICES

To sign up to have recreational Fishery Notices sent directly to your email, there is a link to subscribe to fishery notices on the Fishery Notice web page. Fishery Notices include important alerts to in-season changes for areas and species, fishery openings and closures, as well as timely health advisories for e.g. marine bio toxins or fuel spills.

To view or sign-up to receive Fishery Notice notifications by email is available at:

<http://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm>.

11.2.1.3 USING MOBILE DEVICES AND THE FISHINGBC APP

The FishingBC App, developed by the Sport Fishing Institute of BC, can be downloaded to a mobile device to assist with access to regulatory information for species, areas, fishing gear while out on the water (along with other functionalities).

Please note: the DFO Sport Fishing Guide website is the official site for regulatory information in the event of a discrepancy with the FishingBC App.

The FishingBC App may be downloaded at:

<http://www.fishingbcapp.ca/>

The online DFO Sport Fishing Guide is available at:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

11.3 CATCH MONITORING

Following multi-sectoral consultations, DFO released the national *Fishery Monitoring Policy* in 2019, replacing the regional Strategic Framework. A phased approach to implementation of the national *Fishery Monitoring Policy* will result in a transition period from the Strategic Framework to the national policy. For more information on the new national *Fishery Monitoring Policy*, please see Section 5.9. The requirement to report catch is a condition of the Tidal Waters Sport

Fishing Licence. Licence holders must report information on their recreational fishing activity and catch or provide biological samples to DFO representatives when requested.

11.3.1 CREEL SURVEYS

The Department collects information used to estimate boat based angling harvest of finfish in marine waters and salmon in fresh waters throughout BC using a variety of methods. Recreational harvesters may be requested by a Fishery Officer or designated DFO representative, such as a creel interviewer, to provide mandatory catch and effort information or biological samples either on the water or at the dock. Approximately 20,000 such interviews and sampling events are conducted annually. Creel surveys for boat based angling in marine waters are the main source of recreational catch and effort information in the highest effort fisheries.

11.3.2 INTERNET RECREATIONAL CATCH AND EFFORT (IREC) REPORTING PROGRAM

The internet Recreational Effort and Catch (iREC) reporting program is an online program that has been collecting effort and catch information from Tidal Waters Sport Fishing licence holders since July 2012. All 2023/24 adult Tidal Water Recreational Fishing licences will be selected to iREC reporting program and assigned to a reporting period. Annual licence holders are required to report for only one month to limit their reporting burden. Term licence holders are required to report for all or most of the days that their licence is valid. Information regarding the iREC reporting requirement is printed on each licence including the reporting period, the website at which to report, a unique iREC Access ID and reporting deadline. Further, licence holders with a valid email address in the National Recreational Licencing system will receive emails reminding them to complete their iREC reports. Providing complete and accurate information to the iREC program when selected is a condition of licence (i.e., mandatory requirement).

The iREC reporting program is one of the sources used in developing DFO official catch and effort estimates. The iREC reporting program methodology was peer reviewed and published by the [Canadian Science Advisory Secretariat \(CSAS\) in 2015](#). This program provides monthly estimates of effort for six fishing methods and catch for over 80 species of sport caught finfish and invertebrates in all Pacific Fishery Management Areas based on responses by Tidal Waters Sport Fishing Licence holders. The recreational fishing methods covered by the iREC reporting program include boat-based angling, angling from shore, shellfish trapping from boat and shore, beach collecting, and diving. iREC estimates are developed for methods and species not

covered by the marine creel surveys, which cover only boat-based angling, and for months and areas not covered by marine creel surveys.

More information about the iREC reporting program is available at:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/report-declarez-eng.html>

11.3.3 LOGBOOKS

Finally, the Department is continuing to work with identified groups - sport fishing guides, fishing lodges, associations – with the assistance of the Sport Fishing Institute of BC to implement logbooks in areas of highest risk or areas conducive to reporting through the use of logbooks. The latter includes areas such as the Central Coast, Kyuquot Sound, Port Hardy, and parts of PFMA 13 where there are concentrations of lodges and guided effort.

The development of an improved catch monitoring regime, including reporting standards, will continue to be a priority in the management of recreational fisheries. The Department continues to work with the Sport Fishing Advisory Board and the Sport Fishing Institute of BC, and other identified groups - sport fishing guides, fishing lodges, and associations - to develop a Recreational Electronic Logbook (Rec E-Log) as a tool to collect catch and other fishing information and to report this information to the Department.

11.3.4 CHINOOK AND COHO CODED WIRE TAG (CWT) SAMPLING

Essential requirements for the sampling for CWTs in recreational fisheries are:

- Submission of heads from hatchery-marked (adipose fin-clipped) Chinook and Coho. With mass marking, not all hatchery-marked Chinook and Coho contain a CWT, but the missing adipose fin is the only external clue to identify the possibility of an internal CWT.
- Completed DFO-supplied head label(s) attached to each head with required catch information including location caught and date caught. For salmon caught together (same date and location), one label may be placed in a sealed bag with multiple heads.
- Provision of catch information (number of hatchery marked kept Chinook and Coho) to DFO catch monitoring programs such as creel interviews or iRec.

CWT target sample rates are established by the Department to meet bilateral Pacific Salmon Treaty standards. The minimum required sample rates in recreational fisheries are 20% of the estimated hatchery-marked catch to recover a minimum quantity of CWTs from indicator

stocks. It is not cost effective or possible to acquire this quota through direct sampling of recreational fisheries due to the wide distribution of the fishery throughout the year and throughout the province. Instead, the success in achieving the 20% sample rate relies on submissions by anglers to a network of Salmon Head Depots. Because of the reliance on fisher-provided samples, sample rates are also known as submission rates in recreational fisheries.

Salmon Head Depots exist at more than 250 locations in BC and are situated at marinas, tackle stores, fishing lodges, and hatcheries. Depot operators provide head labels and store the heads in freezers or buckets containing a brine solution. Servicing and maintenance of Salmon Head Depots will be delivered by a federal government contractor or by Department employees. Information about the origin of their fish will be provided to anglers, guides and depots, when CWT dissection results are available.

While the majority of CWTs are collected from submissions to Salmon Head Depots, recreational harvesters are also required as a condition of the Tidal Waters Sport Fishing Licence to provide biological samples (salmon heads) to Department representatives when requested.

For additional information or locations of Salmon Head Depots:

Salmon Head Recovery Program

Phone: 1-866-483-9994 (toll-free)

Search: DFO Salmon Head Recovery

12 NORTHERN BC COMMERCIAL FISHERIES

Details regarding specific commercial fisheries are contained in the Section 13 - Species Specific Salmon Fishing Plans.

12.1 LICENSING

12.1.1 NATIONAL ONLINE LICENSING SYSTEM (NOLS) CLIENT SUPPORT - LICENSING SERVICES

All fish harvesters/licence eligibility holders/vessel owners are now required to use the National Online Licensing System (NOLS) to view, pay for and print commercial fishing licences, licence conditions and/or receipts.

Training materials, including step-by-step guides and a detailed user training manual, are available online (<http://www.dfo-mpo.gc.ca/FM-GP/SDC-CPS/licence-permis-eng.htm>) to guide users of the system in completing their licensing transactions.

The Department also provides client support and assistance on how to use the system via e-mail at fishing-peche@dfo-mpo.gc.ca or by calling toll-free at 1-877-535-7307. Telephone support is available Monday to Friday (excluding holidays) from 07:00 AM to 19:00 PM Eastern.

For more information on how to register and use the system, visit the Department's website at the website address above, or contact our client support.

12.1.2 LICENCE CATEGORY

A salmon category A or FA, licence is required to commercially harvest salmon. Salmon, category A licence eligibilities are limited entry and vessel based. Category FA licence eligibilities are party based and must be designated to a registered commercial fishing vessel that meets established length restrictions. Communal commercial category FA licence eligibilities are held by a First Nation or Indigenous group as the licence eligibility holder.

Vessels authorized to fish under the authority of a salmon licence are also permitted to catch and retain species described in Schedule II, Part 2 of the *Pacific Fishery Regulations, 1993*, transport species caught by other vessels, and be designated to fish under the authority of a category Z licence.

12.1.3 LICENCE CATEGORY BACKGROUND

Salmon has been a limited entry vessel-based fishery since 1969. In 1996 under the Pacific Salmon Revitalization Plan, area and gear selection were introduced in the salmon fishery.

Salmon licensed vessel owners selected a gear and area for each licence eligibility. Gear selections were seine, gill net or troll. Gear selection was permanent.

Area selections for seine were area A or B; for gill net, areas C, D or E; and, for troll, areas F, G or H. A vessel may hold only one licence eligibility per area. Area licensing has been a feature of salmon management for the past 10 years with area selections processes in 1996, 2000, 2006 and 2007. Initial area selection was for a four year period. The majority of the Commercial Salmon Advisory Board advised that, given all the uncertainties, area reselection proceed in 2007 for an indefinite period.

Licence Stacking was also introduced in 1996 as a method to decrease the number of vessels actively participating in the fishery while allowing vessel owners to fish in more than one area or with more than one gear.

12.1.4 LICENCE RENEWAL FEES

Salmon licence renewal fees are available at full and reduced fee rates. Annual licence renewal fees are based on the length of the vessel. Reduced fee eligibilities must be held on vessels owned by Indigenous individuals.

In accordance with the *Service Fees Act*, annual licence renewal fees will be adjusted by the annual rate of inflation determined by the Consumer Price Index (CPI) published by Statistics Canada.

All fee payments must be made through the National Online Licensing System (NOLS).

Commercial Salmon (category AG, AT, and AS) licence renewal fees may be found on the following link: <https://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/fees-frais-23-24-eng.html>

There is no annual licence renewal fee for communal commercial (category FAG, FAT, and FAS) licences. For communal commercial licences, even though the fees are \$0.00, clients are still required to add a checkmark beside the licence(s) to renew and click “Checkout” through NOLS.

12.1.5 LICENCE RENEWAL AND ISSUANCE

Renewal of a Category A licence and payment of the licence renewal fee must be done on an annual basis to retain the privilege to be issued the licence in the future, regardless of whether or not fishing is carried out. Those category A licenses not renewed by March 31, 2024 will cease and licence issuance requests will be unable to be considered in future.

Upon the Department receiving the required payment, and information, the salmon licence will be issued and notification will be sent via email to advise vessel owners/licence eligibility holders that a change has been made to the vessel owners/licence holder's NOLS account. The salmon licence documents, licence conditions and receipt will be available to be printed at that time.

Prior to annual licence issuance of a communal commercial licence, licence eligibility holders are required to annually designate the registered commercial fishing vessel to hold the licence; where there is not more than one salmon licence for the same area held/designated to the vessel. This must be done by navigating to the 'Submit a Request' menu selection within the National Online Licensing System (NOLS). a. Where appropriate, select the account that holds the licence you are wishing to 'Submit a Request' for and mouse click on 'Select';

- b. Choose the 'Request Type' 'Commercial Communal Designations (vessels and operators)' and mouse click on 'Select';
- c. Select the licence(s) to be designated to the vessel by mouse clicking the check box (above or to the left of the licence description) and mouse click on 'Select';
- d. In the 'Comment' box please enter the following information:
 - i. Vessel Registration Number (VRN);
 - ii. Vessel Name
 - iii. Vessel Master name;
 - iv. Other information as required for the fishery;

Please note that the overall length (OAL) of the designated vessel may not exceed the Maximum Vessel Length (MVL) associated with the communal commercial (category FAG, FAT or FAS) licence eligibility.

- e. Clients are advised to please check the 'Request Status' during the next 2 working days as this is how they will be advised of any problems or additional requirements.

Full instructions are available at: <https://www.dfo-mpo.gc.ca/fisheries-peches/sdc-cps/products-produits/user-manual-utilisateurs-sec1-eng.html>

Prior to annual application of a salmon licence, vessel owner(s)/licence eligibility holders are required to:

- Meet any Ministerial conditions placed on the licence eligibility
- Ensure any conditions of the previous year's licence are met, such as:

- Catch reporting requirements (i.e. all trips are closed), and that all harvest logs are submitted. Submit a nil report if no fishing occurred. For further information contact the Commercial Salmon Catch Monitoring Unit at cscmu-usccs@dfo-mpo.gc.ca; and
- Submission of all fish slips (for further information contact the Regional Data Unit at DFO.PACCatchStatistics-StatistiquesCapturesPAC.MPO@dfo-mpo.gc.ca).

CLEARANCE AND NIL REPORTS

Logbook clearance must be obtained before an Application to Replace a Commercial Vessel, a Change of Ownership, or an Application for Salmon Licence Eligibility Stacking is processed/approved by the Pacific Fishery Licence Unit.

Please contact the Salmon Catch Monitoring Unit (CMU) at cscmu-usccs@dfo-mpo.gc.ca for further information on logbook clearance.

LICENCE DOCUMENTS

Salmon licence documents are valid from the date of issue to March 31, 2024.

Replacements for lost or destroyed licence documents may be obtained by reprinting the licence documents through the National Online Licensing System.

VESSEL REPLACEMENT (CATEGORY A ONLY)

The owner(s) of a category A licensed Salmon vessel may make an application to replace the commercial fishing vessel. Both the replacement vessel and the vessel being replaced must have a vessel measurement survey on file with the Pacific Fishery Licence Unit (PFLU) that is dated after May 1, 1989 or submitted with the vessel replacement application. Vessels must be surveyed by a Marine Surveyor in accordance with current Fisheries & Oceans Canada Vessel Measurement Guidelines.

A salmon licence eligibility may not be split from other vessel-based licence eligibilities.

Replacement vessels for salmon licence eligibilities where no stacking is involved, remain at the exact overall length or smaller than the existing vessel.

Where the licence eligibility is a reduced fee licence, an Indigenous individual must own the replacement vessel.

TEMPORARY VESSEL REPLACEMENT (CATEGORY A ONLY)

Temporary vessel replacements are permitted if the vessel has been declared a total loss or the vessel is out of service due to an accident or unforeseen damage. Vessels that are in disrepair at the time of purchase, have encountered delays in annual maintenance, or are being rebuilt, do not qualify for a temporary vessel replacement.

Written confirmation from an insurance company, shipyard, or marine engineer is required explaining why the vessel is inoperative.

Temporary replacement vessels may not exceed the overall length (OAL) plus 10% of the Salmon vessel being replaced.

If a Salmon licence eligibility is temporarily split from other licence eligibilities, the remaining eligibilities may not be placed on a third vessel.

Vessel replacement rules do not apply to communal commercial Salmon category F licence eligibilities, as they are designated to vessels annually.

Temporary vessel replacement (e.g., total loss of vessel) requests are not eligible for any of the salmon stacking allowances.

STACKING

The owner(s) of a category A licensed Salmon vessel may make an application to stack the Salmon licence eligibility. Both the replacement vessel and the vessel being replaced must have a vessel measurement survey on file with the Pacific Fishery Licence Unit (PFLU) that is dated after May 1, 1989 or submitted with the Salmon stacking application. Vessels must be surveyed by a Marine Surveyor in accordance with current Fisheries & Oceans Canada Vessel Measurement Guidelines.

Applications for Salmon licence eligibility stacking may only be submitted for processing between December 1 and May 31 annually; applications will not be processed outside of this timeframe.

A salmon licence eligibility may not be split from other vessel-based licence eligibilities.

Different gear and area licence eligibilities may be combined on one vessel. That is, a vessel may hold a salmon gill net licence eligibility and a salmon troll licence eligibility or multiple salmon licence eligibilities of the same gear so long as each licence eligibility has a different area associated. A vessel may not hold more than one Salmon licence eligibility for the same area.

For the purpose of stacking licenses, a **single** salmon licence eligibility may be stacked to a vessel that is up to 30% longer in overall length than the overall length of the vessel from which the licence eligibility is being removed.

Salmon licence eligibilities that are married to other licence categories (or another salmon licence) may be stacked, but the additional 30% in overall length is not applicable and the salmon stacking cannot result in the stacking of other licence categories, except where permitted for that licence category.

An area change request may only be made at the time of submission of an application for Salmon licence eligibility stacking and the area change may only be made for the licence eligibility that is being stacked. The owner of the receiving vessel must make the request by completion of the applicable section on the form.

An area change may not result in a change to gear type. Gear selections were permanent when made in 1996 and may not be changed.

Reduced fee category A licence eligibilities may be stacked with either another reduced fee licence eligibility or a full fee licence eligibility, however, the receiving vessel must be owned by an Indigenous person.

Vessel replacement rules for Salmon licence eligibilities where no stacking is involved remain at the exact overall length or smaller of the existing vessel. Licences eligible for temporary vessel replacements (e.g., total loss of vessel) are not permitted to be stacked.

Category FA licence eligibilities may be stacked with any category A licence eligibility or another category FA licence eligibility, in compliance with all stacking rules except that they will not be tied to the other salmon licence eligibility. Stacking a category FA licence eligibility does not result in a change of licence area for the category FA licence eligibility.

Please visit the Salmon licence page for further information at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especies/salmon-saumon/fisheries-peches/licence-permis-eng.html>

12.2 OPENINGS AND CLOSURES

Due to uncertainty of both timing and size of returning salmon runs, many commercial openings are not confirmed until a few days prior to the actual opening. Also, the management plan for any area may change in-season. Fishing Areas and Subareas (or portions thereof), provisions for extensions, opening patterns, and the duration of the fishing season can all be

adjusted based on factors such as weak stock concerns, target stock abundance, fishing effort, rate of gear selectivity, domestic allocations, and other factors.

This fishing plan is designed to minimize the incidental harvest and bycatch of a range of stocks of concern (see Section 6 – Management Objectives for Stocks of Concern). Fisheries that occur on the South Coast may be required to release all non-target species to the water with the least harm, depending on local stock concerns.

Under circumstances where there appears to be an abundance of fish that could support a commercial fishery and that fishery is not specifically addressed in the IFMP, DFO will address requests to fish as identified below:

- Attempt to verify the abundance using available observations and information of the salmon species and to determine whether or not it could provide a fishing opportunity consistent with conservation objectives and Allocation priorities for First Nations FSC and recreational fisheries. DFO will consult with local First Nations regarding any interests or concerns they may have.
- If 1 is addressed and there appears to be adequate numbers of fish to support some level of a commercial fishery; then a precautionary approach will be taken and information requirements will be discussed and agreed upon. Initially, a limited number of vessels may be licenced, and independent catch verification will be required with timely reporting of harvest data.
- Regular dialogue between harvesters, DFO, and others – as appropriate – will take place throughout the fishery including whether the scope of the fishery could be increased and other relevant parameters.

DFO continues to encourage the development of demonstration fisheries that promote biologically sustainable and economically viable fisheries. Fishery managers are working with fleet advisors to develop demonstration fisheries that experiment with meeting a range of objectives including matching fleet size to the available harvest, pacing fisheries to maximize value of the harvest, and developing more cooperative fishing arrangements between harvesters.

In addition to existing demonstration fisheries reviewed and approved prior to 2016; the collaborative work of the Department, FNFC, SCC, and CSAB through the initiative to update the CSAF has resulted in a common assessment process to review and develop flexible harvest arrangements (CSAF Demonstration fisheries). Additional detail on CSAF demonstration fisheries proposed for this season and information on other related work is outlined in Appendix 6: Updates to the Commercial Salmon Allocation Framework.

12.3 LICENCE CONDITIONS

12.3.1 TRANSPORTING

Please see Part III of the commercial salmon conditions of licence for transporting of salmon for additional details and information.

Transporting conditions for the salmon fisheries include a requirement to submit fish slips for all fish transferred to any commercial vessel transporting salmon; the requirement to maintain a salmon transfer log on board the vessel receiving fish; and a phone-in hail requirement to the DFO Fishery Manager.

The requirement to submit fish slips is currently in place for commercial salmon vessel owners/licence eligibility holders and has previously been a provincial requirement for transporting vessels. It is a federal requirement for transport (packer) vessels to submit fish slips as a condition of licence.

The phone-in hail will alert DFO fishery managers prior to an opening that the vessel is active for transporting salmon in a fishery and will provide managers a better understanding of the fishing effort during an opening. After each opening, there is a requirement to phone the DFO Fishery Manager with information on where the transporting vessel received fish, approximate amount of fish, total number of landings, and the time and location of the final offload. No service provider is needed to deliver on this requirement currently.

The salmon transfer log will identify when, where, and from whom fish were received. This transfer log will be required to be on board the vessel and produced for examination when requested by a representative of DFO. The completed transfer log must also be submitted to the Regional Data Unit at the end of the calendar year. No service provider is needed to deliver on this requirement currently. This condition will complement the existing fish slip program and support improved enforcement of unreported harvests and unauthorized sales in the commercial salmon fishery.

A copy of the salmon transfer log template is available on DFO website at:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/forms/smon-trans-log-journal-eng.html>

12.3.2 RETENTION OF LINGCOD BY SALMON TROLL

To help meet the conservation and sustainability objectives under groundfish integration, an individual transferable quota (ITQ) management system has been established for the lingcod fishery.

Implementation of an integrated commercial groundfish fishery has monitoring and reporting requirements for those wishing to retain lingcod while salmon trolling. As in previous years, all vessels wishing to retain any amount of lingcod must have their fish validated through the established Dockside Monitoring Program. In addition to this, any vessel wishing to land lingcod must hold or acquire sufficient quota to cover catch.

Requirements include the following (less than 500 lbs. of lingcod per trip):

Vessel must have or acquire sufficient lingcod quota to cover catch.

Transportation requirement — All lingcod must be transported by the licenced vessel either directly to land or to a fish pen.

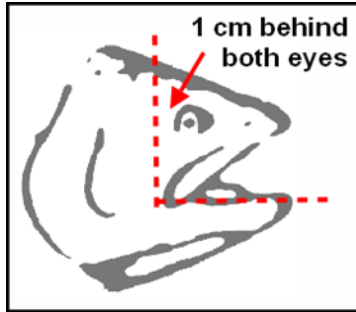
In addition to submitting Start Fishing and End Fishing Reports to the designated salmon service provider, the vessel master must report to the designated groundfish hail service provider to create Hail-in and Hail-out Reports. The vessel master must adhere to specific dates, times and port locations when landing groundfish catch.

Landing requirements — The landing of any fish of any species is not permitted unless a designated observer is present to authorize the commencement of weight verification.

Vessels wishing to retain and land **more than 500 lbs.** per trip of lingcod must, in addition to all of the above, meet the electronic monitoring requirements described in the Groundfish Integrated Fisheries Management Plan.

12.3.3 RETENTION OF FREEZER TROLL CHINOOK AND COHO HEADS

These requirements apply to all Area F and G troll licences, unless the license is listed in a Fisheries Notice that identifies the troll licenses that are exempted from retaining salmon heads during the fishing season. Area F and G Fisheries Notices that list the licenses that are exempted from retaining salmon heads during the fishing season are released prior to the opening of each fishery. Vessels that hold licenses in both Area F and G who are exempt from retaining heads in one Fishery Area are required to retain heads in the other Fishery Area unless their license is listed as exempt in both an Area F Fishery Notice and an Area G Fishery Notice.



For Area F, the exemption rate this season will be approximately 75%. As in past seasons, licenses that were insufficiently diligent in carrying out their conditions of license to bring in all Chinook and Coho heads will not be exempted this season.

For Area G, prior to 2022, the small number of vessels that froze their catch at sea led to the requirement that 100% of the Area G troll fleet retain salmon heads. In 2022, an exemption rate of approximately 66% was introduced. The exemption rate this year is expected to be approximately 66% but may be increased, depending on 2022 results. As in Area F, licenses that were insufficiently diligent in carrying out their conditions of license to bring in all Chinook and Coho heads will be reselected this season.

Head Retention: Troll vessel masters must retain all heads from caught and kept Chinook and Coho. Recognizing that vessels may have space limitations for retaining heads, the Department allows the alternative of retaining only the portion of the head likely to contain the CWT, referred to as the ‘snout’. At a minimum, the portion of each head must include the upper portion of the head extending from the tip of the snout to a cut travelling from the top of the head, passing one centimetre behind both eyes, and ending at the back corner of the mouth. The top jaw and gums must remain intact. There is no need to retain the lower jaw, or gill plates.

Head Storage: Heads must be stored in Salmon Head Recovery Program bags with labels. Bags and labels are available free of charge from the Department. Heads must be kept frozen until delivery and each bag must contain only the heads from a single week of fishing (where weeks run from Sunday to Saturday). All bags must be labelled completely and securely closed. Bags and labels can be obtained in three ways:

- i. Pick them up at DFO offices announced via fishery notice,
- ii. Contact DFO toll-free at 1-866-483-9994 to make arrangements for shipping, or
- iii. Obtain them from CWT samplers at fish landing stations.

Head Delivery: The vessel master shall ensure that all bags containing heads are offloaded at the first designated fish landing station at which Chinook or Coho catch is offloaded.

For complete head retention requirements, vessel masters freezing their catch at sea should refer to their conditions of license.

12.3.4 CHINOOK AND COHO CODED WIRE TAG (CWT) SAMPLING

Fisheries and Oceans Canada uses independent designated dockside monitoring program observers (CWT samplers) who are federally-contracted to the DFO Mark Recovery Program to sample the entire catch from randomly selected vessels at fish landing stations or processors. CWT target sample rates are established by the Department to meet bilateral Pacific Salmon Treaty standards for statistically reliable data. The minimum required sample rate is 20% of the estimated catch in all Chinook or Coho retention fisheries that intercept CWT indicator stocks. CWT target sampling rates may be adjusted in-season for high abundance or to meet additional CWT program requirements to recover a minimum quantity of CWTs from indicator stocks.

Sampling for CWTs is a mandatory catch monitoring requirement for commercial salmon fisheries that intercept CWT indicator stocks. Where needed, dockside observers will:

- Count the landed Chinook and Coho catch by adipose fin-clip status of approximately 20% randomly selected landings or at fish processing plants using designated observers and sample the entire landed catch of each vessel selected to collect snouts from fish that contain CWTs.

Conforming to the *Fishery (General) Regulations*, when requested, the master or owner of fishing vessels and the owner or any person who has the care, charge or control of a fish landing station must permit access to the catch and provide CWT samplers with assistance that is reasonably necessary to enable them to perform their duties according to DFO-approved sampling protocols including:

- Making the fish readily accessible to the CWT samplers;
- Providing samplers with a suitable work area; and
- Permitting CWT samplers to remove the head from the fish free of charge

In the past, Chinook and Coho were checked for a missing adipose fin to indicate that it had a CWT. Due to mass marking, it is necessary to use electronic equipment such as handheld wands or tube detectors to recover CWTs in most fisheries. Because detection rates may be affected by sampling technique, it is important to ensure CWT samplers are given adequate time and opportunity to sample the entire catch of each vessel selected. Incomplete or unrepresentative sampling of CWTs in fisheries is a serious concern because it generates unknown bias in stock identification for fisheries management, stock assessment, hatchery assessment, and implementation of Pacific Salmon Treaty management regimes.

12.3.5 COMMERCIAL HARVEST LOGS AND IN-SEASON REPORTING

A mandatory harvest log and in-season reporting program for catch information is required in all Pacific region commercial fisheries. Harvest logs are a record of fishing activities and are required to be kept under the conditions of licence and can be administered through either a

hard copy (paper) logbook version or an electronic (E-Log) version, unless otherwise specified. Commercial salmon harvesters are required to maintain a harvest log of all harvest operations and are responsible for any associated financial costs.

To facilitate reporting of catch information, the Commercial Salmon Advisory Board (CSAB) has identified the following service provider for the paper logbook program for 2023:

Paper logbook Program:

Archipelago Marine Research Ltd. (AMR)

525 Head Street

Victoria, BC

V9A 5S1

Telephone: (250) 383-4535

Fax: (250) 383-0103

Toll Free: 1-877-280-3474

Website: <http://www.archipelago.ca>

Email: SalmonRegistration@archipelago.ca

Harvesters may also meet their reporting licence conditions through the E-log Program. The service provider for the E-log Program in 2023 is:

E-log Program:

M.C. Wright and Associates Ltd.

Telephone: (250) 753-1055 Ext: 3

Website: <http://www.mcwrightonline.com>

Email: support@mcwrightonline.com

To make arrangements for their 2023 harvest log requirement, harvesters are required to enlist the services of one of these identified service providers. Sample logbook pages are provided in Appendix 1.

Harvesters can continue to use their existing E-logs as long as software changes are not required to meet licence conditions. If software changes are required to meet licence conditions, harvesters can select to use a paper logbook or arrange to pay for any associated costs for software updates with a service provider.

The Department has been working with the Canadian Pacific Sustainable Fisheries Society to address conditions set out in the Marine Stewardship Council action plan for the continued certification of BC Pink, Chum, and Sockeye salmon fisheries. Several conditions within the action plan identify the need for improved reporting of catch, particularly in reference to Endangered, Threatened, and Protected species. The harvest logs have been updated and

include additional materials for identifying groundfish, seabirds, Sturgeon, and marine mammals at the species level. Harvesters are encouraged to provide the correct identification of all catch to the species level in the harvest logs and when submitting catch reports to the service provider.

12.4 CATCH MONITORING

Since 2011, the Department has been working with the Commercial Salmon Advisory Board as part of a Catch Monitoring Working Group to review catch monitoring requirements consistent with the *Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries* (2012). A set of minimum requirements has been developed for commercial salmon catch monitoring programs. Minimum catch monitoring requirements identified by DFO and the Commercial Salmon Advisory Board Catch Monitoring Working Group (CSAB CMWG) include:

- Independent verification of fishery specific effort
- Independent verification of landed catch
- Independent verification of at-sea releases
- Fishery specific minimum biological sampling standards
- Independent verification of compliance with fishery rules

DFO released the national *Fishery Monitoring Policy* in 2019, which will replace the regional *Strategic Framework for Fisheries Monitoring and Catch Reporting* in the Pacific Fisheries (2012). The national policy seeks to provide dependable, timely and accessible fishery information through application of a common set of steps used to establish fishery monitoring requirements across fisheries. Available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fishery-monitoring-surveillance-des-peches-eng.htm>

To ensure consistent national application, further guidance is provided through in the *Introduction to the Procedural Steps of Implementing the Fishery Monitoring Policy*, available at: <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/fmp-implementation-psp-mise-en-oeuvre-eng.htm>

The 2012 Pacific *Strategic Framework for Fisheries Monitoring and Catch Reporting* is available at: <https://www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework-monitoring-cadre-surveillance-eng.html>.

12.5 COMMERCIAL SALMON ALLOCATION IMPLEMENTATION PLAN

This section describes the commercial salmon allocation implementation plan. An overview of the process to update the CSAF initiated in 2013, with principles and guidelines approved in 2015 and an evaluation framework for assessing CSAF demonstration fishery proposals implemented in 2016. For background information on the CSAF initiative please see:

<http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html>

COMMERCIAL ALLOCATION IMPLEMENTATION PLAN FOR 2015 – CURRENT PERIOD

Shares recommended by the CSAB were intended to apply for a 5 year period (2015 through 2019 seasons) with provision for a review after year 4 (2018 season) to determine if adjustments should be made to any sharing arrangements in subsequent years. Consideration of changes to the commercial allocation implementation plan may be considered in the future based on advice for the Commercial Salmon Advisory Board and any changes will be consulted on in advance of the fishing season through the IFMP process.

The sharing arrangements described in this plan are intended to guide fishing arrangements at the local level and are not fixed entitlements. Application of these sharing arrangements is subject to meeting all conservation objectives, First Nations obligations, international commitments, deliverability and manageability constraints and other management considerations.

Although best efforts will be made to achieve these allocation targets/shares, no guarantees are offered that allocations will actually be achieved in any given year. The achievement of these shares will depend upon the ability to fish selectively and the conservation needs of the resource. In the event that allocations are not achieved, no compensatory adjustments will be made to future allocations.

As in previous years, there will be no directed commercial fisheries for Fraser River Sockeye or Fraser River Pink salmon in the north (i.e. area licence categories A, C and F, or First Nations economic fisheries).

The tables below provide a complete list of allocation shares by gear type, species and production area for fisheries starting in 2015 for a period of 5 years with a review planned following the 4th year. Three new productions were approved in 2015 to clarify sharing arrangements associated with the Pacific Salmon Treaty for troll harvests of AABM Chinook

and A-B line Pink fisheries. For 2023, the sharing arrangements outlined in this IFMP are expected to remain in effect for the current fishing season.

SOCKEYE

Description	Areas	Seine A	Gill Net C	Troll F
Skeena/Nass	1, 3 to 5, 101 to 105	25%	75%	*
Central Coast	6 to 8	80% ^a	20% ^b	*
Rivers/Smiths Inlets	9 to 10	5%	95%	^c

Notes on Sockeye allocation (north):

* bycatch provisions

^a share reflects current Sockeye bycatch during Pink directed fisheries

^b potential for re-negotiation of sharing arrangements in event of a future directed Sockeye fishery

^c potential for future re-negotiation

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Local	23	60.0%	40.0%	0.0%	0.0% ^c	0.0%
South -Fraser	11 to 20, 29, 121, 123 to 127	48.5%	21.6%	25.1%	0.0% ^d	4.8%
South-Fraser – Large return year (eg. 2014, 2018, 2022)	11 to 20, 29, 121, 123 to 127	48.5%	21.6%	25.1%	0% ^d	4.8%

Notes on Sockeye allocation (south):

^c potential for future re-negotiation

^d a 1% share to occur in large Fraser River return years only. A 1% reduction will be proportionately applied across other fleets in those years

PINK

Description	Areas	Seine A	Gill Net C	Troll F
North	1, 2E, 2W (even), 3 to 5, 101 to 105	75.5%	22.5% ^a	2.0%
Central	6 to 10	95.0%	5.0% ^b	*

Notes on Pink allocations (north):

* bycatch provision

^a Skeena sharing 75% seine: 25% gill net

^b potential for future re-negotiation

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
Fraser	11 to 20, 29, 121, 123 to 127	82.5%	4.0%*	3.0%*	0.5% ^c	10.0%
Mainland	12 to 13 (mainland inlets only)	73.0%	9.0%	0.0%	0.0%	18.0%

Notes on Pink allocations (south):

* Pink bycatch provision required for fisheries on more abundant species

^c potential for future re-negotiation. Pink bycatch required for fisheries on more abundant species

<<NEW PRODUCTION AREA STARTED IN 2015>>

Description	Area	Troll F
A-B line Pink troll fishery	101	100%

CHUM

Description	Areas	Seine A	Gill Net C	Troll F
North	1, 2E, 2W, 101 to 111, 130, 142	54.0%	43.0%	3.0%
North	3 to 5	55.0% ^b	45.0% ^b	*
Central	6 to 10	45.0% ^c	55.0%	*

Notes on Chum allocations (north):

^b recent Chum non-retention; fishery allows bycatch of Chum only

^c currently Chum non-retention

* bycatch provision

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Inside	11 to 19, 28 to 29	63.0%	19.2%	12.0%	0.0%	5.8%
Nitinat	21 to 22	65.5%	0.0%	34.5%	*	0.0%
South Outside	23 to 27	0.0% ^d	98.0%	0.0%	2.0%	0.0%

Notes on Chum allocations (south):

* bycatch provision

^d potential for future re-negotiation if Chum populations re-build

Commercial allocation sharing arrangements in Johnstone Strait are; seine Area B – 77 percent; gill net Area D – 17 percent; and troll Area H – 6 percent.

COHO

Description	Areas	Seine A	Gill Net C	Troll F
North	1 to 10, 101 to 111, 130, 142	12.5%	6.5%	81.0%

Notes on Coho allocations (north):

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Inside	11 to 20, 29	TBD	TBD	TBD	TBD	TBD
South Outside	21 to 27, 121 to 127	9.5%	9.5%	1.0%	80.0% ^a	0.0%

Notes on Coho allocations (south):

^{TBD} currently no directed fisheries in this area. Will be reviewed should future directed opportunity develop.

Principles to be drafted regarding how to distribute impacts.

^a Coho taken primarily in offshore fisheries

CHINOOK

Description	Areas	Seine A	Gill Net C	Troll F
Northern BC AABM Chinook	1, 2E, 2W, 101-105, 130, 142	*	*	100.0% ^a
Central	6 to 10	*	100.0% ^b	* ^c

<< NEW PRODUCTION AREA STARTED IN 2015 >>

Description	Areas	Seine A	Gill Net C	Troll F
North-Inside	3 to 5	*	100.0% ^d	*

Notes on Chinook allocations (north):

* bycatch provisions

^a Northern BC AABM Chinook harvest

^b near-terminal fisheries (primarily hatchery origin)

^c review potential re-entry of troll into Production Areas 6 + 7. Bycatch provisions

^d bycatch provision and near-terminal directed fisheries (e.g. Skeena)

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South- Inside	11 to 20, 29	1.0% ^e	3.0%	90.0% ^f	0.0%	6.0%
South - WCVI AABM Chinook	21, 23 to 27, 121 to 127	*	*	0.0%	100.0% ^g	0.0%

<< NEW PRODUCTION AREA STARTED IN 2015 >>

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South- WCVI Inside	21 to 27	5.0% ^h	75.0% ⁱ	5.0% ⁱ	15.0% ^j	0.0%

Notes on Chinook allocations (south):

^e subject review pending completion of southern BC Chinook initiative

^f directed Fraser Chinook fishery

^g this is WCVI AABM Chinook fishery

^h Area 23 sharing arrangement currently 33.3% seine: 66.7% gill net. May need to review

^l Area 25 fishery (potential for future review. 75% fishery to Area D (e.g. Conuma Bay fishery); potential 5% to Area E if future surplus at Nitinat; otherwise default to Area D)

ⁱ winter troll fishery

12.6 CONSERVATION MEASURES

12.6.1 SELECTIVE FISHING

The Department will work with Area Harvest Committee representatives to implement selective fishing measures to avoid non-target fish or, if encountered, to release them alive and unharmed. These measures include but are not limited to: the use of troll plugs, Alaska twist gill nets, maximum gill net set time and net length, gill net mesh size, gill net depth, seine bunt mesh size, brailing and sorting for seine vessels, and revival tanks.

12.6.2 ROBSON BIGHT

DFO will once again be seeking the co-operation of harvesters in minimizing fishing activities in Robson Bight. This is part of a long-term management plan to afford protection to the killer whale populations that frequent this area during periods from mid-May to early October. Fish harvesters are requested not to moor in the Robson Bight area. See Section 5.4 –Killer Whales for more information. Information on this management initiative can also be obtained from Department charter patrol vessels on the grounds and from Fisheries and Oceans Canada offices.

12.6.3 ROCKFISH CONSERVATION MEASURES IN SALMON TROLL

BOCACCIO

Bocaccio was assessed as “threatened” by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2006. Following consultation and review, the Government of Canada

decided not to add Bocaccio to the list of wildlife species at risk. COSEWIC reassessed Bocaccio in November 2013 as endangered: <https://species-registry.canada.ca/index-en.html#/species/740-315>.

Based on updated science information and DFO's policy document "Guidance for the Development of Rebuilding Plans under the Precautionary Approach Framework", the Department set out a rebuilding plan in 2013 for stepped reductions of total Bocaccio harvest to a target level of 75 metric tonnes (t) over 3 years (2013-14 to 2015-16). The rebuilding plan accounts for First Nations' priority access for food, social, and ceremonial purposes. Through the process of regular evaluation of the rebuilding plan, science advice on stock status and rebuilding strategies for Bocaccio was peer-reviewed in autumn 2019. Based on updated science information, the 2023/24 mortality cap for Bocaccio will be increased to 2,180 t. The Bocaccio mortality cap for the salmon troll fishery is 105 t and is subject to daily limits specifically for Bocaccio (please refer to Conditions of Licence for details).

More information on the Bocaccio Rebuilding Plan is available in Appendix 9 of the Groundfish IFMP.

YELLOWEYE ROCKFISH

Yelloweye Rockfish (Outside and Inside populations) was recommended as "threatened" by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) in 2020: <https://species-registry.canada.ca/index-en.html#/species/1023-707>.

In 2016 the Department set out a plan for stepped reductions of total Yelloweye outside population harvest from the estimated total catch mortality of 287 metric tonnes (t) in 2014 to a mortality cap of 100 t over 3 years (2016-17 to 2018-19). Through the process of regular evaluation of the rebuilding plan, science advice on stock status and rebuilding strategies for Yelloweye Rockfish outside population was peer-reviewed in autumn 2019 (Outside population) and spring 2020 (Inside population). Based on updated science information, the 2023/24 mortality cap for Yelloweye Rockfish inside population will remain at 15 t. Additional information is available in Appendix 9 of the Groundfish IFMP.

12.7 COMMERCIAL DEMONSTRATION FISHERIES

The Department has conducted extensive consultations with the commercial salmon industry and First Nations concerning fisheries reform and renewal. Changes in the fishery will be designed to improve the biological and economic performance of the fishery.

In an ever-changing environment such as resource conservation, a group may want to explore special harvesting initiatives or new management approaches to develop flexible fisheries with

greater harvester control that improve product quality, increase value to the fleet, and have better catch monitoring and compliance with catch limits.

The Department is interested in continuing to explore innovative ways to access TAC more efficiently, to increase market value of the product, or to access TAC that may be unavailable due to conservation concerns or that a full fleet fishery is unable to access.

To contribute to the Pacific Fisheries Reform vision, the Department will consider demonstration projects that support alternative management strategies that:

- Maintains or improves management control and conservation performance in the fishery;
- Promotes the use of clearly defined shares to improve manageability and industry viability; and
- Increases the ability of harvesters to work cooperatively to harvest available surpluses and to take on greater responsibility for control and monitoring of their fishery.

Details regarding demonstration fisheries that the Department is considering are contained in Section 13 - Species Specific Salmon Fishing Plans.

In addition to existing demonstration fisheries within Section 13, additional opportunities to demonstrate flexible harvest arrangements were initiated in 2016 in support of updates to the Commercial Salmon Allocation Framework (CSAF). Guidelines and principles associated with CSAF as well as a list of CSAF demonstration fisheries are included in Appendix 6.

12.7.1 TRANSFER GUIDELINES FOR THE TEMPORARY TRANSFER OF COMMERCIAL SALMON SHARES

In consideration of discussions with the First Nations SCC, the CSAB, and any feedback received, these guidelines will be reviewed and may be updated annually. **For 2023 there are no proposed updates, and the transfer guidelines have remained unchanged since 2017.**

These guidelines address the transfer of commercial salmon shares between the following groups:

- Area A-H Fishery participants with a defined percentage share of the commercial TAC
- Area A-H fleets or portions of fleets or individual licences
- Marine Demonstration Fishery participants

- In-river Demonstration Fishery participants
- First Nations with one or more Area A-H licences
- First Nations entities who are signatories to current arrangements or area provided communal licences allowing sale that provides a defined commercial share of salmon for the given year including;
 - a. Economic Opportunity agreements
 - b. Harvest Agreements
 - c. Demonstration Fisheries

Transfers of harvest shares may occur when there is a formal arrangement outlining possibilities as defined by the Guiding Principles and Operational Considerations below, (approved by DFO) between the original share-holders and the recipient. Requests can include transfer from downstream to upstream locations, and vice versa. These arrangements should identify mechanisms pre-season that will be used for transfers to ensure proper management and accounting of shares (actual transfers may occur in-season; e.g. between ITQ fishery participants using established transfer request processes). For transfers of commercial licences, arrangements will need to be made in advance of the fishery opening for which the transfer is intended to apply to ensure appropriate allocations associated with the licence can be set aside.

In-season proposals to transfer uncaught commercial Total Allowable Catch (TAC) allocations between the above groups will reviewed and DFO will determine whether to allow the transfer of some or all of the uncaught TAC.

Requests for temporary transfers of commercial salmon shares will be reviewed with consideration to the following general principles and the operational considerations identified below.

Guiding Principles for Temporary Transfer of Salmon Shares:

- Result in similar or better management control and/or conservation performance in the fishery (both for target and bycatch species/stocks)
- Consistent with conservation measures and allocation approaches (if any) for stocks of concern, including bycatch species/stocks;
- Respect existing Aboriginal and treaty rights and the priority of Food, Social and Ceremonial access.
- Consistent with international obligations;

- Consistent with objectives and management measures outlined in Salmon Integrated Fishery Management Plans;
- Respect the Common property nature of the fisheries resource: subject to Principle 3, access to the resource does not imply ownership of the resource or any portion of the resource, and is not conferred irrevocably to individuals.
- Support opportunities to utilize Canadian commercial total allowable catch while respecting conservation requirements.
- First Nations commercial fisheries and Area A-H commercial fisheries conducted in tidal waters will be managed under common and transparent rules for each gear type. For example, First Nations commercial troll fisheries conducted in tidal waters where Area F licences are permitted to operate will be managed in accordance with the same rules as the Area F commercial fishery for those tidal waters.
- First Nations commercial fisheries conducted in non-tidal waters will be managed under transparent rules that are consistent with the rules used to manage marine commercial fisheries that target similar stocks associated with that production area.
- Affordable to implement i.e. would not result in any substantive incremental costs to DFO in areas such as monitoring stock assessment and enforcement.

Operational Considerations Regarding Requests for Temporary Transfers:

- Transfers of commercial salmon allocation shares will only occur when there is a Canadian commercial Total Allowable Catch (TAC) (i.e. commercial harvestable surplus) identified for the target stock or species which is available for harvest.
- Transfers of commercial salmon shares between parties will only be considered for commercial fisheries and commercial participants with a clearly defined percentage share of the Canadian commercial total allowable catch.
- In most cases, transfers will be based on a percentage share of the available commercial TAC. Alternate approaches for calculating transfer shares may be considered.
- In-season transfers may occur if pre-season plans outline possibilities. For share transfers between Area A-H commercial fisheries, individual salmon shareholders or groups of salmon shareholders; the mechanism (e.g. tracking, management and accounting of shares) for facilitating transfers needs to be described and agreed upon by all parties to the arrangement and DFO pre-season. Individual commercial licence holders or groups of commercial licence holders will not be permitted to make their own

allocation transfer arrangements unless these are part of a pre-season plan approved by the Department.

- DFO will not be responsible for leading or facilitating the negotiation of transfer arrangements between parties.
- For commercial salmon licences held by the Department, individual licence allocations will be based on an equal percentage allocation of the commercial TAC for all licences in that commercial licence area (i.e. Areas A to H).
- If, despite the best efforts of any commercial harvest group, it becomes apparent that it will be unable to harvest its share, and no mechanisms are in place that would permit the transfer of the share to another commercial harvest group, the Department may consider transfers of uncaught commercial harvest shares to any other commercial harvest group already holding a clearly defined percentage share of the Canadian commercial total allowable catch, on a case by case basis, assuming that harvest can occur using fishing methods, times and locations permitted for that commercial harvest group.
- Transfers of commercial salmon allocations must consider shares of all stocks that will be harvested in the recipient area.
 - Allocations transferred inland will be reduced proportionately to reflect the reduced stock composition in the more terminal harvest location (e.g. Area F troll licence shares allocated to the Kamloops Lake inland demo fishery will be only for the proportion of Thompson Chinook encountered in the marine commercial troll fishery). Alternative approaches may be considered in specific circumstances (e.g. allocation may not be proportionally reduced if harvest of an allocation in a terminal area reduces impact on stocks of conservation concern). DFO will document the rationale for its decision and make it publicly available.
 - For co-migrating stocks or management units of concern or where little or no Commercial TAC has been identified, transfers will need to consider and/or mitigate potential impacts. For example: access to a harvest share of Fraser Pink salmon might require the fishing group or individuals to have some Sockeye remaining in their harvest share of co-migrating Fraser Sockeye.
 - For co-migrating stocks/species or management units of concern where exploitation rate caps or some other limit on mortalities have been defined (e.g. Interior Fraser River Coho), the parties to the transfer arrangements are

responsible for demonstrating that the transfer arrangement will be neutral or of benefit to the stock or management unit of concern (i.e. same or lower impact in the new fishing area). Limiting stocks/species will only be transferred to the extent needed to harvest the target stock transfer amount with residual amounts being available for the use by all other commercial harvest groups with a share of the targeted stocks.

- Transfers into areas that require management adjustments need to be accounted for in determining TAC (e.g. a similar accounting process to current Fraser Sockeye).
- Priority will be given to those proposals that allow shares to be harvested using fishing techniques that are more selective than the original technique, and / or allow harvesting in fishing areas that avoid stocks or management units of concern.
- Harvest of commercial salmon allocations is not guaranteed and actual harvest opportunities may be limited by constraints to protect species or stocks of concern. Commercial fishery participants that demonstrate an ability to fish selectively may be able to access a greater amount of their harvest share.
- Enhanced fisheries monitoring and catch reporting programs must be in place for participants to ensure that there is reliable accounting for both retained and released fish and that harvests do not exceed defined shares. Incremental monitoring costs will not be assumed by DFO and will need to be covered by parties to the transfer arrangement.
- Proposals for transfer arrangement must include contingencies for situations where shares are exceeded. Parties not complying with agreed-to arrangements could face enforcement actions.
- Transfers of commercial salmon shares will not be permitted when this may adversely affect First Nations Food, Social and Ceremonial harvest opportunities in the area.
- Surpluses of salmon in terminal areas (i.e. ESSR fisheries) will continue to be managed using existing ESSR guidelines.

All decisions regarding temporary salmon share transfers are one-time only. Unless otherwise communicated by DFO at the time of the decision, all future transfer requests must undergo new process of application, review and approval from DFO.

13 SPECIES SPECIFIC SALMON FISHING PLANS

TABLE OF CONTENTS

13.1	Northern Chinook Salmon Fishing Plan.....	204
13.1.1	Northern Chinook Overview.....	207
13.1.1.1	<i>Northern Chinook Enhancement Information</i>	208
13.1.1.2	<i>Northern Chinook – SEP proposals or updates for 2023</i>	208
13.1.1.3	<i>Overview of Northern Chinook Conservation Concerns</i>	209
13.1.1.4	<i>Overview AABM Fisheries</i>	210
13.1.1.5	<i>Overview ISBM Fisheries</i>	210
13.1.2	Northern AABM Chinook.....	211
13.1.2.1	<i>Snapshot Overview and Map of Management Unit</i>	211
13.1.2.2	<i>Stock Assessment Information</i>	212
13.1.2.2.1	Pre-season.....	212
13.1.2.2.2	In-season.....	212
13.1.2.3	<i>Decision Guidelines and Management Actions</i>	213
13.1.2.4	<i>Incidental Harvest, By-catch and Constraints to AABM Chinook Fisheries</i>	216
13.1.2.5	<i>Allocation and Fishing Plans</i>	217
13.1.2.5.1	First Nations Fisheries	217
13.1.2.5.2	Recreational Fisheries	218
13.1.2.6	<i>Allocation</i>	219
13.1.2.6.1	Recreational Fisheries	219
13.1.2.6.2	Commercial Fisheries.....	219
13.1.2.6.3	ESSR Fisheries	222
13.1.3	Skeena-Nass ISBM Chinook	222
13.1.3.1	<i>Snapshot Overview and Map of Management Unit</i>	222
13.1.3.2	<i>Stock Assessment Information</i>	224
13.1.3.2.1	Pre-season.....	224
13.1.3.2.2	In-season.....	224
13.1.3.3	<i>Decision Guidelines and Management Actions</i>	224

- 13.1.3.4 *Incidental Harvest, By-Catch and Constraints to Skeena-Nass ISBM Chinook Fisheries*
225
- 13.1.3.5 *Allocation and Fishing Plans*226
 - 13.1.3.5.1 First Nations Fisheries226
 - 13.1.3.5.2 Recreational Fisheries228
 - 13.1.3.5.3 Commercial Fisheries.....229
 - 13.1.3.5.4 ESSR Fisheries230
- 13.1.4 Central Coast ISBM Chinook.....231
 - 13.1.4.1 *Snapshot Overview and Map of Management Unit*231
 - 13.1.4.2 *Stock Assessment Information*232
 - 13.1.4.2.1 Pre-season.....232
 - 13.1.4.3 *Decision Guidelines and Management Actions*232
 - 13.1.4.4 *Allocation and Fishing Plans*233
 - 13.1.4.4.1 First Nations Fisheries233
 - 13.1.4.4.2 Recreational Fisheries234
 - 13.1.4.4.3 Commercial Fisheries.....235
 - 13.1.4.4.4 ESSR Fisheries236
- 13.2 Northern Chum Salmon Fishing Plan..... 237
 - 13.2.1 Northern Chum Overview.....240
 - 13.2.1.1 *Northern Chum Enhancement Information*.....240
 - 13.2.1.2 *Northern Chum – SEP proposals or updates for 2023*.....241
 - 13.2.2 Haida Gwaii Chum Overview.....241
 - 13.2.2.1 *Snapshot Overview and Map of Management Unit*241
 - 13.2.2.2 *Stock Assessment Information*242
 - 13.2.2.2.1 Pre-season.....242
 - 13.2.2.2.2 In-Season.....242
 - 13.2.2.3 *Decision Guidelines and Management Actions*242
 - 13.2.2.4 *Incidental Harvest, By-catch and Constraints to Fisheries*.....243
 - 13.2.2.5 *Allocation and Fishing Plans*243
 - 13.2.2.5.1 First Nations Fisheries243

- 13.2.2.5.2 Recreational Fisheries244
- 13.2.2.5.3 Commercial Fisheries.....245
- 13.2.2.5.4 ESSR Fisheries246
- 13.2.3 Skeena-Nass Chum247
 - 13.2.3.1 Snapshot Overview and Map of Management Unit247
 - 13.2.3.2 Stock Assessment Information248
 - 13.2.3.2.1 Pre-season.....248
 - 13.2.3.2.2 In-season248
 - 13.2.3.3 Decision Guidelines and Management Actions249
 - 13.2.3.4 Incidental Harvest, By-catch and Constraints to Skeena and Nass Chum Fisheries249
 - 13.2.3.5 Allocation and Fishing Plans250
 - 13.2.3.5.1 First Nations Fisheries250
 - 13.2.3.5.2 Recreational Fisheries252
 - 13.2.3.5.3 Commercial Fisheries.....253
 - 13.2.3.5.4 ESSR Fisheries254
- 13.2.4 Central Coast Chum.....254
 - 13.2.4.1 Snapshot Overview and Map of Management Unit254
 - 13.2.4.2 Stock Assessment Information255
 - 13.2.4.2.1 Pre-season.....255
 - 13.2.4.2.2 In-season255
 - 13.2.4.3 Decision Guidelines and Management Actions256
 - 13.2.4.4 Allocation and Fishing Plans259
 - 13.2.4.4.1 First Nations Fisheries259
 - 13.2.4.4.2 Recreational Fisheries260
 - 13.2.4.4.3 Commercial Fisheries.....261
 - 13.2.4.4.4 ESSR Fisheries263
- 13.3 Northern Coho Salmon Fishing Plan 264
 - 13.3.1 Northern Coho Overview266
 - 13.3.1.1 Northern Coho Enhancement Information:266
 - 13.3.1.2 Northern Coho – SEP proposals or updates for 2023.....267

- 13.3.2 Northern Coho.....267
 - 13.3.2.1 Snapshot Overview and Map of Management Unit267
 - 13.3.2.2 Stock Assessment Information268
 - 13.3.2.2.1 Pre-season.....268
 - 13.3.2.2.2 In-season Assessment269
 - 13.3.2.3 Decision Guidelines and Management Actions269
 - 13.3.2.4 Incidental Harvest, By-Catch and Constraints to Northern Coho Fisheries270
 - 13.3.2.5 Allocation and Fishing Plans271
 - 13.3.2.5.1 First Nations Fisheries271
 - 13.3.2.5.2 Recreational Fisheries273
 - 13.3.2.5.3 Commercial Fisheries.....276
 - 13.3.2.5.4 Demonstration and ESSR Fisheries278
- 13.4 Northern Pink Salmon Fishing Plan..... 279
 - 13.4.1 Northern Pink Salmon Overview282
 - 13.4.1.1 Northern Pink Enhancement Information282
 - 13.4.1.2 Northern Pink – SEP Proposals or Updates for 2023.....283
 - 13.4.2 Haida Gwaii Pink Salmon.....283
 - 13.4.2.1 Snapshot Overview and Map of Management Unit283
 - 13.4.2.2 Stock Assessment Information284
 - 13.4.2.2.1 Pre-season.....284
 - 13.4.2.2.2 In-season.....284
 - 13.4.2.3 Decision Guidelines and Management Actions284
 - 13.4.2.4 Incidental Harvest, By-catch and Constraints to Haida Gwaii Pink Fisheries.....284
 - 13.4.2.5 Allocation and Fishing Plan285
 - 13.4.2.5.1 First Nations Fisheries285
 - 13.4.2.5.2 Recreational Fisheries286
 - 13.4.2.5.3 Commercial Fisheries.....287
 - 13.4.2.5.4 ESSR Fisheries288
 - 13.4.3 Skeena-Nass Pinks289
 - 13.4.3.1 Snapshot Overview and Map of Management Unit289

- 13.4.3.2 *Stock Assessment Information*290
 - 13.4.3.2.1 Pre-season.....290
 - 13.4.3.2.2 In-season.....290
- 13.4.3.3 *Decision Guidelines and Management Actions*290
- 13.4.3.4 *Incidental Harvest, By-catch, and Constraints to Skeena and Nass Pink Fisheries*292
- 13.4.3.5 *Allocation and Fishing Plans*293
 - 13.4.3.5.1 First Nations Fisheries293
 - 13.4.3.5.2 Recreational Fisheries295
 - 13.4.3.5.3 Commercial Fisheries.....295
 - 13.4.3.5.4 Demonstration and ESSR Fisheries297
- 13.4.4 Central Coast Pink Salmon298
 - 13.4.4.1 *Snapshot Overview and Map of Management Unit*298
 - 13.4.4.2 *Stock Assessment Information*299
 - 13.4.4.2.1 Pre-season.....299
 - 13.4.4.2.2 In-season.....299
 - 13.4.4.3 *Decision Guidelines and Management Actions*300
 - 13.4.4.3.1 In-season Decisions300
 - 13.4.4.4 *Incidental Harvest, By-catch and Constraints to Central Coast Pink Fisheries*300
 - 13.4.4.5 *Allocation and Fishing Plans*302
 - 13.4.4.5.1 Recreational Fisheries303
 - 13.4.4.5.2 Commercial Fisheries.....304
 - 13.4.4.5.3 Demonstration and ESSR Fisheries306
- 13.5 Northern Sockeye Salmon Fishing Plan 307
 - 13.5.1 Northern Sockeye Overview311
 - 13.5.1.1 *Northern Sockeye Enhancement Information*311
 - 13.5.1.2 *Northern Sockeye – SEP Proposals or Updates for 2023*312
 - 13.5.2 Haida Gwaii Sockeye (Areas 1, 2W and 2E).....313
 - 13.5.2.1 *Snapshot Overview and Map of Management Unit*313
 - 13.5.2.2 *Stock Assessment Information*314
 - 13.5.2.2.1 Pre-season.....314

- 13.5.2.2.2 In-season314
- 13.5.2.3 *Decision Guidelines and Management Actions*314
- 13.5.2.4 *Incidental Harvest, By-catch and Constraints to Haida Gwaii Sockeye Fisheries*314
- 13.5.2.5 *Allocation and Fishing Plans*315
 - 13.5.2.5.1 First Nations Fisheries315
 - 13.5.2.5.2 Recreational Fisheries316
 - 13.5.2.5.3 Commercial Fisheries.....316
 - 13.5.2.5.4 ESSR Fisheries317
- 13.5.3 Nass Sockeye.....318
 - 13.5.3.1 *Snapshot Overview and Map of Management Unit*318
 - 13.5.3.2 *Stock Assessment Information*319
 - 13.5.3.2.1 Pre-season.....319
 - 13.5.3.2.2 In-season.....320
 - 13.5.3.3 *Decision Guidelines and Management Actions*320
 - 13.5.3.4 *Incidental Harvest, By-catch and Constraints to Nass River Fisheries*320
 - 13.5.3.5 *Allocation and Fishing Plans*323
 - 13.5.3.5.1 First Nations Fisheries323
 - 13.5.3.5.2 Recreational Fisheries326
 - 13.5.3.5.3 Commercial Fisheries.....327
 - 13.5.3.5.4 ESSR Fisheries329
- 13.5.4 Skeena Sockeye.....331
 - 13.5.4.1 *Snapshot Overview and Map of Management Unit*331
 - 13.5.4.2 *Stock Assessment Information*332
 - 13.5.4.2.1 Pre-season.....332
 - 13.5.4.2.2 In-season Assessment333
 - 13.5.4.3 *Decision Guidelines and Management Actions*333
 - 13.5.4.4 *Incidental Harvest, By-catch and Constraints to Skeena Sockeye Fisheries*335
 - 13.5.4.5 *Allocation and Fishing Plans*339
 - 13.5.4.5.1 First Nations Fisheries339
 - 13.5.4.5.2 Recreational Fisheries340

- 13.5.4.5.3 Commercial Fisheries.....342
- 13.5.4.5.4 ESSR Fisheries347
- 13.5.5 Central Coast Sockeye348
 - 13.5.5.1 Snapshot Overview and Map of Management Unit348
 - 13.5.5.2 Stock Assessment Information348
 - 13.5.5.2.1 Pre-season.....348
 - 13.5.5.2.2 In-season Assessment349
 - 13.5.5.3 Decision Guidelines and Management Actions349
 - 13.5.5.4 Incidental Harvest, By-catch and Constraints to Central Coast Sockeye Fisheries349
 - 13.5.5.5 Allocation and Fishing Plans351
 - 13.5.5.5.1 First Nations Fisheries351
 - 13.5.5.5.2 Recreational Fisheries352
 - 13.5.5.5.3 Commercial Fisheries.....353
 - 13.5.5.5.4 ESSR Fisheries354
- 13.5.6 Rivers & Smith Inlet Sockeye.....355
 - 13.5.6.1 Snapshot Overview and Map of Management Unit355
 - 13.5.6.2 Stock Assessment Information356
 - 13.5.6.2.1 Pre-season.....356
 - 13.5.6.2.2 In-season Assessment356
 - 13.5.6.3 Decision Guidelines and Management Actions357
 - 13.5.6.4 Incidental Harvest, By-catch and Constraints to Rivers and Smith Inlet Sockeye Fisheries 358
 - 13.5.6.5 Allocation and Fishing Plans360
 - 13.5.6.5.1 First Nations Fisheries360
 - 13.5.6.5.2 Recreational Fisheries361
 - 13.5.6.5.3 Commercial Fisheries.....361

13.1 NORTHERN CHINOOK SALMON FISHING PLAN

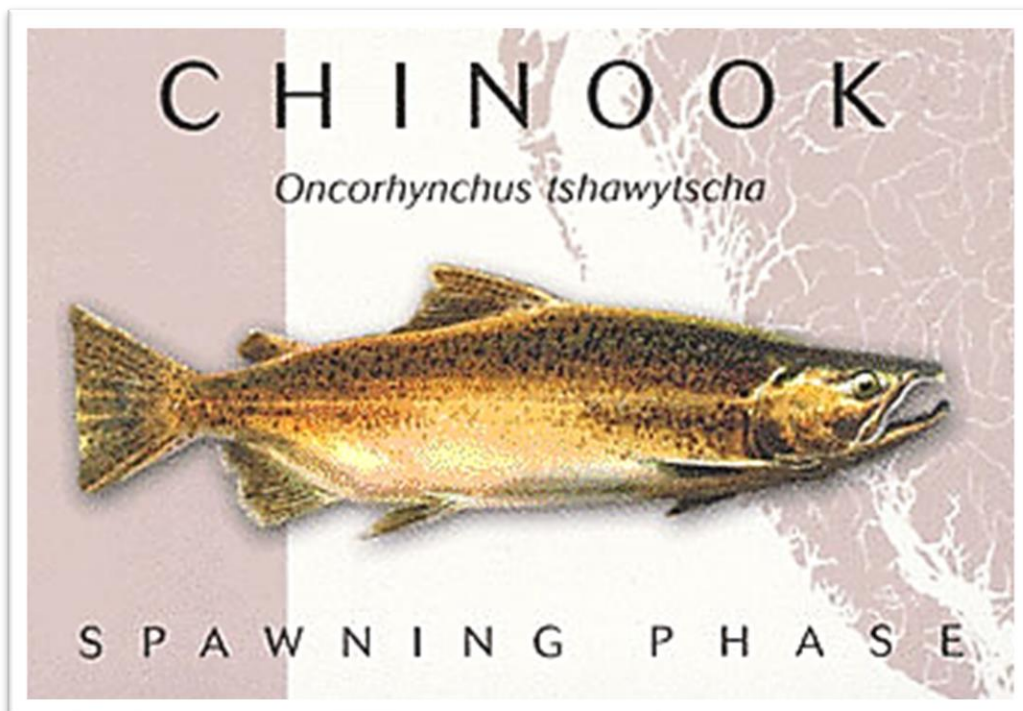
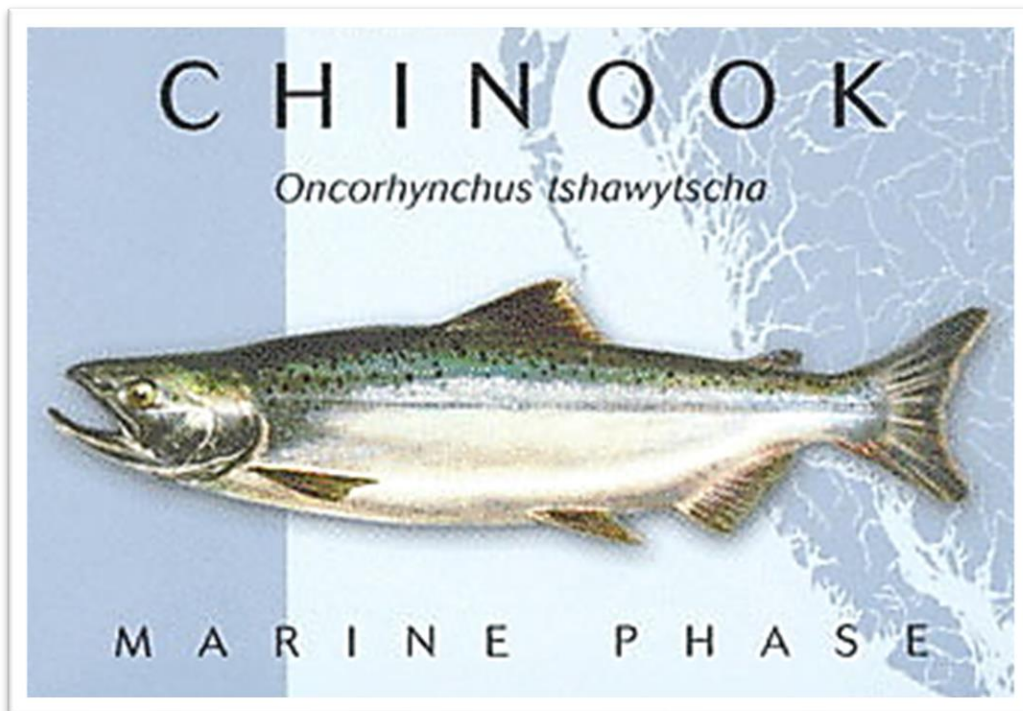


TABLE OF CONTENTS

- 13.1.1 Northern Chinook Overview207
 - 13.1.1.1 Northern Chinook Enhancement Information208
 - 13.1.1.2 Northern Chinook – SEP proposals or updates for 2023208
 - 13.1.1.3 Overview of Northern Chinook Conservation Concerns209
 - 13.1.1.4 Overview AABM Fisheries210
 - 13.1.1.5 Overview ISBM Fisheries210
- 13.1.2 Northern AABM Chinook.....211
 - 13.1.2.1 Snapshot Overview and Map of Management Unit211
 - 13.1.2.2 Stock Assessment Information212
 - 13.1.2.2.1 Pre-season.....212
 - 13.1.2.2.2 In-season.....212
 - 13.1.2.3 Decision Guidelines and Management Actions213
 - 13.1.2.4 Incidental Harvest, By-catch and Constraints to AABM Chinook Fisheries216
 - 13.1.2.5 Allocation and Fishing Plans217
 - 13.1.2.5.1 First Nations Fisheries217
 - 13.1.2.5.2 Recreational Fisheries218
 - 13.1.2.6 Allocation219
 - 13.1.2.6.1 Recreational Fisheries219
 - 13.1.2.6.2 Commercial Fisheries.....219
 - 13.1.2.6.3 ESSR Fisheries222
- 13.1.3 Skeena-Nass ISBM Chinook222
 - 13.1.3.1 Snapshot Overview and Map of Management Unit222
 - 13.1.3.2 Stock Assessment Information224
 - 13.1.3.2.1 Pre-season.....224
 - 13.1.3.2.2 In-season.....224
 - 13.1.3.3 Decision Guidelines and Management Actions224
 - 13.1.3.4 Incidental Harvest, By-Catch and Constraints to Skeena-Nass ISBM Chinook Fisheries
225
 - 13.1.3.5 Allocation and Fishing Plans226

- 13.1.3.5.1 First Nations Fisheries226
- 13.1.3.5.2 Recreational Fisheries228
- 13.1.3.5.3 Commercial Fisheries.....229
- 13.1.3.5.4 ESSR Fisheries230
- 13.1.4 Central Coast ISBM Chinook231
 - 13.1.4.1 *Snapshot Overview and Map of Management Unit*231
 - 13.1.4.2 *Stock Assessment Information*232
 - 13.1.4.2.1 Pre-season.....232
 - 13.1.4.3 *Decision Guidelines and Management Actions*232
 - 13.1.4.4 *Allocation and Fishing Plans*233
 - 13.1.4.4.1 First Nations Fisheries233
 - 13.1.4.4.2 Recreational Fisheries234
 - 13.1.4.4.3 Commercial Fisheries.....235
 - 13.1.4.4.4 ESSR Fisheries236

13.1.1 NORTHERN CHINOOK OVERVIEW

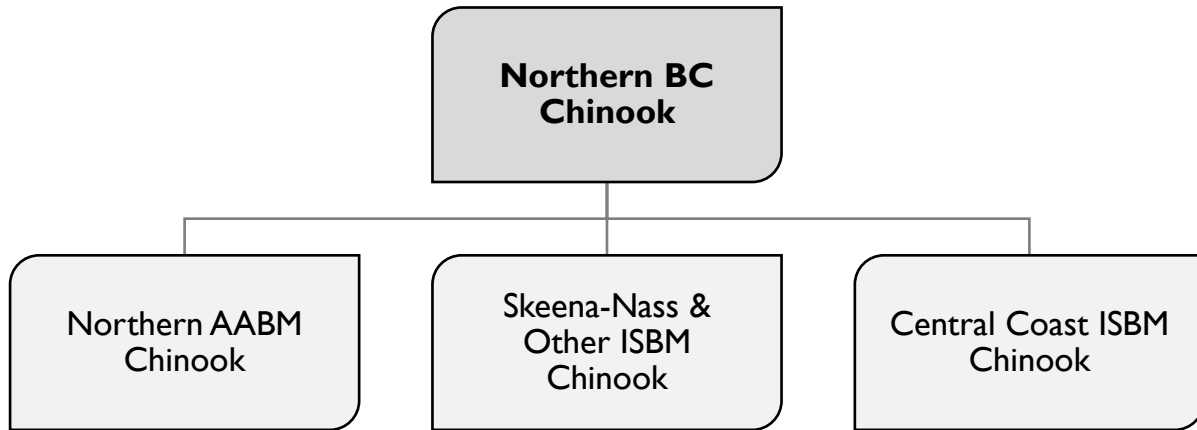


Figure 13-1: Overview of Northern Chinook salmon

Chinook salmon fisheries in British Columbia are managed under the umbrella of the Pacific Salmon Treaty (PST) between Canada and the United States of America. Canada’s domestic management considerations include stocks of concern, allocations between sectors, and application of selective fishing practices.

With the exception of the Transboundary Rivers, the basis for managing fisheries impacting Chinook salmon from Alaska to Oregon is the Chinook abundance-based management system in Chapter 3 of the PST. This management system was adopted in 1999 and defined harvests of Chinook through 2008. Chapter 3 of the PST was revised for implementation in 2009 to maintain the abundance-based management framework established under the 1999 Agreement until 2018. This chapter was recently re-negotiated and the updated version implemented as of January 1, 2019 for a ten-year period.

Further explanation and the text of the Chinook salmon agreements can be found on the PSC website at:

<https://www.psc.org/>

Accounting of Chinook salmon fisheries for the PST occurs from October 1 in one calendar year, to September 30 in the next calendar year.

Two types of fisheries are identified in the PST, Chapter 3:

- Aggregate Abundance Based Management (AABM) fisheries; and
- Individual Stock Based Management (ISBM) fisheries.

Within the PST Chinook management framework, Canadian domestic policy further defines fishing opportunities. The domestic objectives or policies which affect fishing opportunities include: conservation, Canada's constitutional obligations to First Nations, the Wild Salmon Policy (WSP), An Allocation Policy for Pacific Salmon, and the Policy for Selective Fishing in Canada's Pacific Fisheries.

13.1.1.1 NORTHERN CHINOOK ENHANCEMENT INFORMATION

The major BC North Coast DFO Operation enhancement facilities that produce Chinook are:

Kitimat River hatchery

Snootli Creek hatchery

There are two Chinook salmon exploitation rate indicator stocks in the North Coast that rely on hatchery production of coded-wire tagged releases. The Atnarko River Chinook indicator stock is produced at the Snootli Creek Hatchery and the Kitsumkalum River Chinook indicator stock is produced at Deep Creek Hatchery. Deep Creek Hatchery does not appear in the list above since it is not considered a major DFO Operations (OPS) facility and these fish are raised for assessment purposes only.

The information available at the link below addresses production from major DFO OPS facilities, contracted Community Economic Development Program hatcheries (CEDP), Public Involvement Projects (PIP) operated by volunteers, and Aboriginal Fisheries Strategy (AFS).

SEP Production Plans

There are three datasets available: Post-Season Production from the 2020 brood year (i.e., 2021 and 2022 releases), Post-Season Production from the 2021 brood year (i.e., 2022 releases, and numbers on hand for 2023 release), and the Production Plan, which includes proposed targets for the upcoming 2023 brood year. These are available at the following website:

<https://www.pac.dfo-mpo.gc.ca/sep-pmvs/data-donnees/index-eng.html>

13.1.1.2 NORTHERN CHINOOK – SEP PROPOSALS OR UPDATES FOR 2023

Following the implementation of longer term closures affecting Chinook catch in Chinook-directed fisheries and as bycatch in Chum-directed fisheries, the hatchery Chinook produced to support harvest in these fisheries is being realigned with the new fishery regime. Departmental analysis estimated a reduction of Atnarko Chinook produced for harvest purposes at the Snootli River Hatchery of approximately 25% from the 2022 target, reflecting a commensurate

reduction in the Chinook fishery. No adjustments are being made to the remaining Chinook production for harvest or to any of the Chinook production for rebuilding, assessment, conservation or education purposes.

13.1.1.3 OVERVIEW OF NORTHERN CHINOOK CONSERVATION CONCERNS

Escapement of northern Chinook salmon declined dramatically in recent years. Reduced survival rates and productivity have been observed across British Columbia and Southeast Alaska. This led to unprecedented declines of northern Chinook in 2017 and triggered significant management measures that were implemented for 2018 salmon fisheries and again in 2019 through 2022. Post season evaluation of Nass and Skeena Chinook returns in 2022 remain poor but the Nass River exceeded the escapement target in 2022. Management measures will be put in place to support conservation and promote rebuilding of Skeena Chinook; a suite of measures modelled on the actions initiated in 2018, including spatial and temporal closures and quota reductions, will continue in 2023. More information on the specific management actions can be found in the Recreational Fisheries sections.

The Minister has approved changes to Fraser Chinook conservation measures in 2023. These new measures are also intended to provide priority access for FSC fisheries in Fraser River and approach area fisheries for allowable impacts on the Fraser Summer 5₂ Chinook stock; while also committing to develop quantitative Canadian mortality limits for these stocks, and will consult affected groups on the specific fishery measures that will maximize their harvest within those constraints.

Recent indications of below average snow pack levels and expected above average temperatures through the summer will result in challenging environmental conditions for 2023. While the full extent of these impacts will not be understood until later in the year, the Department will continue to monitor these conditions, and may consider implementation of additional actions at a later date. In the interim, the Minister has approved changes to the management plan for 2023 which are designed to reduce Canadian fisheries mortality to 14%. . The measures for 2023 are focused on commercial and recreational fisheries, with FSC management approaches to align with those implemented in recent years. This is expected to result in the majority of allowable impacts on Fraser Summer 5₂ Chinook being in FSC fisheries. The approved commercial and recreational changes in Northern fisheries are as follows:

Commercial Measures: The Area F Troll Chinook fishery will be delayed until August 16.

Recreational Measures: Daily catch limits will be reduced to one (1) Chinook per day from July 11 to July 31 in Northern AABM Recreational Fisheries (Areas 1, 2, 142, and that portion of Area 101 west of 131 degrees 40.0 minutes West longitude).

13.1.1.4 OVERVIEW AABM FISHERIES

Chinook salmon fisheries implemented under the PST AABM management regime include three mixed-stock fisheries:

- a) Southeast Alaska recreational, net, and troll (SEAK);
- b) Northern British Columbia troll and Haida Gwaii recreational (NBC);
and
- c) West Coast of Vancouver Island troll and outside recreational (WCVI).

These fisheries are managed to an annual total allowable catch (TAC) based on the forecast abundance of the aggregate of stocks that contribute to each fishery. Annual quotas for each AABM fishery are developed by prediction of Chinook salmon abundance based upon a Cohort analysis model. For NBC fisheries, a single AABM quota is applied to troll fisheries Pacific Fishery Management Areas (PFMA) 1 to 5, 101 to 105 and 142 and to recreational fisheries in PFMA's 1, 2, 101, 102 and 142.

In Canada, conservation is the first priority in fisheries management. Once conservation obligations are met, priority access is given to First Nations for food, social, ceremonial, and treaty requirements. Once those obligations are met, priority access to Chinook salmon is provided to the recreational fishery, with commercial fisheries next in priority. Once the AABM quota is defined for the combined troll and recreational fishery, the projected recreational catch is subtracted from the TAC, with the remainder allocated to the troll fishery. Thus, the troll fishery is the first fishery to be impacted if stocks of conservation concern require management actions in NBC fisheries. Management constraints to the fishery include management for stocks of conservation concern, minimizing encounters of undersized Chinook salmon and non-target species and minimizing fisheries where legal and sublegal-sized Chinook salmon have to be released.

Canadian Chinook fisheries in all other areas of the North and Central Coast are managed as ISBM fisheries.

13.1.1.5 OVERVIEW ISBM FISHERIES

Under the PST, an ISBM fishery is an abundance-based regime that constrains to a numerical limit the total catch or the total adult equivalent mortality rate within the fisheries of a

jurisdiction for a naturally spawning Chinook salmon stock or stock group. For Canadian ISBM fisheries, the agreement identifies a general obligation that limits the total adult equivalent mortality rate across all fisheries for individual stock groups to 63.5% of that which occurred in the 1979 to 1982 base period.

ISBM management regimes apply to all Chinook salmon fisheries subject to the PST that are not AABM fisheries and include marine and freshwater salmon fisheries from northern British Columbia to northern Oregon coast. ISBM fisheries for Chinook salmon in the North and Central Coast include all First Nations fisheries in both marine and fresh waters, all commercial gillnet and seine fisheries, all freshwater recreational fisheries, marine recreational fisheries in PFMA's 3 to 10, 103 to 110 and 130, and troll fisheries in PFMA's 6 to 10, 106 to 110 and 130.

13.1.2 NORTHERN AABM CHINOOK

13.1.2.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

An AABM fishery is an abundance-based regime that constrains catch or total mortality to a numerical limit computed from a pre-season forecast of abundance, from which a harvest rate index can be calculated, expressed as a proportion of the 1979 to 1982 base period. Although in-season estimates of abundance are permitted under the PST, none have been approved by the Chinook Technical Committee (CTC) for use in Canadian AABM fisheries.

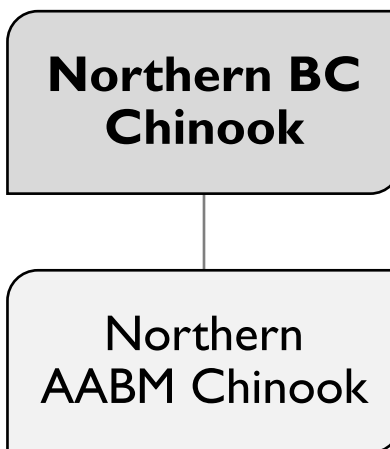


Figure 13-2: Overview of Northern AABM Chinook

The Northern AABM fishery includes commercial troll caught Chinook salmon in Pacific Fishery Management Areas 1 to 5, 101-105 and 142 and recreational Chinook fisheries in Haida Gwaii in Areas 1, 2, 101, 102 and 142.

The AABM Chinook fishery targets Canadian and U.S. origin wild and enhanced Chinook populations. The main components of the harvest are U.S. and Fraser origin Chinook; however, most BC Chinook conservation units may be encountered in this area. Most of the catch consists of mature fish migrating to spawn but a small portion of the catch includes immature or rearing fish (feeders).

13.1.2.2 STOCK ASSESSMENT INFORMATION

13.1.2.2.1 Pre-season

See Appendix 9 for more information.

The Chinook Technical Committee (CTC) provides a final calibration of the Chinook Model annually. The completed calibration provides the Abundance Indices (AI) that are required for determining the pre-season estimated allowable catches for the three AABM fisheries.

The Chinook Technical Committee (CTC) provides a final calibration of the Chinook Model annually. The completed calibration provides the Abundance Indices (AI) that are required for determining the pre-season estimated allowable catches for the three AABM fisheries.

Pre-season Abundance indices and associated allowable catches for the October 1, 2022 to September 30, 20231 NBC AABM Fisheries:	SEAK	NBC	WCVI
Abundance Index	1.42*	1.16	1.02
Allowable Catch	206,027	141,700	115,500

*SEAK uses multivariate analysis to determine annual allowable catch.

13.1.2.2.2 In-season

Sport and troll catch and effort in NBC are monitored in-season. Genetic samples are collected from Chinook salmon caught in both fisheries and troll fishery samples are analyzed in-season. Troll effort data are monitored to help inform the effort-based approach to predict WCVI Chinook harvest rates by the Area F Troll fishery.

13.1.2.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Within the PST Chinook management framework, Canadian domestic policy further defines fishing opportunities. The domestic objectives or policies which will most affect fishing opportunities include conservation, Canada’s constitutional obligations to First Nations, the WSP, *An Allocation Policy for Pacific Salmon*, and the *Policy for Selective Fishing in Canada’s Pacific Fisheries*. Domestic conservation concerns may reduce the TAC to levels less than identified under the PST Chinook AABM fisheries.

When there is a TAC identified for the AABM management area, targeted Chinook fisheries are planned for recreational and commercial sectors. The table below describes management measures that will be taken to minimize impacts on stocks of concern in AABM Chinook fisheries.

Table 13-1: Stock management actions anticipated in Northern British Columbia AABM Chinook fisheries to limit impacts on stocks of concern

13.1 NORTHERN CHINOOK SALMON FISHING PLAN

Stock of Concern (constraint)	First Nations (FN) Fishery	Recreational Fishery	Commercial Fishery
<p>Nass / Skeena Chinook</p>	<p>No impacts on First Nations fisheries anticipated</p>	<p>Management actions to reduce impacts on Skeena Chinook stocks during peak Skeena timing.</p> <p>AABM:</p> <ul style="list-style-type: none"> • 1 per day, 2 possession May 29 – July 10, 2023 <p>ISBM:</p> <ul style="list-style-type: none"> • 1 per day, 2 possession June 1 – June 22, 2023 • Chinook non-retention June 23 - July 17 • 1 per day, 2 possession July 18 – August 10, 2023 <p>Nass River:</p> <ul style="list-style-type: none"> • 2 per day, 1 over 65cm <p>Skeena River:</p> <ul style="list-style-type: none"> • Closed 	<p>Area F – Delaying the fishery opening to August 16 will minimize impacts to Nass/Skeena Chinook stocks.</p>
<p>WCVI Chinook</p>	<p>No impacts on First Nations fisheries anticipated</p>	<p>No impacts on North Coast recreational fisheries anticipated</p>	<p>Area F – restrictions in the North Coast troll fishery to limit ER to 3.2%. Time and area closures and effort limits.</p>

Stock of Concern (constraint)	First Nations (FN) Fishery	Recreational Fishery	Commercial Fishery
Fraser River Chinook	No impacts on First Nations fisheries anticipated	<p>New for 2023: As part of a suite of management measures approved by the Minister to protect Fraser Summer 5₂ Chinook, daily catch limits will be reduced to one (1) Chinook per day from July 11 to July 31 in Haida Gwaii (Areas 1 and 2).</p>	<p>New for 2023 - Delayed fishery opening to August 16 to minimize impacts on Fraser River 4₂ and 5₂ Chinook and to allow passage of Fraser Summer 4₁ for higher priority fisheries.</p>

The Department manages domestic stocks of concern using various approaches. Management actions in northern fisheries to reduce impacts on Fraser River 4₂ and 5₂ Chinook includes delaying the start of the Area F Troll fishery to allow these stocks to migrate through the area. The Area F Chinook troll fishery is also managed to limit its catch of WCVI Chinook to 3.2% of the return to Canada. The Department developed and implemented an in-season management tool to estimate the WCVI harvest rate in 2014. This approach uses the historical daily fishing effort daily WCVI Chinook catch derived from DNA-based stock composition estimates and post-season estimates of WCVI returns to Canada.

For 2023, the Area F Chinook fishery will be delayed until August 16 - to minimize impacts on Fraser Chinook and to allow passage of Fraser Summer 4₁ Chinook for higher priority fisheries.

The Department will continue to collect and analyze DNA samples from the catch, which will be used for post-season identification of stock composition in the catch and post-season evaluation of management objectives.

The projected catch of Chinook by the Haida Gwaii recreational Chinook fishery for 2023, is 31,300. If the in-season estimate of total annual recreational catch is expected to be less than the forecasted amount, a portion of the total AABM TAC may be reallocated to the troll fishery. In

this case, the amount will be divided up amongst licences based on their in-season proportion of the troll TAC, after all transfers have been taken into account.

13.1.2.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO AABM CHINOOK FISHERIES

AABM fisheries may be subject to constraints due to concerns for specific domestic stocks and/or co-migrating species (such as Coho) as described in the table below.

Fishery Period	Risk of impact on stocks of concern
Oct. – Jan	Low risk. This period is outside the migration timing and area for stocks of concern such as WCVI Chinook, Fraser River Spring 4 ₂ and Spring and Summer 5 ₂ Chinook.
Feb. – June	High risk. Specific concerns for WCVI and spring timed Fraser River 4 ₂ and 5 ₂ Chinook as these stocks are prevalent during parts of this period. For 2023 there is ongoing heightened concern for Fraser Chinook. Risk declines in August as the majority of Fraser River Spring stocks have migrated out of the area by early July and Summer 5 ₂ stocks are only present in very low abundance. Impacts on WCVI Chinook are reduced by time and area restrictions.
July	<p>Low risk for WCVI Chinook. Spatial restrictions are implemented to avoid areas with higher prevalence of WCVI Chinook. Fishery is managed to ensure NBC troll impacts do not exceed 3.2% ER..</p> <p>Continuing high risk for Fraser River Spring 4₂ and Spring and Summer 5₂ Chinook. Management actions in 2023 will include delaying start of the troll fishery until August 10 to pass more abundant Fraser River Summer 4₁ stocks to higher priority fisheries.</p>
August	Moderate risk. Specific concerns for WCVI Chinook as peak migration of this stock through the area occurs during August. Reduced NBC troll Chinook fishing opportunities during August. Troll effort data are monitored to help inform the effort-based approach to predict WCVI Chinook harvest rates by the Area F Troll.
September	Low Risk. WCVI Chinook may be avoided by area restrictions. Risk declines through September as most stocks of concern have migrated out of the area in September.

In addition to the poor outlook for Fraser River Spring 4₂ and 5₂ and Summer 5₂ Chinook, very poor returns are expected for Chinook across many parts of the region. The Department will therefore continue with the precautionary management strategy for 2023 that may include TAC reductions in addition to targeted time and area closures in areas where stocks of concern are prevalent. Additional restrictions may be implemented if required.

The Area F Chinook fishery will close on September 30, 2023, which is defined as the end of the AABM Chinook fishing year within Chapter 3 of the Pacific Salmon Treaty. All Chinook must be unloaded and validated within 5 days of the closure date.

13.1.2.5 ALLOCATION AND FISHING PLANS

13.1.2.5.1 First Nations Fisheries

Food, Social and Ceremonial

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe details of the FSC fishery, including the dates, times, methods, and locations of harvest. Communal licences for north coast First Nations are typically multi-species, and are issued on an annual basis. Licences may also be amended for shorter durations.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section 10.2 for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly

(Wednesdays) between May 15 and October 31 inclusive, and at the end of each month between November 1 and March 31.

Treaty Fisheries

There are no Treaty fisheries for Northern AABM Chinook.

13.1.2.5.2 Recreational Fisheries

The recreational total annual limit for Chinook from any tidal waters was set at 10 Chinook in April 2019 as part of conservation measures to address the poor status of many Chinook stocks in BC. This annual limit will remain in place for the 2023/24 season. Recreational anglers must record all Chinook retained catch either on their licence, or if mobile internet access is immediately available, the licence holder may alternatively record catch immediately in their National Recreational Licensing System (NRLS) account. DFO is also proposing to reduce the number of slots on the recreational licence to match the annual limit in effect at the time of licence issuance, pursuant to that decision.

Sport fisheries in Canada receive priority access over commercial fisheries to Chinook salmon. Two of the largest recreational fisheries in Northern BC (NBC) occur in Haida Gwaii and Chatham Sound. NBC recreational fisheries experienced significant growth until 2005 when they reached a maximum catch of 82,000 Chinook. Since that time, catches have fluctuated between 40,000-55,000 Chinook salmon annually. AABM recreational Chinook fisheries occur in the tidal waters surrounding Haida Gwaii, with the majority of effort focused along the shoreline from Masset to Langara Island in Area 1 and between Englefield Bay and Port Louis in Area 2W. Recreational fishing occurs primarily between May and September with peak effort and catch occurring in July and August.

Daily aggregate limits and updates to recreational fisheries are provided via Fishery Notice and published on the recreational fisheries website at:

<http://www.bcsportfishingguide.ca>

Fishery Monitoring and Catch Reporting

DFO has been collecting recreational catch data through the Lodge Log Book Program and the Haida Creel Program since 1995. Participation in monitoring and reporting of recreational catch in Areas 1 and 2 has been excellent over the past 28 years. Monitoring is continuing to improve with region-wide initiatives.

13.1.2.6 ALLOCATION

For PST purposes, the accounting year for Chinook runs from October 1 to September 30 of the following year. The northern B.C. AABM total allowable catch (Management Areas 1 to 5) for 2023 is 141,700.

13.1.2.6.1 Recreational Fisheries

The projected catch of Chinook by the Haida Gwaii recreational Chinook fishery for 2023, based on forecast abundance and planned limits, is 31,300. The recreational harvest will be re-assessed in-season. If the in-season estimate of total annual recreational catch is anticipated to be less than the forecasted amount, a portion of the total AABM TAC may be reallocated to the Area F troll fishery. If this is the case, the amount will be divided up amongst licences based on their in-season proportion of the troll TAC, after all transfers have been taken into account.

New for 2023: As part of a suite of management measures approved by the Minister to protect Fraser Summer 5₂ Chinook, daily catch limits will be reduced to one (1) Chinook per day from July 11 to July 31 in Haida Gwaii (Areas 1 and 2).

13.1.2.6.2 Commercial Fisheries

The preliminary Area F troll allowable catch is 110,400 (The total AABM for northern BC minus the projected recreational harvest).

Specific Conservation Measures:

The Department is implementing reductions in Chinook harvest targeted for specific stocks of concern in 2023, specifically several Fraser River stocks of concern, and Skeena River stocks. Management measures for the Area F troll fishery to reduce impacts on these stocks will include a delayed fishery opening to August 16. The fishery will be further restricted by area closures to restrict impacts to a maximum 3.2% harvest rate objective on WCVI Chinook.

Allocation

The overall TAC for northern BC Chinook fisheries is calculated using the Abundance Index (AI) determined by the Chinook Technical Committee of the PSC. The commercial TAC is derived by deducting the expected use by the Haida Gwaii recreational fleet from the overall TAC for northern BC AABM Chinook.

Table 13-2: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine A	Gill Net C	Troll F
Northern BC AABM Chinook	1, 2E, 2W, 101-105, 130, 142	*	*	100.0% ^a

Notes on Chinook allocations (North):

* by-catch provisions

^a Northern BC AABM Chinook harvest

AABM Chinook Fishing Plan

Area F Troll Fishing Plan

All dates are anticipatory. Subareas open and hours of fishing will be announced in fishery notices prior to openings.

Please note: All Chinook must be validated within 5 days of a Chinook closure.

The number of Area F troll licences is 217 and the number of Chinook for each Area F licence based on an Individual Transferable Quota (ITQ) will be 0.4608 % of the Area F TAC. The troll fishery will be managed to a maximum 3.2% harvest rate on WCVI Chinook.

The Chinook fishery will be conducted under the ITQ rules. With the management measures similar to 2022 to reduce impacts on Fraser and Skeena Chinook, the opening of the fishery will be delayed to August 10. As such, there is expected to be a low likelihood of the fishery exceeding the 3.2% harvest rate on WCVI Chinook. The harvest rate is determined in-season by the relationship between effort and harvest rate developed from historical DNA catch information. The harvest rate will be validated by CWT and DNA analysis of catch post-season. The fishery will close on September 30, 2023.

The ceiling on the number of uncaught Chinook that can be held on any single licence is the equivalent to the sum of three licence ITQ allocations which equates to 1.38% of the TAC. The amount of uncaught quota shall be determined by fisher-supplied catch reports, dockside validations or a combination of the two. This is intended to prevent speculation and large scale amassing of quota.

All Areas and Subareas mentioned are subject to change in-season. Below is a list of areas and Subareas expected to open:

Subareas 1-1, 101-1, 101-2, 101-4, 101-5.

Those portions of Subareas 1-2, 1-3 and 1-7 that are outside and seaward of 1 nautical mile from the Graham Island and Langara Island shorelines (defined at the mean high water mark).

Subarea 1-5, inside or shoreward of a line commencing at Wiah Point then following the Subarea boundary east for one nautical mile, then running parallel to the mean high water mark of Graham Island at a distance of one nautical mile to a point true north of Skonun point, then running true south to Skonun Point.

Those portions of Subareas 101-3, 101-6 and 101-7 except those portions inside or shoreward of a line commencing at 54 degrees 14.976 minutes north latitude and 133° 04.386 minutes west longitude then true west for one nautical mile then north and east running parallel to the mean high water mark of the shorelines of Langara Island and Graham Island at a distance of one nautical mile.

That portion of Subarea 2-88 north of 53 degrees 37-minutes north latitude. Subareas 2-92, 2-97, 2-98.

That portion of Subarea 142-2 north of 53 degrees 37-minutes north latitude.

The Frederick Island Rockfish Conservation Area remains closed to hook and line fisheries (see below for description).

Those portions of Subareas 1-1, 101-1 and 142-2 that lies outside a line that: begins at 53 degrees 56.246 minutes north and 133 degrees 17.500 minutes west then true East to 53 degrees 56.246 minutes north and 133 degrees 11.862 minutes west (Hope Point) then to 53 degrees 57.144 minutes north and 133 degrees 07.938 minutes west (Graham Island) then southerly following the shoreline of Graham Island to the intersection with 53 degrees 47.0 minutes north, then to 53 degrees 47.00 minutes north and 133 degrees 10.00 minutes west thence to the beginning point.

The above boundaries retains the 1.0 nautical mile ribbon boundary in Areas 1 and 101 following the Graham Island and Langara Island shorelines initiating at Langara Island and terminating at Skonun Point. There will be no commercial trolling shoreward of this ribbon boundary.

Fishery Monitoring and Catch Reporting

The Area F troll fishery has three levels of catch monitoring. This includes fisher-reported catch, dockside validation, and dockside sampling of catch. The first level of catch monitoring is provided fisher reported catch logs. Fishers are required to provide a daily record of their catch and releases by species and area within 24 hours of landing their catch. This information is entered into the Fisheries Operating System (FOS) database by a third party service provider.

The second level of catch monitoring is dockside monitoring of Chinook landings, which is mandatory in ITQ fisheries. Therefore 100% of all offloads containing Chinook are required to be validated by a dockside validation service provider. All species are accounted for in these offloads. The third level of monitoring is dockside sampling of catch. This sampling program includes DNA sampling of Chinook as well as salmon head recovery in Chinook and Coho to estimate the stock-specific impacts of the troll fishery.

In accordance with the conditions of the Area F troll license, all vessels are required to bring all Chinook and Coho heads (or snouts if they are cut properly to include any CWT) to the dock for submission, unless the license is listed in a fisheries notice listing the Area F troll licenses that are exempted from retaining salmon heads during the 2023 fishing season. This fisheries notice is expected to be released prior to the opening of the fishery.

The exemption rate this year will be approximately 75%. As in past seasons, licences that were insufficiently diligent in carrying out their conditions of license to bring in all Chinook and Coho heads will not be exempted the following year.

13.1.2.6.3 ESSR Fisheries

There are no ESSR fisheries for northern AABM Chinook.

13.1.3 SKEENA-NASS ISBM CHINOOK

13.1.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

Escapement of northern Chinook salmon declined significantly until 2017, and then recovered somewhat in 2018 due in part to improved productivity and also implementation of restrictive management measures. From 2019 through 2022, Skeena Chinook stocks continued to return at low levels, and in 2023 a continued precautionary approach will be implemented to further promote rebuilding.

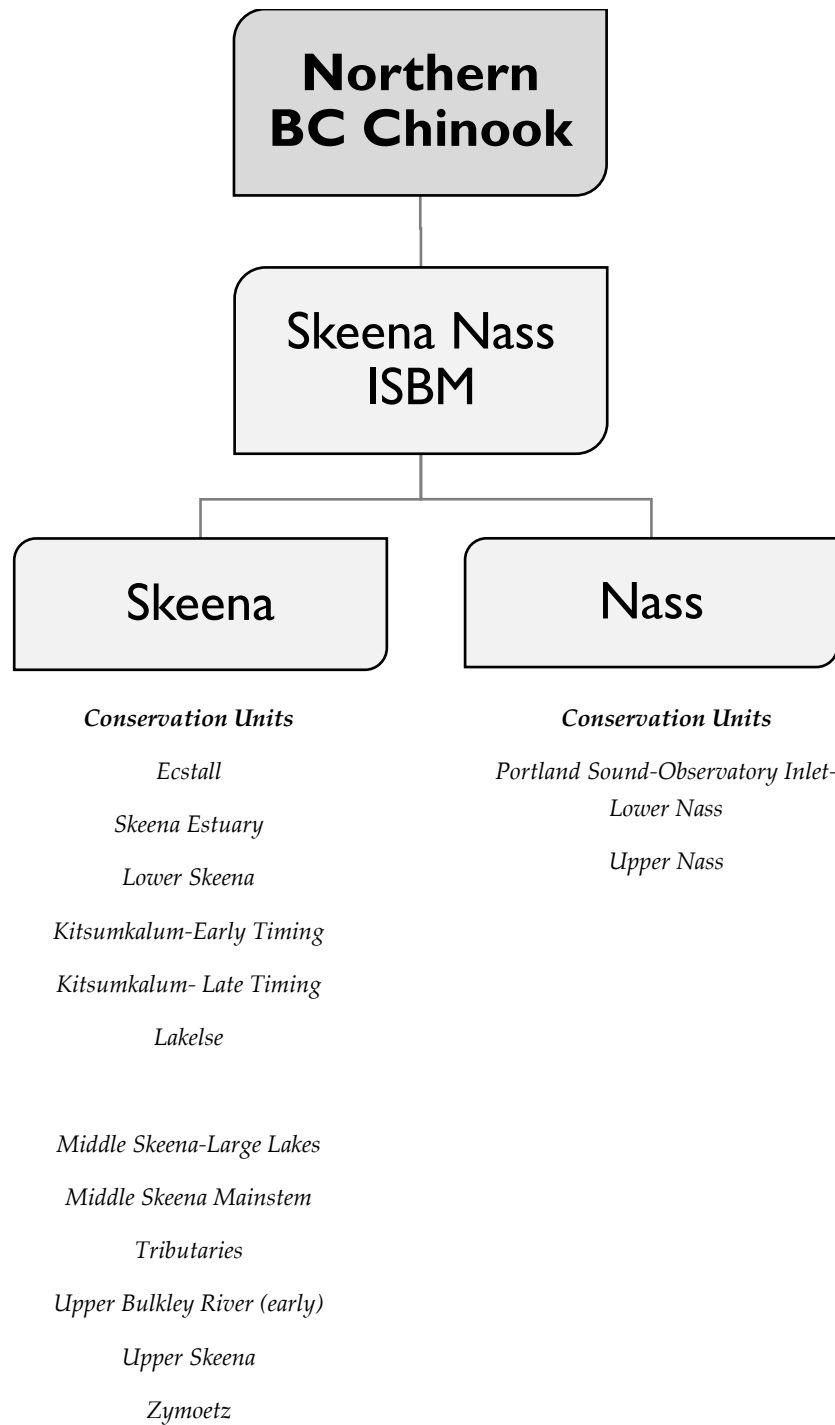


Figure 13-3: Overview of the Skeena-Nass ISBM Chinook

13.1.3.2 STOCK ASSESSMENT INFORMATION

13.1.3.2.1 Pre-season

Nisga'a Fisheries and Wildlife has provided a below average forecasted return for Nass ISBM Chinook in 2023. Chinook returns to the Nass are anticipated to be above the escapement goal, however concerns exist over weaker stocks; particularly concerns over potential poor survival of Kwinageese Chinook due to low water conditions in 2018 at time of spawn.

There are no formal pre-season forecasts for Skeena ISBM Chinook stocks; however, the poor performance since 2018 and continued low returns suggests the need for a continued precautionary approach in 2023.

13.1.3.2.2 In-season

The status of North Coast Chinook stocks is evaluated primarily by observed escapements to individual streams. On the Nass, in-season assessments of Chinook stocks are conducted by Nisga'a Fisheries through fish wheel catch information. A mark-recapture program is used post-season to estimate Chinook escapements to the Nass River.

The Tyee test fishery is the main in-season stock assessment tool for estimating the relative abundance of Skeena River salmon and Steelhead through the use of a multi-panel gill net with varying mesh sizes. Daily in-season escapement estimates and total run size estimates by the Tyee test fishery are only available for Sockeye. Tyee test information requires calibration and this is only currently possible for Sockeye as a result of Babine fish fence operations which capture the majority of Skeena Sockeye. A collaborative process between DFO and SFNTC/SFC is currently underway to analyze the historical data and evaluate the use of the Tyee Test Fishery as an in-season abundance indicator for Skeena Chinook. A trial of the in-season model will occur in 2023, however, the model will not be used in management decision making. The calibration of historical Tyee Test Fisheries indices for Chinook is being investigated using historical (1984-2022) aggregate Skeena Chinook abundances calculated based on mark-recapture estimates of the Kitsumkalum stock and the Kitsumkalum stock proportion at Tyee (GSI). Salmon returns of other species are more variable as estimates are subject to error as annual run timing and the annual catchability of salmon by the Tyee test fishery net varies.

13.1.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Skeena River

The returning final escapement to the Skeena River in 2023 is anticipated to be below average. A precautionary approach to management will continue in 2023 to further promote rebuilding of these stocks and to address concerns for uncertain and changing environmental conditions. Consultation with First Nations and stakeholders has been on-going to determine the appropriate management actions. Management actions will be in accordance with the allocation policy and Pacific Salmon Strategy Initiative (PSSI).

When FSC fisheries for Skeena Sockeye are closed for conservation purposes, the following will be implemented:

- Recreational fisheries for salmon in the Skeena River will be closed.
- Recreational marine fisheries for salmon in Area 3, 4, and 5 will have existing retention limits reduced by half.
- Area 4 commercial fishing opportunities would be suspended.

The management actions listed above may be modified should abundances of other salmon species be sufficient to allow harvest beyond food, social, and ceremonial requirements, and will be determined in season.

Should in-season estimates indicate FSC closures are no longer warranted, these management measures would be reversed in when the FSC closures are lifted, and they do not preclude management measures already in place for each species.

Nass River

A precautionary approach to management will continue for Nass Chinook in 2023 Consultation with First Nations and stakeholders is ongoing to determinate appropriate management actions. While Nass Chinook returns are anticipated to be above the escapement goal, concerns remain for some stocks within the watershed, particularly Kwinageese Chinook, due to poor returns in 2017 and low water levels in 2018 during spawning season.

13.1.3.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO SKEENA-NASS ISBM CHINOOK FISHERIES

The management regime for Skeena Chinook in 2023 will be a continued precautionary approach. No directed commercial harvest on Skeena-Nass Chinook will be implemented in 2023. Beginning in 2022, the Area 4 Gillnet fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of

stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

Any net fisheries implemented in Areas 3 through 5 will be non-retention Chinook, with potential for additional measures to avoid interception.

Revival Tanks

Revival tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

While gill net fishing, revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank. The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

13.1.3.5 ALLOCATION AND FISHING PLANS

13.1.3.5.1 First Nations Fisheries

Food, Social and Ceremonial

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe details of the FSC fishery, including the dates, times, methods, and locations of harvest. Communal licences for north coast First Nations are typically multi-species, and are issued on an annual basis. Licences may also be amended for shorter durations.

Actual opportunities and catches will be dependent on, among other factors: in-season stock strength; management measures taken to ensure conservation of individual stocks; community needs of First Nations; and alternative sources of salmon if preferred species are not available locally due to low abundance.

The Department will be actively consulting and First Nations regarding appropriate strategies in 2023 and supporting collaborative process of engagement such as the Skeena First Nations Technical Committee.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements, if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Specific Conservation Measures for First Nations Fisheries

Protective measures may be considered in terminal areas to reduce harvest impacts. Potential measures will be the subject of discussion with First Nations communities prior to development of First Nations fishing plans.

Treaty Fisheries

Nisga'a Fisheries

The Nisga'a Annual Fishing Plan (NAFP) is developed by the Nisga'a-Canada-BC Joint Fisheries Management Committee (JFMC) and governed by the terms of the Nisga'a Final Agreement and the Nisga'a Harvest Agreement of the Nisga'a Treaty. The Nisga'a Harvest Agreement includes Nisga'a fish allocations expressed as a percentage of the adjusted total allowable catch of Sockeye and Pink salmon. The NAFP is developed in accordance with Chapter 8 of the Nisga'a Final Agreement. Once approved by the Minister, the Nisga'a Annual Fishing Plan remains in effect until replaced the following year. The fishing plan applies to persons who harvest fish, other than steelhead, in Nisga'a fisheries.

Nisga'a salmon allocations, as defined in the Nisga'a Treaty, are set out as a percentage of the Total Return to Canada (TRTC) up to maximum catch thresholds (63,000 Sockeye [10.5%], 6,300 Pink [0.6%], 12,600 Chinook [21%], 19,200 Coho [8%], and 12,000 Chum [8%]) in large return years. These Nisga'a salmon allocations have the same priority in fisheries management decisions as domestic [food, social and ceremonial (FSC)] fisheries that target Nass salmon.

The NAFP defines the escapement goals required to guide management decisions for Nass salmon stocks, calculates Nisga'a allocations for each salmon species and provides the general

regulatory requirements for catches of each salmon species. The NAFP is provided to other Nass watershed First Nations for their information and is reviewed by the JFMC prior to being submitted to the Minister for approval. Nisga'a Lisims Government is responsible for the internal allocation of catch opportunities between Nisga'a fishers and day to day operation of the Nisga'a fishery.

Pre-season estimates and ranges for the Nisga'a salmon allocations in 2023 are:

Nass Chinook: Two methods (sibling and a 5-year average) are used to estimate the pre-season Total Return to Canada (TRTC) forecasts that are based on Total Run forecast estimates and a mean Alaska Harvest Rate (4.8%) from 2007 to 2017. The TRTC 50% probability point estimate for 2023 from the average of the two different pre-season forecast methods and approximately 1,400 Nass Chinook that may be harvested in Alaskan fisheries is 27,000 with a range of point estimates from 22,000 (75% probability estimate) to 32,000 (25% probability estimate) and is projected to return below average (30,000) based on returns from 1994 to 2022. The averaging forecast method's mean absolute accuracy for predicting TRTC returns is fair to good, 74.9% (range: 12–99%) based on 2000 to 2022 returns. Based on the pre-season TRTC forecasts and the minimum escapement goal (10,000) for Nass Chinook for 2023, the Nisga'a allocation ranges between 4,600 and 6,700. While returns of Chinook to the Nass River are anticipated to be above the escapement goal (15,000) in 2023, harvests in all fisheries need to be carefully monitored during the season due to extreme low water conditions experienced in 2018 during migration and spawning with spawner success potentially less than 5,000 that will make up 50% of the 2023 return as 5-year-olds. The mean TRTC forecast (27,000) will be used for calculating the initial target for the in-season Nisga'a allocation (5,700) of Nass Chinook for 2023.

13.1.3.5.2 Recreational Fisheries

The recreational total annual limit for Chinook from any tidal waters was set at 10 Chinook in April 2019 as part of conservation measures to address the poor status of many Chinook stocks in BC. This annual limit will remain in place for the 2023/24 season. Recreational anglers must record all Chinook retained catch either on their licence, or if mobile internet access is immediately available, the licence holder may alternatively record catch immediately in their National Recreational Licensing System (NRLS) account. DFO is also proposing to reduce the number of slots on the recreational licence to match the annual limit in effect at the time of licence issuance, pursuant to that decision.

Recreational fisheries in Canada receive priority access to Chinook over commercial fisheries. Two of the largest recreational fisheries in Northern BC (NBC) occur in Haida Gwaii and in Chatham Sound. NBC recreational fisheries experienced significant growth until 2005 when they reached a maximum catch of approximately 82,000 Chinook.

The recreational fisheries in Haida Gwaii and Chatham Sound are mixed stock fisheries and migrating stocks of Chinook salmon originating from Alaska to California are encountered.

The Department is developing a suite of management actions intended to promote rebuilding of Nass and Skeena Chinook. These management actions will be informed through consultations with First Nations and stakeholders in the IHPC and bilaterally.

In-season updates and fishery regulation changes can be found on the recreational fisheries website: <https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

Fishery Monitoring and Catch Reporting

The Area 3 and 4 creel program is conducted by the North Coast Skeena First Nations Stewardship Society, and typically runs May through August.

A creel survey of freshwater recreational fisheries on the lower Skeena River watershed is conducted by Kitsumkalum Fish and Wildlife program and LGL. Information collected through this program is shared through in-season and post-season processes.

13.1.3.5.3 Commercial Fisheries

Allocation

Table 13-3: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine A	Gill Net C	Troll F
North-Inside	3 to 5	*	100.0% ^d	*

Notes on Chinook allocations (North):

* by-catch provisions

^d by-catch provision and near-terminal directed fisheries (e.g. Skeena)

Skeena ISBM Chinook Fishing Plan

Area C Gill Net Fisheries

Beginning in 2022, the Area 4 Gillnet Chinook fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of

stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

Fishery Monitoring and Catch Reporting

Fishery Monitoring and Catch Reporting includes the following:

Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.

Mandatory catch reporting by phone-in with a paper harvest log and electronic transmission with an electronic harvest log (E-log) in all commercial fisheries. (*Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type*).

13.1.3.5.4 ESSR Fisheries

There are no ESSR fisheries for Chinook on the North Coast.

13.1.4 CENTRAL COAST ISBM CHINOOK

13.1.4.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

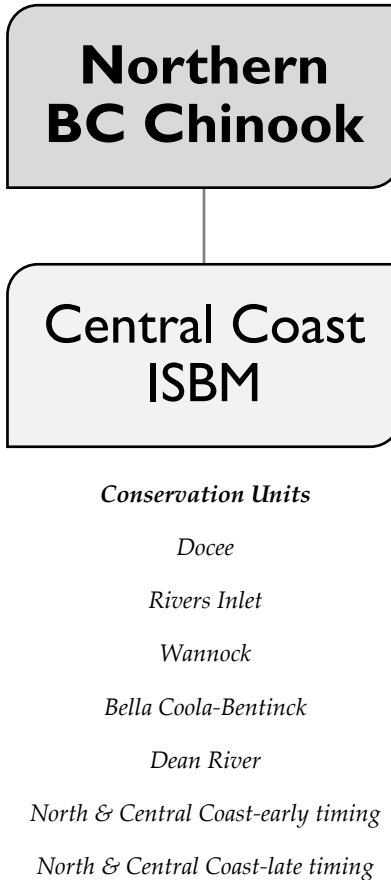


Figure 13-4: Overview of Central Coast ISBM Chinook

ISBM management regimes apply to all Chinook salmon fisheries subject to the PST that are not AABM fisheries and include marine and freshwater salmon fisheries from Northern British Columbia to Northern Oregon coast. ISBM fisheries in Northern BC include First Nations, recreational, and Central Coast gill net.

Atnarko Chinook

The Atnarko Chinook stock in Area 8 is an enhanced Chinook population that supports First Nations FSC and recreational fisheries, as well as a terminal commercial Chinook gill net fishery.

13.1.4.2 STOCK ASSESSMENT INFORMATION

13.1.4.2.1 Pre-season

There is no formal pre-season forecast for Central Coast ISBM Chinook as a whole.

There are no known Chinook populations within Area 7.

The Outlook for Area 8 for 2023 is below average. Bella Coola/Atnarko Chinook aggregate escapements remain relatively strong, and the wild Atnarko component has remained, with few exceptions, above S_{MSY} . However, recent years (2019-2022) have seen substantially reduced harvest of Atnarko Chinook due to curtailment of Chum directed fisheries in Area 8.

Areas 9 and 10 are data deficient.

There are few in-season estimates of abundance for Central Coast ISBM Chinook.

For Atnarko Chinook, commercial catch per unit effort and the Nuxalk First Nation's FSC fishery provide the best indication of run strength.

13.1.4.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Atnarko Chinook

The Department is working with local advisors and the First Nations Central Coast Salmon Coordinating Committee for advice on fisheries in these areas.

There are currently no biologically based escapement goals for Atnarko Chinook but there are estimates of the escapement required to produce maximum sustained yield (S_{MSY}) and the spawning escapement at replacement (S_{REP}). S_{MSY} was estimated to be 5,009 and the spawning escapement at replacement S_{REP} was estimated to be 14,595 (Vélez-Espino et. al. 2014).

Opportunities for a one day gill net fishery on the last week in May or the first week in June are evaluated during the pre-season planning process. If recent escapement estimates indicate an increasing or stable run, the fishery will likely go ahead. In-season, these opportunities are evaluated based mainly on First Nations FSC fishery catches with consideration of commercial and recreational catches as well.

Incidental Harvest, By-catch and Constraints to Inside Chinook ISBM Fisheries

Atnarko Sockeye continue to be a stock of concern and any fisheries will be managed to avoid or minimize impacts on these stocks. Mandatory release of Sockeye will be in place for all Area 8 commercial net fisheries.

13.1.4.4 ALLOCATION AND FISHING PLANS

13.1.4.4.1 First Nations Fisheries

First Nations Food Social and Ceremonial

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe details of the FSC fishery, including the dates, times, methods, and locations of harvest. Communal licences for North Coast First Nations are typically multi-species, and are issued on an annual basis. Licences may also be amended for shorter durations.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Specific Conservation Measures for First Nations Fisheries

Protective measures may be considered in terminal areas to reduce harvest impacts. Potential measures will be the subject of discussion with First Nations communities prior to development of fishing plans.

Treaty Fisheries

There are no treaty fisheries for Central Coast ISBM Chinook stocks.

13.1.4.4.2 Recreational Fisheries

The recreational total annual limit for Chinook from any tidal waters was set at 10 Chinook in April 2019 as part of conservation measures to address the poor status of many Chinook stocks in BC. This annual limit remained in place for 2021/22 and DFO will maintain this annual limit for the 2023/24 season. Recreational anglers must record all Chinook retained catch either on their licence, or if mobile internet access is immediately available, the licence holder may alternatively record catch immediately in their National Recreational Licensing System (NRLS) account. DFO is also proposing to reduce the number of slots on the recreational licence to match the annual limit in effect at the time of licence issuance, pursuant to that decision.

Recreational salmon fishing occurs in the tidal waters of the Central Coast (Areas 6 to 10), with interception fisheries beginning in late April and the peak of the season being from June to August. The minimum size limit for Chinook salmon is 45 cm, and the daily limit is 2. The open time is April 1st to March 31st. The possession limit for salmon is twice the daily limit.

In Area 9, a condition of licence in the recreational Tidal Waters Sport Fishing Licence, applies to all angling in the Rivers Inlet Special Management Zone (SMZ). Any anglers fishing in this area should consult the Tidal Waters Sport Fishing Regulations before commencing fishing.

New for 2023: Additional fishery restrictions will be implemented for Area 10 to address the uncertain status of Chinook stocks in that area. The Department is working to further understand stock composition and abundance of Chinook Salmon inside Smith Inlet (Area 10) to support informed management decisions for fisheries in the area. In line with the precautionary approach and the requirement to be cautious when scientific information is uncertain, the Department is implementing non-retention of Chinook Salmon in Subareas 10-4 to 10-12 in July and August of 2023/24, to avoid mortality on local Chinook stocks while gathering data to support this work future management. Additional sampling is planned to further assess the stock composition of Chinook stocks during recreational fisheries in Subareas 10-1 to 10-3.

The Central Coast non-tidal waters are in Regions 5B and 6 freshwater fishing areas, and there are openings for Chinook salmon in the different watersheds at different time periods. Daily possession, annual limits, and size limits may apply, dependent on the river system.

In-season updates and fishery regulation changes can be found on the recreational fisheries website:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>.

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

Fishery Monitoring and Catch Reporting

In Areas 6 to 9, DFO has been collecting recreational catch data through the Lodge Log Book Program.

The Heiltsuk, Kitasoo/Xai'xais, Nuxalk, and Wuikinuxv Nations, under the direction of the Central Coast Indigenous Resource Alliance (CCIRA) will continue collecting data through a creel survey and over-flight program. The program will assess recreational and First Nations' Food, Social, and Ceremonial (FSC) fisheries in marine portions of Areas 6 to 9, and in the Bella Coola River system within freshwater Region 5B Survey. Survey work will occur between June and September 2023. Recreational and Indigenous fishers should be aware that they may be approached by creel surveyors from the Nations to collect important data from these fisheries.

In Area 10, Logbook information is used to provide catch and release numbers from anglers fishing there.

13.1.4.4.3 Commercial Fisheries

Allocation and Fishing Plans

Table 13-4: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine A	Gill Net C	Troll F
Central	6 to 10	*	100.0% ^b	* ^c

Notes on Chinook allocations (North):

* by-catch provisions

^b near-terminal fisheries (primarily hatchery origin)

^c review potential re-entry of troll into Production Areas 6 + 7. By-catch provisions

Central Coast Chinook ISBM Fishing Plan

Area C

All dates are anticipatory.

Area 8: June 5 – First potential gill net opening in the Bella Coola gillnet area. This will be a directed Chinook fishery. Minimum mesh size 203 mm (7.99 inches).

Atnarko Chinook were historically harvested by the commercial gillnet fleet in North Bentinck Arm, a portion of South Bentinck Arm, Labouchere Channel and Burke Channel. A fleet of approximately 40 gill net vessels maximum using large mesh nets is normal for recent years.

Gill nets have a 203 mm (7.99 inches) mesh restriction. This restriction is in place so that Chinook are selectively targeted and other non-target species, such as Sockeye, are impacted minimally.

Fishery Monitoring and Catch Reporting

Fishery Monitoring and Catch Reporting includes the following:

Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.

Mandatory catch reporting by phone-in with a paper harvest log and electronic transmission with an electronic harvest log (E-log) in all commercial fisheries. (*Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type*).

13.1.4.4.4 ESSR Fisheries

There are currently no ESSR fisheries for Central Coast Chinook.

13.2 NORTHERN CHUM SALMON FISHING PLAN

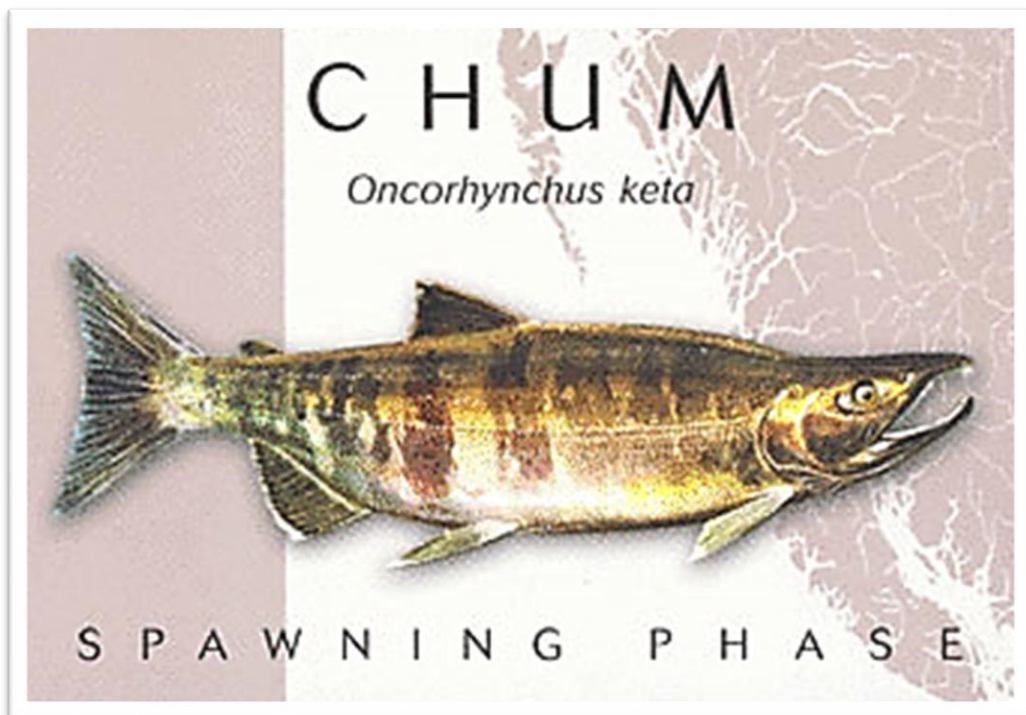
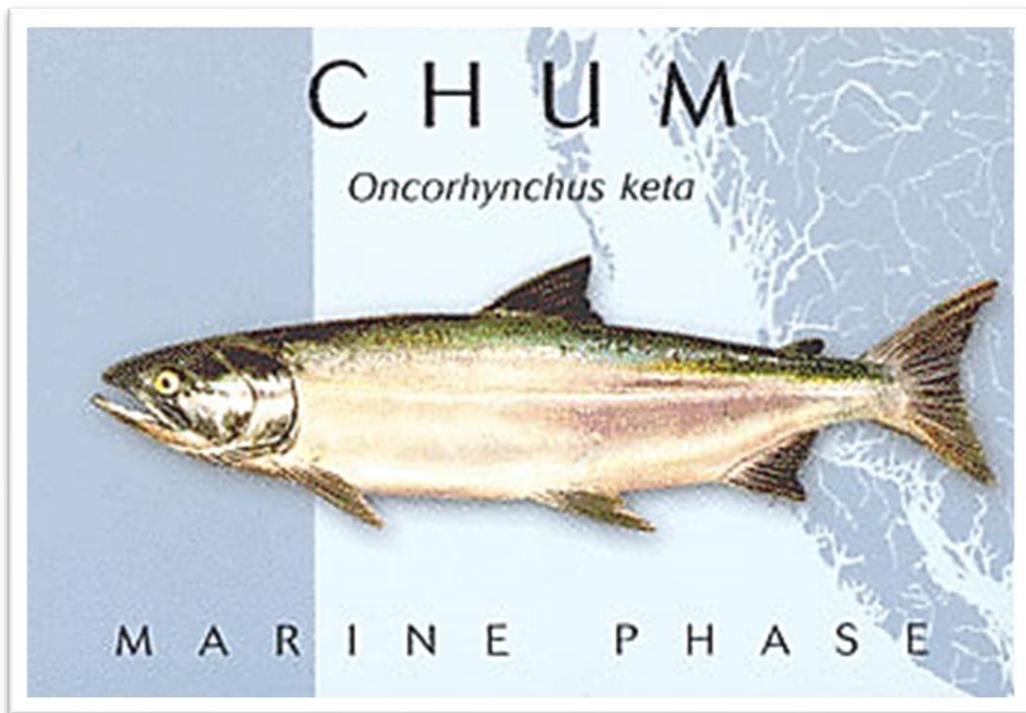


TABLE OF CONTENTS

- 13.2.1 Northern Chum Overview240
 - 13.2.1.1 Northern Chum Enhancement Information.....240
 - 13.2.1.2 Northern Chum – SEP proposals or updates for 2023.....241
- 13.2.2 Haida Gwaii Chum Overview241
 - 13.2.2.1 Snapshot Overview and Map of Management Unit241
 - 13.2.2.2 Stock Assessment Information242
 - 13.2.2.2.1 Pre-season.....242
 - 13.2.2.2.2 In-Season.....242
 - 13.2.2.3 Decision Guidelines and Management Actions242
 - 13.2.2.4 Incidental Harvest, By-catch and Constraints to Fisheries.....243
 - 13.2.2.5 Allocation and Fishing Plans243
 - 13.2.2.5.1 First Nations Fisheries243
 - 13.2.2.5.2 Recreational Fisheries244
 - 13.2.2.5.3 Commercial Fisheries.....245
 - 13.2.2.5.4 ESSR Fisheries246
- 13.2.3 Skeena-Nass Chum247
 - 13.2.3.1 Snapshot Overview and Map of Management Unit247
 - 13.2.3.2 Stock Assessment Information248
 - 13.2.3.2.1 Pre-season.....248
 - 13.2.3.2.2 In-season.....248
 - 13.2.3.3 Decision Guidelines and Management Actions249
 - 13.2.3.4 Incidental Harvest, By-catch and Constraints to Skeena and Nass Chum Fisheries.....249
 - 13.2.3.5 Allocation and Fishing Plans250
 - 13.2.3.5.1 First Nations Fisheries250
 - 13.2.3.5.2 Recreational Fisheries252
 - 13.2.3.5.3 Commercial Fisheries.....253
 - 13.2.3.5.4 ESSR Fisheries254
- 13.2.4 Central Coast Chum.....254
 - 13.2.4.1 Snapshot Overview and Map of Management Unit254

- 13.2.4.2 *Stock Assessment Information*255
 - 13.2.4.2.1 Pre-season.....255
 - 13.2.4.2.2 In-season.....255
- 13.2.4.3 *Decision Guidelines and Management Actions*256
- 13.2.4.4 *Allocation and Fishing Plans*259
 - 13.2.4.4.1 First Nations Fisheries259
 - 13.2.4.4.2 Recreational Fisheries260
 - 13.2.4.4.3 Commercial Fisheries.....261
 - 13.2.4.4.4 ESSR Fisheries263

13.2.1 NORTHERN CHUM OVERVIEW

Chum salmon have the most extensive geographic distribution of all the salmon species and can be found from northern California to Alaska, including the Aleutian Islands, as well as the Yukon and Mackenzie rivers in the Arctic.

Returns are predominately age 3 to 5 fish and in some systems are the latest of the five salmon species to enter their natal rivers and stream to spawn. Chum salmon have pale flesh and a low fat content, and are usually marketed as a fresh, frozen, or smoked product.

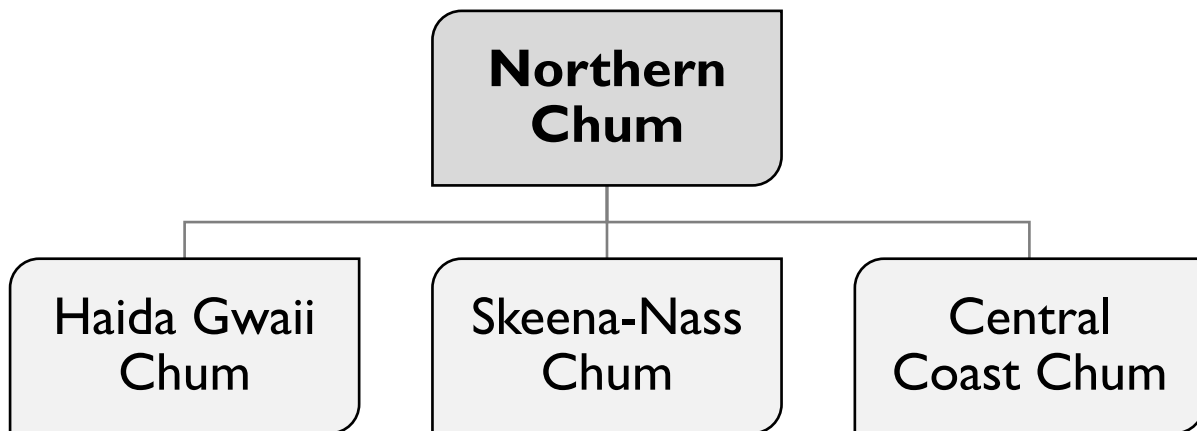


Figure 13-5: Overview of Northern Chum

13.2.1.1 NORTHERN CHUM ENHANCEMENT INFORMATION

The major BC North Coast DFO Operation enhancement facilities that produce Chum are:

- Kitimat River hatchery

- Snootli Creek hatchery

The information available at the link below addresses production from major DFO Operations (OPS) facilities, contracted Community Economic Development Program hatcheries (CEDP), Public Involvement Projects (PIP) operated by volunteers, and Aboriginal Fisheries Strategy (AFS).

SEP Production Plans

There are three datasets available: Post-Season Production from the 2020 brood year (i.e., 2021 and 2022 releases), Post-Season Production from the 2021 brood year (i.e., 2022 releases, and

numbers on hand for 2023 release), and the Production Plan, which includes proposed targets for the upcoming 2023 brood year. These are available at the following website:

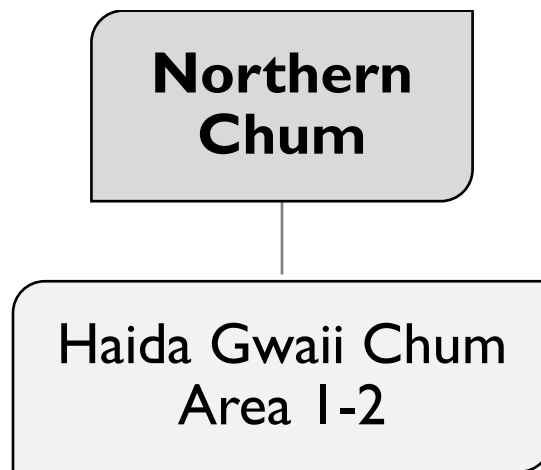
<https://www.pac.dfo-mpo.gc.ca/sep-pmvs/data-donnees/index-eng.html>

13.2.1.2 NORTHERN CHUM – SEP PROPOSALS OR UPDATES FOR 2023

Following the implementation of longer-term closures affecting Chum-directed fisheries, the hatchery Chum produced to support harvest in these fisheries is being realigned with the new fishery regime. Departmental analysis estimated a reduction of Bella Coola Summer Chum produced for harvest purposes at the Snootli River Hatchery of approximately 75% from the 2022 target, reflecting a commensurate reduction in the Chum fishery. No adjustments are being made to the remaining Chum production for harvest or to any of the Chum production for rebuilding, conservation or education purposes.

13.2.2 HAIDA GWAII CHUM OVERVIEW

13.2.2.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT



Conservation Units

East Haida Gwaii

North Haida Gwaii

North Haida Gwaii/Stanley Creek

Skidegate

West Haida Gwaii

Figure 13-6: Overview of Haida Gwaii Chum

Historically, terminal Chum salmon harvest opportunities have occurred in a variety of wild stock locations in Haida Gwaii. In general, returns to Haida Gwaii over the last decade have been below management targets. Chum returns have declined to levels where fishing opportunities for commercial net fisheries are infrequent. The size of the runs to these systems can usually be determined by observations of fish holding in front of the streams and the historic average run timing for that system. Chum net fisheries will be managed in-season on a local basis.

13.2.2.2 STOCK ASSESSMENT INFORMATION

13.2.2.2.1 Pre-season

Beginning in 2022, additional mitigation measures were implemented in this fishery to increase protection for stocks of conservation concern. These measures, which include a more precautionary application of previous measures will continue in 2023 (terminal fisheries, small and short duration fisheries, timing and boundary changes to avoid Coho). See Appendix 10 for a complete list of fisheries where additional mitigations measures will be implemented.

Formal quantitative forecasts are not prepared for Haida Gwaii Chum. See Appendix 9 for more information. Based on low abundance over the last decade, Haida Gwaii Chum salmon harvest opportunities are expected to be limited in 2023.

13.2.2.2.2 In-Season

Monitoring to determine incoming runs throughout the season will be concentrated on the east coast of Haida Gwaii between Skidegate Inlet and Darwin Sound, and on the west coast between Dawson Inlet and Tasu Sound.

13.2.2.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Terminal net fishery openings are based on fish observed to be schooling in front of the various systems. Fisheries will only be considered if the estimated return of salmon exceeds the abundance necessary to meet escapement goals. The size of the return will be estimated by charter patrolmen using visual assessments.

For Area F troll, there will be non-retention of Chum in effect to protect Haida Gwaii and northern mainland BC Chum stocks.

13.2.2.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO FISHERIES

Assessment of escapements to streams in and near any identified surpluses to be harvested will need to be conducted. Conservation of smaller and/or weaker returning stocks that may be affected by a potential harvest opportunity may influence the timing and/or location of the fishery or may result in the foregoing of the fishery.

Coho by-catch may be a concern in some areas; brailing by seines and the use of revival tanks by both gill nets and seines will be required.

To minimize the amount of by-catch, all fisheries will be held during daylight hours, generally 11 or 12 hour days during September reducing to 10 or 11 hour days in October.

All net fisheries are managed so that catch may be delivered within two days, at the request of the commercial industry.

Revival Tanks

Revival tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

While gill net fishing, revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank. The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

13.2.2.5 ALLOCATION AND FISHING PLANS

13.2.2.5.1 First Nations Fisheries

Food Social and Ceremonial

First Nations opportunities to harvest salmon for FSC purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe details of the FSC fishery, including the dates, times, methods, and locations of

harvest. Communal licences for north coast First Nations are typically multi-species, and are issued on an annual basis. Licences may also be amended for shorter durations.

Actual opportunities and catches will be dependent on, among other factors: in-season stock strength; management measures taken to ensure conservation of individual stocks; community needs of First Nations; and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in the Northern BC / First Nations Fisheries.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

There are no Treaty fisheries for Haida Gwaii Chum.

13.2.2.5.2 Recreational Fisheries

Recreational salmon fishing occurs primarily in the tidal waters surrounding Haida Gwaii, with the majority of effort focused along the shoreline from Masset to Langara Island in Area 1 and between Englefield Bay and Port Louis in Area 2W. Recreational fishing occurs primarily between May and September with peak effort and catch occurring in July and August. Chum salmon are incidentally retained in the recreational fishery which primarily targets Chinook and Coho salmon. The daily aggregate limit of salmon is four (4) per day and a maximum 2 of which may be Chinook.

In-season updates and fishery regulation changes can be found on the recreational fisheries website:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

Fishery Monitoring and Catch Reporting

DFO has been collecting recreational catch data through the Lodge Log Book Program and the Haida Creel Program since 1995. Participation in monitoring and reporting of recreational catch in Areas 1 and 2 has been excellent over the past 27 years. Monitoring is continuing to improve with region wide initiatives.

13.2.2.5.3 Commercial Fisheries

Allocation

Table 13-5: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine A	Gill Net C	Troll F
North	1, 2E, 2W, 101 to 111, 130, 142	54.0%	43.0%	3.0%

Haida Gwaii Chum Fisheries

Area A

Mid-September to October: Possible terminal fisheries directed on identified surpluses of local Chum stocks in Areas 1, 2E and 2W.

No gill net or seine fisheries will be directed on passing stocks.

Area C

Mid-September to October: Possible terminal fisheries directed on identified surpluses of local Chum stocks in Areas 1, 2E and 2W.

Beginning in 2022, additional mitigation measures were implemented in this fishery to increase protection for stocks of conservation concern. These measures include enhanced and more precautionary application of current measures (terminal fisheries, small and short duration fisheries, timing and boundary changes to avoid Coho). See Appendix 10 for a complete list of fisheries where additional mitigations measures will be implemented.

No gill net or seine fisheries will be directed on passing stocks.

Area F Troll

Due to ongoing low abundance for Haida Gwaii and Northern Mainland stocks Chum retention will not be permitted.

Fishery Monitoring and Catch Reporting

Fishery Monitoring and Catch Reporting includes the following:

Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.

Mandatory catch reporting by phone-in with a paper harvest log and electronic transmission with an electronic harvest log (E-log) in all commercial fisheries. (*Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type*).

13.2.2.5.4 ESSR Fisheries

There are no ESSR fisheries anticipated for Haida Gwaii Chum.

13.2.3 SKEENA-NASS CHUM

13.2.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

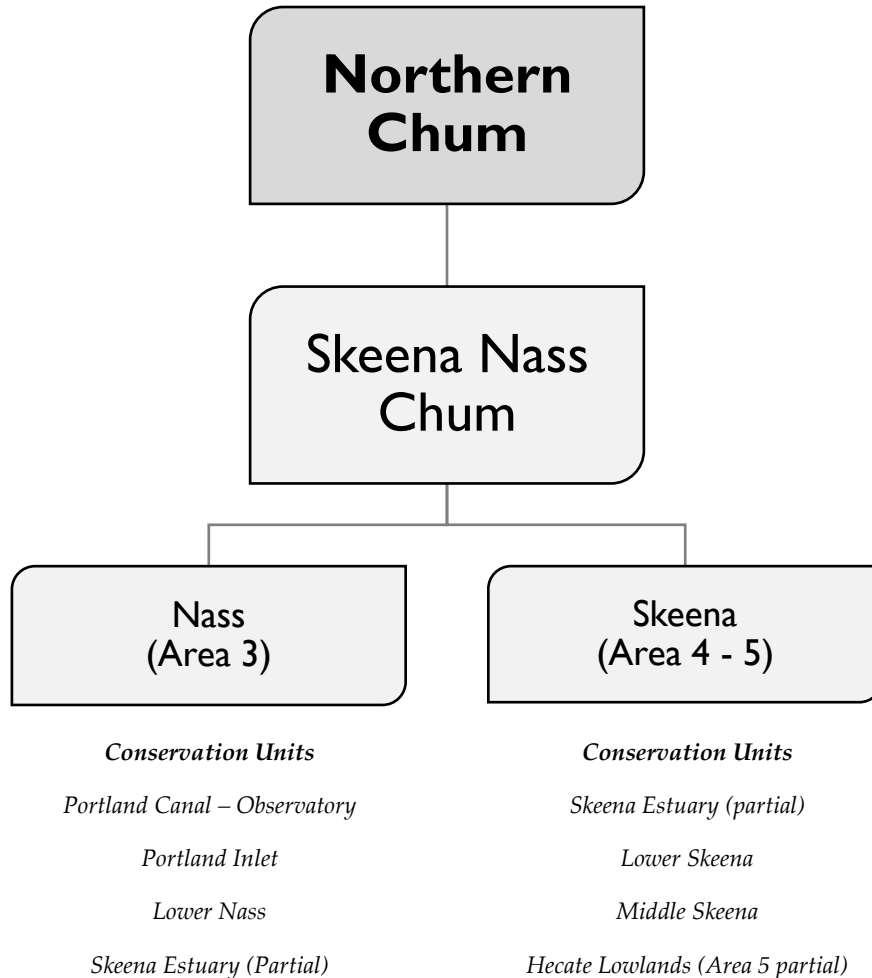


Figure 13-7: Overview of Skeena-Nass Chum

Chum salmon are the least abundant salmon species in Areas 3 to 5 and return to the fewest number of streams.

Nass and Skeena River-destined Chum are considered depressed and thus directed effort by commercial fisheries on wild stocks is not permitted. There are some limited commercial opportunities as by-catch in Pink and Sockeye-directed fisheries in Area 3 when enhanced Chum are present. Rebuilding plans for both stocks can be found in Appendix 7 Appendix 7 and Appendix 8.

13.2.3.2 STOCK ASSESSMENT INFORMATION

13.2.3.2.1 Pre-season

Formal quantitative forecasts are not prepared for Nass or Skeena (Area 3 to 4) Chum. See Appendix 9 for more information. Chum salmon surpluses are not expected in 2023.

Table 13-6 Management Escapement Goals (MEGs) and escapements for major Chum systems in Areas 3-5. Note: MEGs were developed in the 1980s and require review.

Area	System	MEG	2022*	2021	2020	2019	2018	2017	2016	2015	2014	2013
3	Khutzeymateen River	20,000	4,566	2,375	123,342	68,000	6,600	N/I	N/I	31000	5100	4800
3	Kshwan River	15,000	37,683	52,746	13,918	7,310	18,686	7,272	820	17400	N/I	1100
3	Stagoo Creek	15,000	30,746	10,602	152,080	6,367	9,164	6,804	8,139	6758	8200	7100
3	Toon River	7,000	600	N/I	37,800	9,000	2,091	N/I	N/I	N/I	N/I	1080
4	Ecstall River	20,000	A/P	135	15	610	130	255	3,351	A/P	A/P	A/P
5	No major producers											

N/I = Not Inspected, and A/P = Adults were present but that an estimate was not developed due to a lack of sufficient inspection information.

*preliminary estimates

13.2.3.2.2 In-season

Returns of Chum salmon to the Nass River are monitored through the fish wheel program operated by Nisga’a Fisheries and by escapement surveys to indicator systems. Chum stocks are managed to stream-specific escapement goals in Area 3.

The Tyee test fishery on the Skeena River is the main indicator for relative abundance of Chum salmon in Areas 4 and 5 through the use of a multi-panel gill net with varying mesh sizes. Returns are variable and estimates are subject to error as annual run timing and catchability of salmon by the Tyee test fishery net varies.

13.2.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Commercial fisheries in Areas 3 to 5 will be managed to avoid wild Chum stocks. There will be no opportunities for directed harvest on wild Nass or Skeena Chum.

Retention of Chum in Area 3 will be permitted as by-catch in times and areas coinciding with high abundances of enhanced Chum, while still meeting the objective of maintaining reduced impact on Canadian wild stocks. All other times and areas will remain non-retention/non-possession of Chum in Area 3 fisheries. Otolith and DNA samples may be collected in Area 3 to determine the presence of US hatchery Chum in both retention and non-retention areas.

When FSC fisheries for Skeena Sockeye are closed for conservation purposes, the following will be implemented:

- Recreational fisheries for salmon in the Skeena River will be closed.
- Recreational marine fisheries for salmon in Area 3, 4, and 5 will have existing retention limits reduced by half.
- Area 4 commercial fishing opportunities would be suspended.

The management actions listed above may be modified should abundances of other salmon species be sufficient to allow harvest beyond food, social, and ceremonial requirements, and will be determined in season.

Should in-season estimates indicate FSC closures are no longer warranted, these management measures would be reversed in when the FSC closures are lifted, and they do not preclude management measures already in place for each species.

13.2.3.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO SKEENA AND NASS CHUM FISHERIES

Area 3:

Area 3 Chum are considered a stock of concern and will require focused management planning. A rebuilding plan can be found in Appendix 7. Fisheries will continue to be managed to reduce impacts to Canadian Chum. Part of the rebuilding plan for the immediate future is to keep the Canadian average exploitation rate (ER) on Area 3 and 4 Chum below 10%.

Commercial fisheries are limited to daylight hours.

Non-retention of Steelhead is mandatory in all fisheries.

Gill nets have a 137mm (5.39 inch) maximum mesh restriction. This restriction is in place so that Sockeye is targeted and larger, non-target species such as Chum and Chinook are impacted to a lesser degree.

Pink fishing opportunities will be managed to conserve weak stocks of Area 3 Chum.

Area 4:

Retention of Chum and Steelhead is prohibited in all fisheries.

Gill nets have a 137 mm (5.39 inch) maximum mesh restriction during the Sockeye fishery. This restriction is in place so that Sockeye is targeted and larger, non-target species such as Chum and Chinook are impacted to a lesser degree.

Skeena Chum remain a stock of concern and Canadian harvest impacts will be limited to a maximum exploitation rate of 10%. This is a ceiling and harvest impacts would be expected to be well below this level in most years. It is anticipated that these management measures will be in place for an extended period. A rebuilding plan for Skeena Chum can be found in Appendix 8.

Revival Tanks

Revival tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

While gill net fishing, revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank. The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

13.2.3.5 ALLOCATION AND FISHING PLANS

13.2.3.5.1 First Nations Fisheries

First Nations opportunities to harvest salmon for FSC purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First

Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe details of the FSC fishery, including the dates, times, methods, and locations of harvest. Communal licences for north coast First Nations are typically multi-species, and are issued on an annual basis.

Licences may also be amended for shorter durations.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in the Northern BC First Nations Fisheries.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

Nisga'a Fisheries

The Nisga'a Annual Fishing Plan (NAFP) is developed by the Nisga'a-Canada-BC Joint Fisheries Management Committee (JFMC) and governed by the terms of the Nisga'a Final Agreement and the Nisga'a Harvest Agreement of the Nisga'a Treaty. The Nisga'a Harvest Agreement includes Nisga'a fish allocations expressed as a percentage of the adjusted total allowable catch of Sockeye and Pink salmon. The NAFP is developed in accordance with Chapter 8 of the Nisga'a Final Agreement. Once approved by the Minister of Fisheries, the Nisga'a Annual Fishing Plan remains in effect until replaced the following year. The fishing plan applies to persons who harvest fish, other than steelhead, in Nisga'a fisheries.

Nisga'a salmon allocations, as defined in the Nisga'a Treaty, are set out as a percentage of the Total Return to Canada (TRTC) up to maximum catch thresholds (63,000 Sockeye [10.5%], 6,300

Pink [0.6%], 12,600 Chinook [21%], 19,200 Coho [8%], and 12,000 Chum [8%]) in large return years. These Nisga'a salmon allocations have the same priority in fisheries management decisions as domestic [food, social and ceremonial (FSC)] fisheries that target Nass salmon.

The NAFP defines the escapement goals required to guide management decisions for Nass salmon stocks, calculates Nisga'a allocations for each salmon species and provides the general regulatory requirements for catches of each salmon species. The NAFP is provided to other Nass watershed First Nations for their information and is reviewed by the JFMC prior to being submitted to the Minister for approval. Nisga'a Lisims Government is responsible for the internal allocation of catch opportunities between Nisga'a fishers and day to day operation of the Nisga'a fishery.

Pre-season estimates and ranges for the Nisga'a salmon allocations in 2023 are:

Nass Chum: The Total Run size probability point estimate for 2023 from a pre-season model based on a 4-year average brood return is 88,000 (50%) with a range in point estimates between 53,000 (75%) and 147,000 (25%). Assuming a 16% Alaskan exploitation rate (based on the average of odd-year harvests from 2009 to 2021, approximately 14,000 Nass Chum), the 50% probability point estimate for the Total Return to Canada (TRTC) of Nass Chum is 74,000 with a range of point estimates from 44,000 (75% probability) to 123,000 (25% probability) and is projected to return above average (54,000) based on returns from 1994 to 2022. The forecast method's mean absolute accuracy for predicting TRTC returns is poor to fair, 57.0% (range: 16–96%) based on average returns of Nass Chum over the past seven years (2016 to 2022). Based on the pre-season TRTC forecasts and the minimum escapement goal (30,000) for 2023, the Nisga'a allocation of Nass Area Chum ranges between 4,000 and 10,000 (25 - 75% probability) with a point estimate of 5,900 (50% probability). To support reaching the escapement goal (45,000) with highly variable pre-season forecasts and relatively low decadal returns, a base TRTC forecast (74,000) will be used for calculating the initial target for the in-season Nisga'a allocation (5,900) of Nass Area Chum for 2023. However, Nass Chum returns will be carefully monitored in-season for detection of abundance in spawning areas due to the very poor return (< 30,000 spawners and below the minimum escapement target) from the predominant brood stock (2019) that will be returning in 2023.

13.2.3.5.2 Recreational Fisheries

Due to the fact that both Nass and Skeena Chum are subject to rebuilding plans, the daily limit for Chum salmon is zero.

The Skeena and Nass Rivers are in Region 6 freshwater fishing area, and are closed to fishing for Chum salmon.

In-season updates and fishery regulation changes can be found on the recreational fisheries website:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

Fishery Monitoring and Catch Reporting

The Area 3 and 4 creel program operated by the North Coast Skeena First Nations Stewardship Society typically runs from May 1 to August 31. Information collected through this program is shared through in-season and post-season processes.

A creel survey of freshwater recreational fisheries on the lower Skeena River watershed is conducted by Kitsumkalum Fish and Wildlife program and LGL. Information collected through this program is shared through in-season and post-season processes.

13.2.3.5.3 Commercial Fisheries

Table 13-7: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine A	Gill Net C	Troll F
North	3 to 5	55.0% ^b	45.0% ^b	*

Notes on Chum allocations (North):

^b recent Chum non-retention; fishery allows by-catch of Chum
^{*} by-catch provision

Area A (Seine) and Area C (Gillnet)

There will be no directed commercial opportunities for wild Nass or Skeena Chum.

Retention of Chum as by-catch in Area 3 will be permitted in times and areas coinciding with high abundances of enhanced American Chum, while still meeting the objective of maintaining reduced impact on Canadian wild stocks. All other times and areas will remain non- retention/non-possession of Chum in Area 3 fisheries. Otolith and DNA samples may be collected in Area 3 to determine the presence of US hatchery Chum in both retention and non-retention area. All fisheries will be announced via fishery notice.

Area F (Troll)

There will be non-retention of Chum in effect all year in Dixon Entrance and Hecate Strait to protect wild Skeena and Nass Chum.

Fishery Monitoring and Catch Reporting

Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.

Mandatory catch reporting by phone-in with a paper harvest log and electronic transmission with an electronic harvest log (E-log) in all commercial fisheries. (*Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type*).

13.2.3.5.4 ESSR Fisheries

There are no ESSR fisheries for Skeena or Nass Chum.

13.2.4 CENTRAL COAST CHUM

13.2.4.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

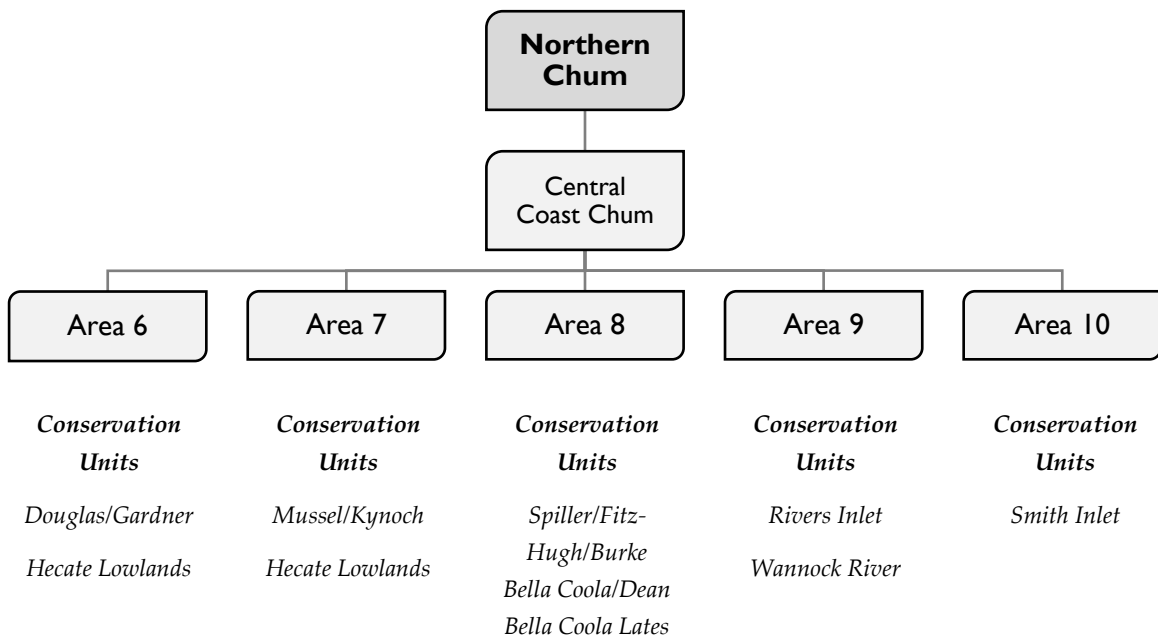


Figure 13-8: Overview of Central Coast Chum

Wild Chum stocks in Area 6 to 10 have been trending below average since 2010.

Commercial fisheries target hatchery enhanced Chum stocks in Area 6 (Kitimat Hatchery), Area 7 (Kitasoo and McLoughlin Bay Hatcheries), and Area 8 (Snootli Hatchery). The fisheries occur in approach areas where timings of the returns are known.

Commercial fisheries also target stronger wild stocks. For instance, in Area 7, fisheries for Mussel and Kainet Chum generally may occur in late July and August, while fisheries for the other stocks occur in the later part of August and September. Chum fisheries in Area 8 may occur on returns to Kimsquit and Lower Dean Channel streams (Elcho, Cascade, and Jenny). There are no anticipated fisheries in Areas 9 and 10 in 2023 due to continued trend of poor returns.

13.2.4.2 STOCK ASSESSMENT INFORMATION

13.2.4.2.1 Pre-season

Formal quantitative forecasts are not prepared for Central Coast Chum (Area 6 to 10). See Appendix 9 for more information.

13.2.4.2.2 In-season

Opportunities for harvest will be considered based on in-stream escapement assessments in Area 6 and reports from the hatchery on run strength of the enhanced stock.

In Area 7, harvest opportunities will be based on brood year escapements, in-stream escapement assessments and the success of assessment fisheries that may be run to gauge run strength.

Area 8 commercial Chum fisheries were closed in 2022 to protect stocks of conservation concern. The closure is expected to remain in place until the fishery is restructured with development of substantial mitigation measures and benchmarks, or until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone.

Area C has proposed a restructured Chum gillnet fishery for 2023, this plan is currently under review by the Department. A decision will be communicated directly to proponents when this review is complete.

There are no commercial fisheries anticipated for Areas 7, 9, or 10.

13.2.4.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Area 6:

Opportunities for a directed terminal gill net fishery in Kitimat Arm are based on Kitimat Hatchery Chum production, assessment fisheries and in-season escapement estimates. The Department's plans to pilot an otolith study to determine the enhanced contribution to the fishery is expected to proceed in 2023.

Area 7:

For Areas 7 to 10, decisions are made in consultation with local First Nations, the Central Coast First Nations Salmon Coordinating Committee, and Central Coast advisors, for the management of fisheries in these areas.

Opportunities for one-day gillnet and seine assessment fisheries in the last week of July or first week of August have in past years been determined pre-season based on recent trends in brood year escapement and in-season information. Given the and ongoing trend of poor returns, one-day assessment fisheries for lower Finlayson, lower Mathieson, Sheep Pass and the eastern portion of Seaforth Channel will be curtailed unless in-river assessment suggest improved returns.

July and First Week of August: One additional day of fishing during daylight hours is considered if the run appears strong. The assessment of run strength is based on a review of catch data and salmon escapements to the Mussel and Kainet Rivers to-date.

Second Week of August until Mid-October: The results of the past week's fisheries, status of target stocks and their implications for any potential by-catch are reviewed with the local advisory group. If stock strength permits, fishing opportunities are considered each week until mid-October. Announcements for the following week's opportunities are made on the Thursday at 16:00 hours or Friday of the week preceding the proposed fishery.

Subject to in-season assessment, Lama Pass (McLoughlin Bay) may be opened in mid-August and the fishing time may be spread over more than one day each week, depending on observed Chum abundance and processing capacity. Seines and gill nets will alternate fishing opportunities each week with the gill net fleet going first in 2023.

Subject to in-season assessment, the Klemtu Pass area may be opened to harvest surplus Chum returning to the Kitsoo Creek Hatchery. Openings targeting Kitsoo Creek Hatchery stocks and surplus Chum in terminal areas would follow the pattern of gill nets fishing first day and seines the second day.

Subject to in-season assessment, portions of Spiller Channel may be opened to seines and gill nets in late August. Openings in that area will depend on Chum returns to Neekas Creek.

Subject to in-season assessment, portions of Johnson Channel and Roscoe Inlet may be opened to seines and gill nets in late August. Openings in that area will depend on Chum returns to the Roscoe, Quartcha, and Clatse systems.

While fisheries will be dependent on the results of the information described above, Area 7 Chum have been in a period of low productivity. The Department does not anticipate a commercially harvestable surplus in 2023. Any opportunities will be announced in-season by fishery notice.

Area 8:

For 2023, Area 8 commercial Chum fisheries will remain closed to protect stocks of conservation concern. The closure is expected to remain in place until the fishery is restructured with development of appropriate mitigation measures, or until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone.

Area 9:

Escapement levels for Area 9 Chum have been below target for several years. No fishery is anticipated in 2023.

Area 10:

In-season escapement information will be used to evaluate fishing opportunities for Nekite Chum. No fishery is anticipated in 2023. Incidental Harvest, By-catch and Constraints to Central Coast Chum Fisheries

Revival Tanks

Revival tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly

to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

While gill net fishing, revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank. The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

Area 6:

Commercial net fishing is limited to daylight hours.

Mandatory brailing for all seine sets and non-retention of Chinook, Coho, Sockeye and Steelhead in all fisheries and non-retention of Chum at the Gil Island seine fishery.

Constraints for the Kitimat gill net Chum fishery are as follows:

Gill nets will be required to have a 149 mm minimum and 165 mm maximum mesh restriction when fishing Chum to reduce encounters of non-target species.

Gill net Chum fisheries will be restricted to 6-1 and a portion of 6-2 unless surplus stocks are identified elsewhere in-season. Additional spatial management measures may be implemented.

Area 7:

Gill nets with 149 mm minimum mesh restriction all season to protect Sockeye stocks in central coast systems.

Seines are required to brail and release Sockeye, Chinook and Steelhead to the water with the least possible harm for the duration of the season.

Fishing is limited to daylight hours.

Net fisheries will be non-retention Coho. In McLoughlin Bay and Kitasoo hatchery Chum targeted fisheries, Coho retention would only be permitted at high abundance, due to the terminal nature of these fisheries and the hatchery origin of the stocks.

The half-mile radius boundary around Mary's Cove Creek and Sockeye Creek are in effect year-round to conserve Sockeye Creek, Mary's Cove and Lagoon Creek Sockeye.

During periods of high salmon catches in Areas 7 or 8, fisheries will most likely be managed so that there is a maximum of two consecutive days of fishing. This action has been recommended by fishers and processors to maximize the value of the salmon caught.

Additional fishing time: A large fleet size could adversely affect small mixed-stock runs in the area. Extra fishing time may depend on openings in other areas in the North Coast.

Area 8:

For 2023, Area 8 commercial Chum fisheries will remain closed to protect stocks of conservation concern. The closure is expected to remain in place until the fishery is restructured with development of appropriate mitigation measures, or until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone.

Area 10:

If a fishery takes place, a maximum mesh restriction of 150 mm will be in place to protect Docee River Chinook stocks.

Boundaries will be restrictive to protect non-targeted stocks. There will be no Coho retention.

13.2.4.4 ALLOCATION AND FISHING PLANS

13.2.4.4.1 First Nations Fisheries

Food Social and Ceremonial

First Nations target local salmon stocks for food, social and ceremonial (FSC) purposes throughout the North Coast.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

There are no Treaty fisheries for Central Coast Chum.

13.2.4.4.2 Recreational Fisheries

Recreational salmon fishing occurs in the tidal waters of the Central Coast (Areas 6 to 10). The Chum salmon fishery is open April 1st to March 31st, with the peak of the season being from June to August. The daily limit for Chum salmon is four (4) per day, unless otherwise varied.

The minimum size limit for Chum salmon is 30 cm, in tidal waters and freshwater. The possession limit for salmon is twice the daily limit.

In Area 9, there is a condition of licence in the recreational Tidal Waters Sport Fishing Licence that applies to all angling in the Rivers Inlet Special Management Zone (SMZ). Any anglers fishing in this area should consult the Tidal Waters Sport Fishing Regulations prior to commencing fishing.

The Central Coast non-tidal waters are in Regions 5B and 6 freshwater fishing areas, and there are openings for Chum salmon in the different watersheds at different time periods. The minimum size limit is 30 cm, with daily and total possession limits.

In-season updates and fishery regulation changes can be found on the recreational fisheries website:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

Fishery Monitoring and Catch Reporting

In Areas 6 to 9, DFO has been collecting recreational catch data through the Lodge Log Book Program.

The Heiltsuk, Kitasoo/Xai'xais, Nuxalk, and Wuikinuxv Nations, under the direction of the Central Coast Indigenous Resource Alliance (CCIRA) will continue collecting data through a creel survey and over-flight program. The program will assess recreational and First Nations' Food, Social, and Ceremonial (FSC) fisheries in marine portions of Areas 6 to 9, and in the Bella Coola River system within freshwater Region 5B Survey. Survey work will occur between June and September 2022. Recreational and Indigenous fishers should be aware that they may be approached by creel surveyors from the Nations to collect important data from these fisheries.

In Area 10, logbook information is used to provide catch and release numbers from anglers fishing in the area.

13.2.4.4.3 Commercial Fisheries

Table 13-8: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine A	Gill Net C	Troll F
Central	6 to 10	45.0% ^c	55.0%	*

Notes on Chum allocations (North):

^c currently Chum non-retention

* by-catch provision

Area 6

Area C: Gill net openings will be dependent upon in-season assessments of hatchery Chum returns to the Kitimat River.

Area A: Seine openings target Pink salmon populations in the Area. Bycatch of Chum is not permitted. Opportunities for targeting hatchery Chum will be assessed in-season.

Area F: No troll opportunities for Chum fisheries in this area in 2023.

Area 7

Area A & C: July 27 – First potential gill net and seine opening in Subarea 7-5, portion of Subarea 7-6 (Finlayson), portions of Subarea 7-9 (Mathieson), and Subarea 7-29 (Sheep), dependent on in-season assessment. Minimum mesh size 149 mm.

Mid-late August – Consideration for net openings in Subarea 7-17 (McLoughlin Bay hatchery Chum). Gear types will alternate each week; Subarea 7-5 terminal Chum harvest on Kitsoo Creek Hatchery stocks with gill nets first and seines second. Consideration for net opening in Spiller Channel to harvest Neekas Creek Chum.

Late August to early September – Considerations for net openings in Subarea 7-30 (Johnson Channel), Subarea 7-15 (Roscoe Inlet), and Subarea 7-13 (Spiller Channel).

Area F: No troll opportunities for Chum fisheries in this area in 2023.

Area 8

Area C*:

In 2022, Area 8 commercial Chum fisheries have been closed to protect stocks of conservation concern. The closure is expected to remain in place until the fishery is restructured with development of substantial mitigation measures, or until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone.

Measures proposed by Area C for a 2023 restructured fishery did not sufficiently meet the requirements to re-establish the fishery, thus the Area C Area 8 Chum fishery remains under longer term closure. See Appendix 10 for a complete list of longer term fishery closures.

Area A*:

In 2022, Area 8 commercial Chum fisheries were closed to protect stocks of conservation concern. The closure is expected to remain in place until the fishery is restructured with development of substantial mitigation measures, or until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone.

Measures proposed by Area A for a 2023 restructured fishery did not sufficiently meet the requirements to re-establish the fishery, thus the Area A remains under longer term closure. See Appendix 10 for a complete list of longer term fishery closures.

Area F: No troll opportunities for Chum fisheries in this area in 2023.

Area 9

No Chum fisheries for any gear type are anticipated for this area in 2023.

Area 10

No Chum fisheries for any gear type are anticipated for this area in 2023.

13.2.4.4.4 ESSR Fisheries

There are no ESSR fisheries for Central Coast Chum.

13.3 NORTHERN COHO SALMON FISHING PLAN

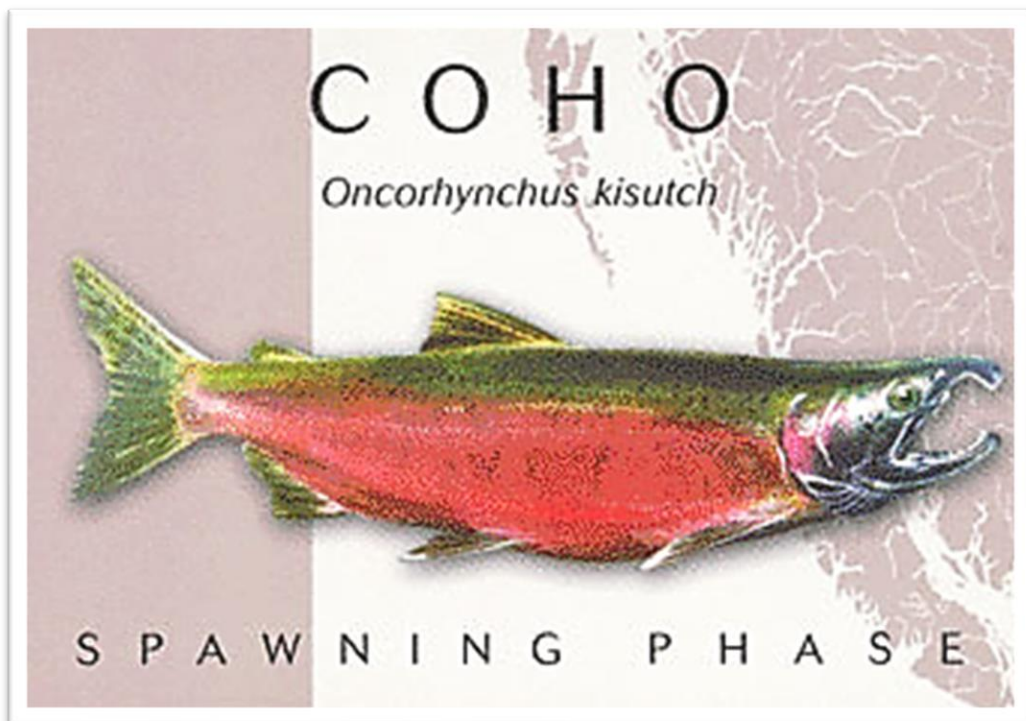
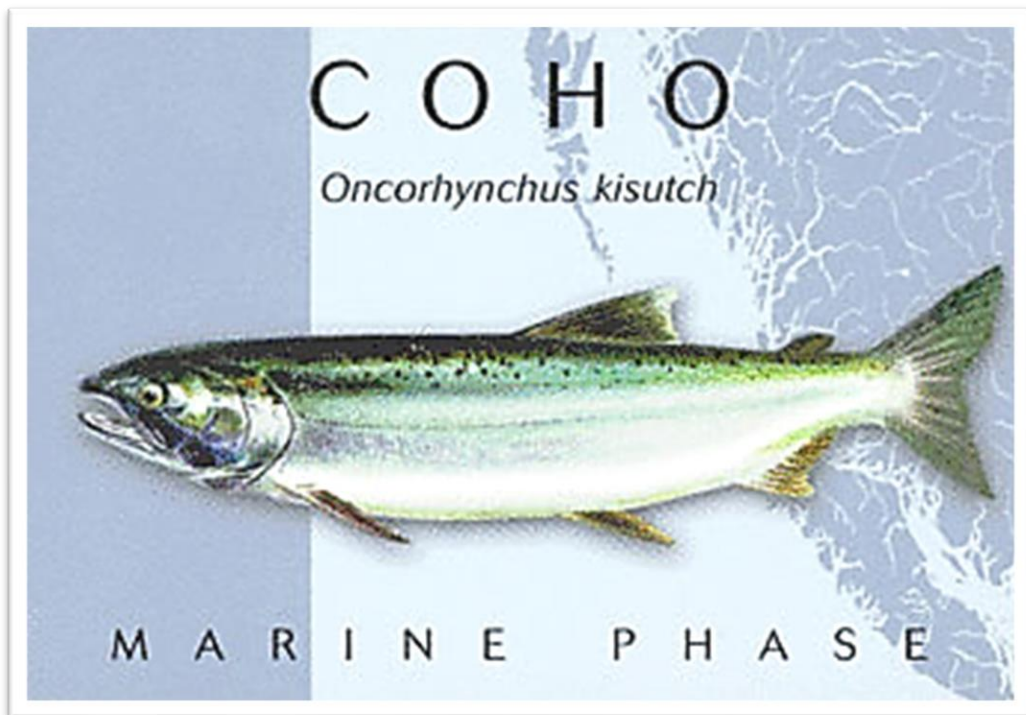


TABLE OF CONTENTS

- 13.3.1 Northern Coho Overview266
 - 13.3.1.1 Northern Coho Enhancement Information:266
 - 13.3.1.2 Northern Coho – SEP proposals or updates for 2023.....267
- 13.3.2 Northern Coho.....267
 - 13.3.2.1 Snapshot Overview and Map of Management Unit267
 - 13.3.2.2 Stock Assessment Information268
 - 13.3.2.2.1 Pre-season.....268
 - 13.3.2.2.2 In-season Assessment269
 - 13.3.2.3 Decision Guidelines and Management Actions269
 - 13.3.2.4 Incidental Harvest, By-Catch and Constraints to Northern Coho Fisheries270
 - 13.3.2.5 Allocation and Fishing Plans271
 - 13.3.2.5.1 First Nations Fisheries271
 - 13.3.2.5.2 Recreational Fisheries273
 - 13.3.2.5.3 Commercial Fisheries.....276
 - 13.3.2.5.4 Demonstration and ESSR Fisheries278

13.3.1 NORTHERN COHO OVERVIEW

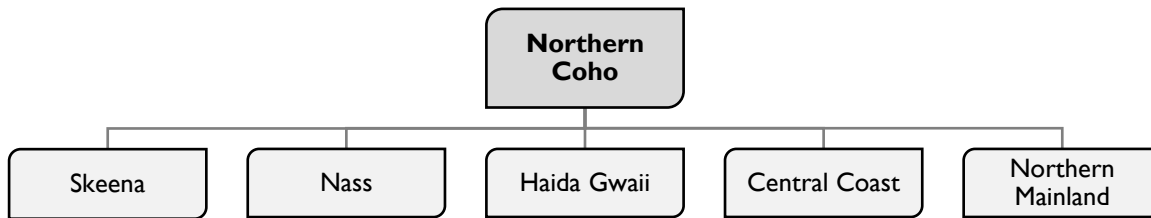


Figure 13-9: Overview of North Coast Coho

In recent years, Northern Coho are primarily harvested through commercial troll and mixed-species fisheries; formal guidelines for abundance based harvest levels have not been developed. In general, commercial net fisheries on the North Coast and Central Coast start with Coho non-retention, which is reviewed in-season in each area based on observed abundance. After several years of low productivity and survival North Coast Coho returns have shown modest improvements over the last two years. The overall outlook for North Coast Coho returns in 2023 is average; however, there are still several stocks that remain at low abundance. Commercial net fisheries on the North Coast and Central Coast will be non-retention Coho, and additional mitigation measures, similar to those in place in 2022, will be implemented to reduce interceptions.

13.3.1.1 NORTHERN COHO ENHANCEMENT INFORMATION:

The major BC North Coast DFO Operation enhancement facilities that produce Coho are:

- . Kitimat River hatchery

There is one Coho salmon exploitation rate indicator stock in the North Coast that relies on hatchery production of coded-wire tagged releases. The Toboggan Creek Coho indicator stock is produced at the Toboggan Creek Hatchery. Toboggan Creek hatchery does not appear in the list above since it is not considered a major DFO Operations (OPS) facility and these fish are raised for assessment purposes only.

The information available at the link below addresses production from major DFO OPS facilities, contracted Community Economic Development Program hatcheries (CEDP), Public Involvement Projects (PIP) operated by volunteers, and Aboriginal Fisheries Strategy (AFS).

[SEP Production Plans](#)

There are three datasets available: Post-Season Production from the 2020 brood year (i.e., 2021 and 2022 releases), Post-Season Production from the 2021 brood year (i.e., 2022 releases, and numbers on hand for 2023 release), and the Production Plan, which includes proposed targets for the upcoming 2023 brood year. These are available at the following website:

<https://www.pac.dfo-mpo.gc.ca/sep-pmvs/data-donnees/index-eng.html>

13.3.1.2 NORTHERN COHO – SEP PROPOSALS OR UPDATES FOR 2023

In an attempt to increase Coho coded-wire tag (AdCWTs) recoveries, the Toboggan Creek Hatchery, in collaboration with DFO (SEP and Stock Assessment), have increased the egg target from 62K to 80K for 2023.

13.3.2 NORTHERN COHO

13.3.2.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

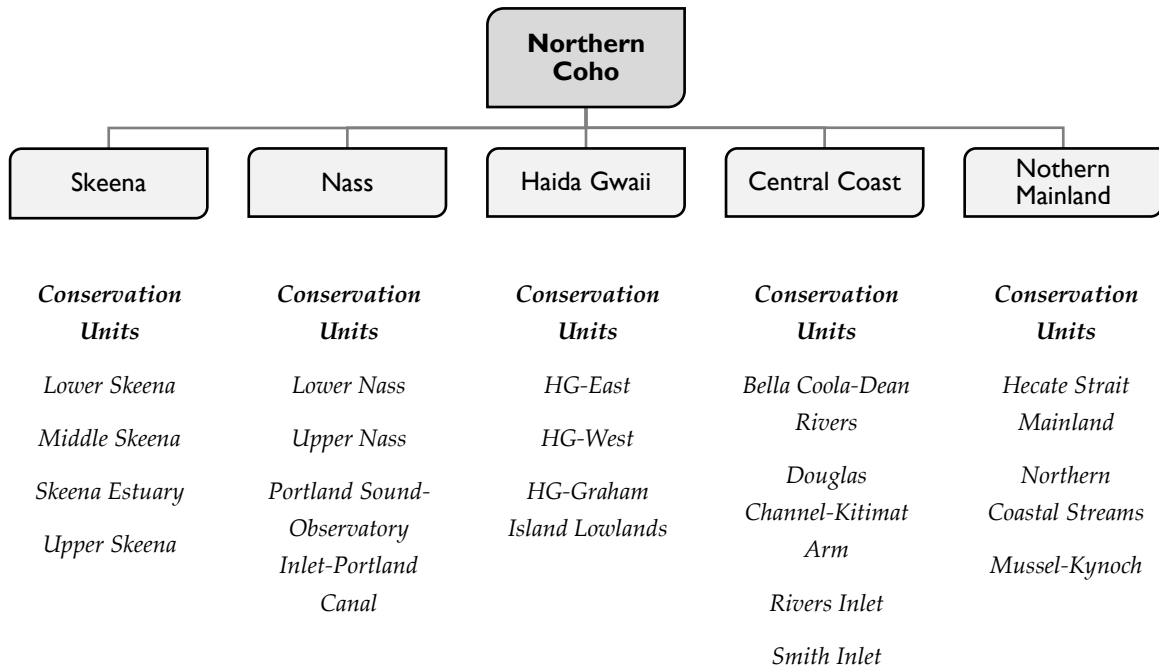


Figure 13-10: Overview of North Coast and Central Coast Coho

In Northern BC, Coho are typically caught as by-catch during First Nations' FSC fisheries that are directed on Sockeye; however, some small directed Coho FSC fisheries do occur. Nisga'a Coho catches are limited by the Nisga'a Final Agreement that depends on in-season abundance estimates generated from the Nass fishwheel mark-recapture program. First Nations Coho FSC catches have rarely been constrained by conservation objectives in the North and Central Coast.

Coho catches in the recreational fishery are managed by daily/possession limits and time and area closures. Poor returns of Coho to many North and Central Coast areas in recent years have resulted in precautionary management measures to reduce overall exploitation. Despite modest improvements in the past two years in overall abundance of North Coast, there remain areas and stocks showing poor returns and the precautionary approach will be maintained in 2023.

Specifics of these management measures will be determined through consultations with First Nations and stakeholders through the IHPC process in the Spring of 2023.

13.3.2.2 STOCK ASSESSMENT INFORMATION

13.3.2.2.1 Pre-season

There are no formal pre-season forecasts for Northern BC Coho. Most adults returning in 2023 are from the 2020 brood year that went to sea in 2022. Ocean indicators suggest conditions affecting early marine survival have been variable in recent years. See Appendix 9 for more information.

Haida Gwaii

See Appendix 9 for more information. Deena Creek Coho in the East Haida Gwaii CU are used as an indicator stock for Haida Gwaii. Returning Coho are also enumerated at the Tlell River counting fence. Limited stock assessment information is available for the remainder of Haida Gwaii CU's. Coho returns to Haida Gwaii are generally considered to be healthy.

Nass River

Total escapement is expected to be below average in 2023. The 2022 run size was above average, an improvement over recent years.

Skeena River

Returns are expected to be below or near average in 2023 due to recent lower productivity, poor marine survivals and low returns in 2018 through 2021. Returns are uncertain and depend on the survivals of the juveniles that went to sea in 2022.

Areas 5 and 6

Returns are uncertain and depend on the survival of the juveniles that went to sea in 2022.

Central Coast

Below or near average returns are anticipated due to a period of lower productivity and low returns in 2022. However, there is very little data to develop an overall assessment. Returns are uncertain and depend on the survival of juveniles in the marine environment.

13.3.2.2 In-season Assessment

At this time, there are no in-season assessments done on most Northern BC Coho stocks. On the Skeena River, the Tyee test fishery provides a relative index abundance but can only provide in-season escapement estimates for Sockeye due to calibration from Babine fence counts. On the Nass River, in-season estimates of Coho abundance are gained from the Nass fish wheel program operated by Nisga'a Fisheries.

13.3.2.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

A precautionary approach to management will be continued in 2023 in response to poor returns in recent years and to address concerns for uncertain and changing environmental conditions.

For 2023 there will be non-retention of Coho in all North Coast net fisheries. Additional measures may also be considered to reduce interceptions.

Appendix 10 In 2022, the Area F troll directed mixed stock Coho fishery was identified for longer-term closure to support rebuilding of Northern Coho stocks. This closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

A terminal Coho directed troll fishery is considered for inner portions of Area 3 during years when Nass in-season abundance indicators show that all other priority requirements will be met. DFO will work closely with the Nisga'a to monitor Coho run strength via Nisga'a fish wheels in 2023.

The Central Coast Limited Effort Coho Demonstration Fishery, as proposed within Commercial Salmon Allocation Framework has been identified for longer-term closures to support rebuilding of Northern Coho stocks and will therefore not proceed in 2023.

When FSC fisheries for Skeena Sockeye are closed for conservation purposes, the following will be implemented:

- Recreational fisheries for salmon in the Skeena River will be closed.
- Recreational marine fisheries for salmon in Area 3, 4, and 5 will have existing retention limits reduced by half.
- Area 4 commercial fishing opportunities would be suspended.

The management actions listed above may be modified should abundances of other salmon species be sufficient to allow harvest beyond Food, Social, and Ceremonial requirements, and will be determined in season.

Should in-season estimates indicate FSC closures are no longer warranted, these management measures would be reversed in when the FSC closures are lifted, and they do not preclude management measures already in place for each species.

13.3.2.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO NORTHERN COHO FISHERIES

In-river recreational Coho fisheries will be permitted in the Nass and Skeena Rivers. Daily, possession, and annual limits are in effect. Reduced retention limits during openings and spatial closures will be implemented for both river systems in 2023, including:

- Skeena River mainstem at the mouth of the Kitsumkalum River (including Kitsumkalum River), Kitwanga River, Kispiox River, and Bulkley-Morice.
- Nass River mainstem at the confluence of the Meziadin River until September 15, 2024.

Marine recreational fisheries will be permitted. Daily, possession, and annual limits are in effect.

Non-retention of Coho in commercial net fisheries in Areas 1 through 10.

The Pacific Salmon Treaty (PST) includes a provision for closing North Coast troll fisheries. Specifically, a Coho CPUE for a specified time period and location of the southeast Alaska troll fishery is used as a trigger for closures to areas 1, 3, 4, 5 and adjacent offshore areas. This provision of the treaty was invoked for the first time in 2019. Further work to develop this trigger and others for use in domestic management decisions regarding Coho is currently underway.

Revival Tanks

Revival tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

While gill net fishing, revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank. The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

13.3.2.5 ALLOCATION AND FISHING PLANS

13.3.2.5.1 First Nations Fisheries

Food Social and Ceremonial

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe details of the FSC fishery, including the dates, times, methods, and locations of harvest. Communal licences for north coast First Nations are typically multi-species, and are issued on an annual basis. Licences may also be amended for shorter durations.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in the Northern BC First Nations Fisheries.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested

by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

Nisga'a Fisheries

The Nisga'a Nisga'a Annual Fishing Plan (NAFP) is developed by the Nisga'a-Canada-BC Joint Fisheries Management Committee (JFMC) and governed by the terms of the Nisga'a Final Agreement and the Nisga'a Harvest Agreement of the Nisga'a Treaty. The Nisga'a Harvest Agreement includes Nisga'a fish allocations expressed as a percentage of the adjusted total allowable catch of Sockeye and Pink salmon. The NAFP is developed in accordance with Chapter 8 of the Nisga'a Final Agreement. Once approved by the Minister of Fisheries, the Nisga'a Annual Fishing Plan remains in effect until replaced the following year. The fishing plan applies to persons who harvest fish, other than steelhead, in Nisga'a fisheries.

Nisga'a salmon allocations, as defined in the Nisga'a Treaty, are set out as a percentage of the Total Return to Canada (TRTC) up to maximum catch thresholds (63,000 Sockeye [10.5%], 6,300 Pink [0.6%], 12,600 Chinook [21%], 19,200 Coho [8%], and 12,000 Chum [8%]) in large return years. These Nisga'a salmon allocations have the same priority in fisheries management decisions as domestic [food, social and ceremonial (FSC)] fisheries that target Nass salmon.

The NAFP defines the escapement goals required to guide management decisions for Nass salmon stocks, calculates Nisga'a allocations for each salmon species and provides the general regulatory requirements for catches of each salmon species. The NAFP is provided to other Nass watershed First Nations for their information and is reviewed by the JFMC prior to being submitted to the Minister for approval. Nisga'a Lisims Government is responsible for the internal allocation of catch opportunities between Nisga'a fishers and day to day operation of the Nisga'a fishery.

Pre-season estimates and ranges for the Nisga'a salmon allocations in 2023 are:

Nass Coho: The Total Run size probability point estimate for 2023 from a pre-season brood regression model of 3- and 4-year-old returns for Coastal, Lower, and Upper Nass Coho stocks is 233,000 (50%) with a range in point estimates between 210,000 (75%) and 258,000 (25%). Assuming a 43.5% Alaskan exploitation rate (based on the average from 2018 to 2021 approximately 101,000 Nass Coho), the 50% probability point estimate for the Total Return to Canada (TRTC) of Nass Coho is 132,000 with a range of point estimates from 119,000 (75%

probability) to 146,000 (25% probability) and is projected to return below average (176,000) based on returns from 1994 to 2022. The forecast method's mean absolute accuracy for predicting TRTC returns is poor to fair; 53.4% (range: <1–86%) based on 2000 to 2022 returns. Based on the pre-season TRTC forecasts and the minimum escapement goal (40,000) for Nass Coho for 2023, the Nisga'a allocation ranges between 9,500 and 12,000. The mean TRTC forecast (132,000) will be used for calculating the initial target for the in-season Nisga'a allocation (10,600) of Nass Coho for 2023. The actual Nisga'a allocation target for Nass Coho in 2023 may be higher depending on in-season run strength and reaching aggregate escapement goal (60,000) to account for the current cumulative Nisga'a Treaty underage (approximately 11,700) accrued from 2000 to 2022.

13.3.2.5.2 Recreational Fisheries

Recreational fisheries targeting Northern BC Coho take place in marine Areas 1 through 10 and in-river. Conservation measures to protect Coho will be in place in a number of areas and times.

In-season updates and fishery regulation changes can be found on the recreational fisheries website:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

The possession limit for salmon is twice the daily limit.

In North Coast tidal waters, the minimum size limit for Coho salmon is 30 cm, with daily and total possession limits in effect. The open time is April 1 to March 31.

Haida Gwaii (Areas 1 and 2)

Recreational salmon fishing primarily occurs in the tidal waters surrounding Haida Gwaii, with the majority of effort focused along the shoreline from Masset to Langara Island in Area 1 and between Englefield Bay and Port Louis in Area 2W. Recreational fishing occurs primarily between May and September with peak effort and catch occurring in July and August. The recreational fishery targets Coho of mixed stocks from across the north and central coast of B.C.

Nass (Area 3)

Recreational salmon fishing occurs in the tidal waters adjacent to the Nass River, with the peak of the season being from June to August.

The Nass River and tributaries are in Region 6 freshwater fishing area, and there are openings for Coho salmon throughout the watershed at different time periods. The standard close time for Coho is November 1 to December 31. The minimum size limit is 30 cm, with daily and total possession limits in effect.

Skeena (Area 4)

Recreational salmon fishing occurs in the tidal waters adjacent to the Skeena River, with the peak of the season being from June to August.

The tidal waters salmon recreational fishery in Pacific Fishery Management Area 4 begins with low effort in late April with early season participation by local area residents. Independent and guided day charter effort increases significantly in late May and remains high throughout the peak season in June, July and August, decreasing at the end of August with primarily local participants again by the end of September.

The Skeena River and tributaries are in Region 6 freshwater fishing area, and there are openings for Coho throughout the watershed at different time periods. On the lower Skeena River mainstem, the standard opening is July 15 to November 30, with daily and total possession limits in effect. On the upper Skeena River mainstem, the standard opening is July 15 to October 15. The minimum size limit is 30 cm.

Areas 5 & 6 Tidal Waters

The Area 5 tidal water interception salmon recreational fishery begins in late April. Initial effort is mostly by local independent anglers out of Prince Rupert and Port Edward; however, the most significant portion of the recreational fishing season develops late May and continues to mid-September. The fleet operating in Area 5 is made up mainly of independent anglers and charter operators.

The Area 6 tidal water interception salmon recreational fishery begins in late April. Initial effort is mostly by local independent anglers out of Kitimat. One recreational fishing lodge and a number of charter operators also fish in Area 6 with the most significant portion of the recreational fishing season taking place between late May and mid-September.

In the mainland watersheds of Region 6 freshwater fishing area, a standard closed time for Coho is November 1 to December 31. Depending on the watershed, openings occur on different dates, with daily and total possession limits in effect.

Central Coast (Areas 7 to 10)

Central Coast First Nations, and DFO are concerned over poor productivity of Central Coast Coho stocks in recent years. The Department is committed to working collaboratively with First

Nations and stakeholder groups to better assess both the status of these stocks and the impacts of existing fisheries. These include a suite of new stock assessment activities jointly operated by Central Coast First Nations and the Department, which will be used to inform management decisions in the future.

The main recreational fishing activity takes place in Milbanke Sound off St. Johns Harbour and in Seaforth Channel between St. Johns and Idol Point; fishing effort is primarily from several recreational lodges and charter operators.

In Area 8, the main recreational fishing effort in tidal water is concentrated in the Hakai Pass area by guests of the recreational lodges in the area. There is also individual angler effort within the area. In Area 9, the main recreational fishing effort in tidal water is concentrated in Rivers Inlet area by guests of the recreational lodges in the area. There is also individual angler effort within the area.

In Area 9, a condition of licence in the recreational Tidal Waters Sport Fishing Licence, applies to all angling in the Rivers Inlet Special Management Zone. Any anglers fishing in this area should consult the Tidal Waters Sport Fishing Regulations prior to commencing fishing. The online guide can be found at:

<http://www.bcsportfishingguide.ca>

Recreational harvesting does occur in Area 10, with participation by independent anglers and charter operators.

The Central Coast non-tidal waters are in Regions 5B and 6 freshwater fishing areas, and there are openings for Coho salmon in the different watersheds at different time periods. The minimum size limit is 30 cm, with daily and total possession limits in effect. Many rivers have closures from October to December.

Fishery Monitoring and Catch Reporting

In Haida Gwaii, DFO has been collecting recreational catch data through the Lodge Log Book Program and the Haida Creel Program since 1995. Participation in monitoring and reporting of recreational catch in Areas 1 and 2 has been excellent over the past 28 years. Monitoring is continuing to improve with region wide initiatives.

The Area 3 and 4 creel program operated by the North Coast Skeena First Nations Stewardship Society typically runs from May 1 to August 31. Information collected through this program is shared through in-season and post-season processes. A creel survey of freshwater recreational fisheries on the lower Skeena River watershed is conducted by Kitsumkalum Fish and Wildlife program and LGL. Information collected through this program is shared through in-season and post-season processes.

A creel survey of the freshwater recreational fisheries in the Nass watershed was not conducted in 2022. The mean average in-river recreational catch of Nass Sockeye from 2000-2015 is 540 fish. A creel survey was conducted on Meziadin Lake in 2022 and data will be provided when it is available. In Areas 6 to 9, DFO has been collecting recreational catch data through the Lodge Log Book Program.

The Heiltsuk, Kitasoo/Xai'xais, Nuxalk, and Wuikinuxv Nations, under the direction of the Central Coast Indigenous Resource Alliance (CCIRA) will continue collecting data through a creel survey and over-flight program. The program will assess recreational and First Nations' Food, Social, and Ceremonial (FSC) fisheries in marine portions of Areas 6 to 9, and in the Bella Coola River system within freshwater Region 5B Survey. Survey work will occur between June and September 2023. Recreational and Indigenous fishers should be aware that they may be approached by creel surveyors from the Nations to collect important data from these fisheries.

In Area 10, Logbook information is used to provide catch and release numbers from anglers fishing there.

13.3.2.5.3 Commercial Fisheries

Commercial opportunities for Coho for the Area F troll fleet occur in off-shore portions of Haida Gwaii and in Dixon Entrance. Additional opportunities in Area 3 and in the Central Coast are possible in years of sufficient abundance. This is not anticipated for 2023.

Allocation

Table 13-9: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine A	Gill Net C	Troll F
North	1 to 10, 101 to 111, 130, 142	12.5%	6.5%	81.0%

Northern BC Coho Fisheries

Area C Gillnet

Retention of Coho will not be allowed in Sockeye-directed gill net fisheries in Areas 3 and 4. Additional measures may be implemented to avoid interceptions.

Non-retention of Coho in all gill net fisheries in Areas 1 and 2.

In the Central Coast, gill net opportunities will be non-retention Coho unless otherwise specified in the fishery notice.

Area A Seine

There are no directed fisheries for Northern BC Coho.

Retention of Coho will not be allowed in Sockeye and Pink-directed seine fisheries in Areas 3 and 4. Non-retention of Coho in all seine fisheries in Areas 1, 2 and 6.

In the Central Coast, if seine openings occur, they will be non-retention of Coho.

Area F Troll

Beginning in 2021, the Area F directed mixed stock Coho Troll fishery, and the Central Coast Coho Demonstration fishery were closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

Retention of Coho Salmon by-catch will be permitted in the Area F troll openings targeting Pink and Chinook Salmon as follows:

July 1- A-B Line (Dixon Entrance) Pink directed opening.

August 10- Chinook ITQ opening.

Fishery Monitoring and Catch Reporting

Fishery Monitoring and Catch Reporting includes the following:

Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.

Mandatory catch reporting by phone-in with a paper harvest log and electronic transmission with an electronic harvest log (E-log) in all commercial fisheries. (*Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type*).

Mandatory validation of all salmon for vessels that have retained Chinook.

All Area F trollers are required to submit daily catch reports within 24 hours of landing.

Retention of freezer troll salmon heads

In accordance with the conditions of the Area F troll license, all vessels are required to bring all Chinook and Coho heads (or snouts if they are cut properly to include any CWT) to the dock for submission, unless the license is listed in a fisheries notice listing the Area F troll licenses that are exempted from retaining salmon heads during the 2023 fishing season. This fisheries notice is expected to be released prior to the opening of the fishery.

The exemption rate this year will be approximately 75%. As in past seasons, licences that were insufficiently diligent in carrying out their conditions of license to bring in all Chinook and Coho heads will not be exempted in the following year.

13.3.2.5.4 Demonstration and ESSR Fisheries

Skeena Coho Inland Demonstration Fishery

In 2018, a proposal to permit Coho retention within the existing Wet'suwet'en Pink directed ESSR fishery at Moricetown Canyon was approved through updates to the Commercial Salmon Allocation Framework. The total inland allocation is determined in-season and based on historic and in-season stock assessment information, specific to the harvest area. For more information on this fishery, please see Appendix 6: Updates to Commercial Salmon Allocation Framework.

For more information: Karlena Lord (250) 922-4266.

ESSR Fisheries

There are currently no ESSR fisheries for Northern BC Coho.

13.4 NORTHERN PINK SALMON FISHING PLAN

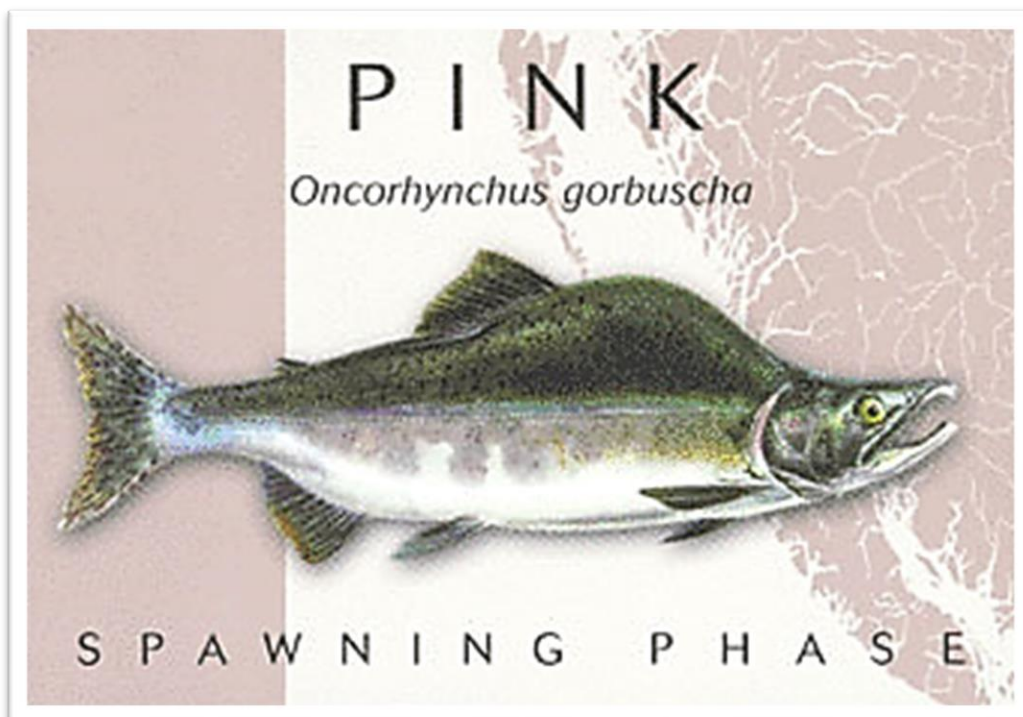
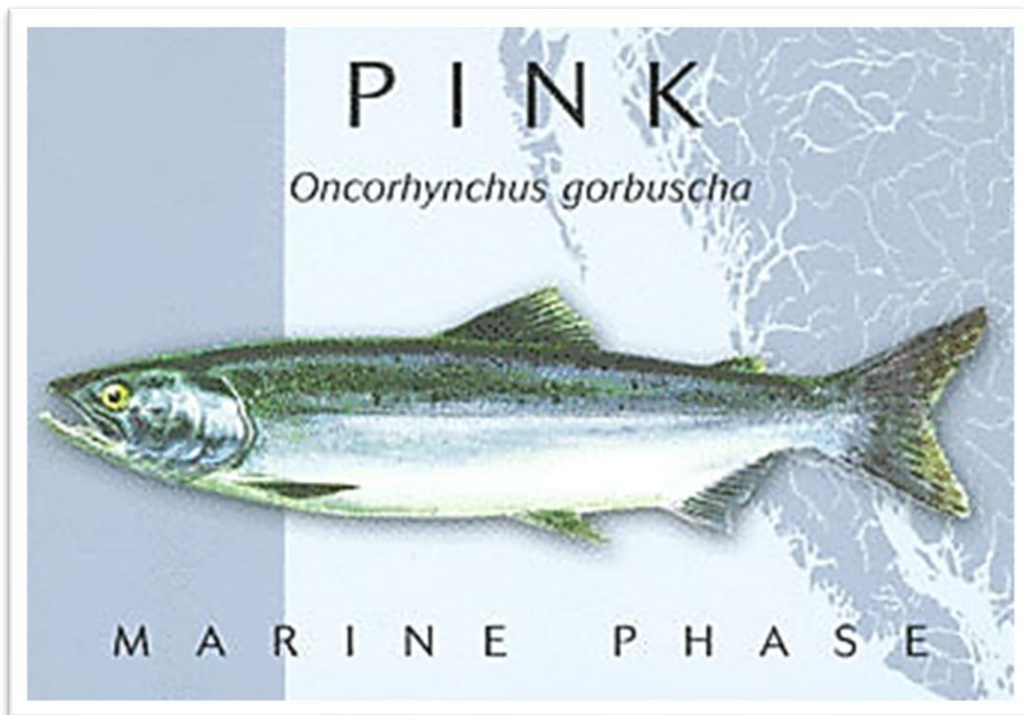


TABLE OF CONTENTS

- 13.4.1 Northern Pink Salmon Overview282
 - 13.4.1.1 Northern Pink Enhancement Information282
 - 13.4.1.2 Northern Pink – SEP Proposals or Updates for 2023.....283
- 13.4.2 Haida Gwaii Pink Salmon.....283
 - 13.4.2.1 Snapshot Overview and Map of Management Unit283
 - 13.4.2.2 Stock Assessment Information284
 - 13.4.2.2.1 Pre-season.....284
 - 13.4.2.2.2 In-season.....284
 - 13.4.2.3 Decision Guidelines and Management Actions284
 - 13.4.2.4 Incidental Harvest, By-catch and Constraints to Haida Gwaii Pink Fisheries.....284
 - 13.4.2.5 Allocation and Fishing Plan285
 - 13.4.2.5.1 First Nations Fisheries285
 - 13.4.2.5.2 Recreational Fisheries286
 - 13.4.2.5.3 Commercial Fisheries.....287
 - 13.4.2.5.4 ESSR Fisheries288
- 13.4.3 Skeena-Nass Pinks289
 - 13.4.3.1 Snapshot Overview and Map of Management Unit289
 - 13.4.3.2 Stock Assessment Information290
 - 13.4.3.2.1 Pre-season.....290
 - 13.4.3.2.2 In-season.....290
 - 13.4.3.3 Decision Guidelines and Management Actions290
 - 13.4.3.4 Incidental Harvest, By-catch, and Constraints to Skeena and Nass Pink Fisheries292
 - 13.4.3.5 Allocation and Fishing Plans293
 - 13.4.3.5.1 First Nations Fisheries293
 - 13.4.3.5.2 Recreational Fisheries295
 - 13.4.3.5.3 Commercial Fisheries.....295
 - 13.4.3.5.4 Demonstration and ESSR Fisheries297
- 13.4.4 Central Coast Pink Salmon298
 - 13.4.4.1 Snapshot Overview and Map of Management Unit298

- 13.4.4.2 *Stock Assessment Information*299
 - 13.4.4.2.1 Pre-season.....299
 - 13.4.4.2.2 In-season.....299
- 13.4.4.3 *Decision Guidelines and Management Actions*300
 - 13.4.4.3.1 In-season Decisions300
- 13.4.4.4 *Incidental Harvest, By-catch and Constraints to Central Coast Pink Fisheries*300
- 13.4.4.5 *Allocation and Fishing Plans*302
 - 13.4.4.5.1 Recreational Fisheries303
 - 13.4.4.5.2 Commercial Fisheries.....304
 - 13.4.4.5.3 Demonstration and ESSR Fisheries306

13.4.1 NORTHERN PINK SALMON OVERVIEW

Pink salmon are the most abundant but smallest of the Pacific salmon species. They are unusual in having a fixed 2-year life span, with one year class sometimes have stronger returns than the other.

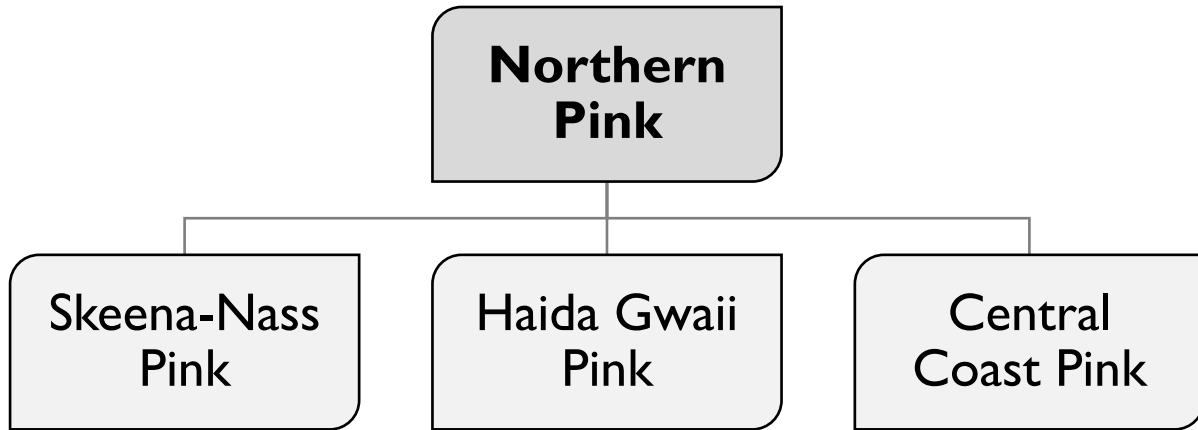


Figure 13-11: Overview of Northern Pink Salmon

13.4.1.1 NORTHERN PINK ENHANCEMENT INFORMATION

There are no major BC North Coast DFO Operation enhancement facilities that produce Pink. There is only one PIP enhancement operation in Northern BC.

The information available at the link below addresses production from major DFO Operations (OPS) facilities, contracted Community Economic Development Program hatcheries (CEDP), Public Involvement Projects (PIP) operated by volunteers, and Aboriginal Fisheries Strategy (AFS).

SEP Production Plans

There are three datasets available: Post-Season Production from the 2020 brood year (i.e., 2021 and 2022 releases), Post-Season Production from the 2021 brood year (i.e., 2022 releases, and numbers on hand for 2023 release), and the Production Plan, which includes proposed targets for the upcoming 2023 brood year. These are available at the following website:

<https://www.pac.dfo-mpo.gc.ca/sep-pmvs/data-donnees/index-eng.html>

13.4.1.2 NORTHERN PINK – SEP PROPOSALS OR UPDATES FOR 2023

The 2023 production plan proposes no change to the Northern Trollers’ Jungle Creek enhancement PIP with support from Bear Skin Bay Hatchery in Haida Gwaii (egg target 50K).

13.4.2 HAIDA GWAII PINK SALMON

13.4.2.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

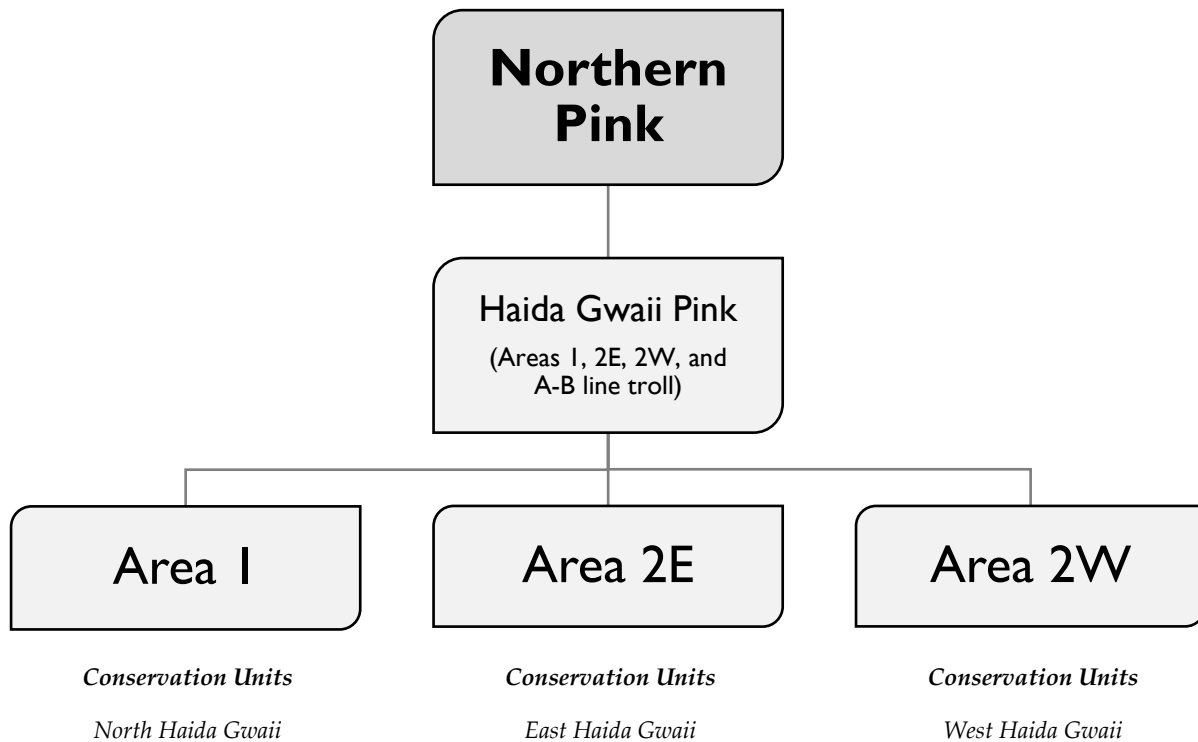


Figure 13-12: Conservation Units in the Haida Gwaii Pink Salmon Management Unit (1 CU)

Haida Gwaii Pink salmon return on a two year cycle, with dramatic differences in return strength between even and odd calendar years. Most streams in Haida Gwaii have a strong return of Pink salmon during even calendar years only. Directed harvests are only anticipated during even years.

Pink salmon are also harvested in the Area F troll fishery.

13.4.2.2 STOCK ASSESSMENT INFORMATION

13.4.2.2.1 Pre-season

There are no formal pre-season forecasts for Haida Gwaii Pinks. Opportunities for Pink salmon fisheries are determined in-season. Pre-season expectations for Haida Gwaii Pinks are poor, as 2023 is a non-dominant return year and brood year returns in the 2021 were poor.

See Appendix 9 for more information.

13.4.2.2.2 In-season

In-season Pink salmon assessments will determine if harvest opportunities are viable.

The assessments of Haida Gwaii Pink run size and escapement are done visually by charter patrolmen and opportunistically by DFO staff. Additional assessments are coordinated with the Haida Fisheries Program and Parks Canada. The main areas assessed for harvest opportunities are Masset Inlet, Skidegate Inlet, Cumshewa Inlet, Selwyn Inlet, Darwin Sound, Rennell Sound, West Skidegate and Englefield Bay.

13.4.2.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Terminal net fishery openings are based on fish observed schooling in front of the various systems. Fisheries will only be considered if sufficient salmon return to meet escapement goals.

For Area F troll, Canada will manage the Area 1 troll fishery to achieve an annual catch share of 2.57 percent of the annual allowable harvest (AAH) of a portion of south-east Alaska, as agreed to in the Pacific Salmon Treaty (PST). The methodology for AAH calculations is provided in the PST. Canada can carry forward from year to year annual deviations from the prescribed catch. To optimize the Pink catch, the northern section of Dixon Entrance will open to Pink salmon fishing on July 1st. During this fishery, Coho retention will also be allowed. Pink salmon retention will also be allowed during the Chinook directed troll fishery.

13.4.2.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO HAIDA GWAII PINK FISHERIES

Before a harvest can occur, assessment of escapements to streams in and near the surplus to be harvested will need to be conducted. Conservation of smaller and/or weaker returning stocks

that may be affected by a potential harvest opportunity may influence the timing and/or location of the fishery or may result in the forgoing of the fishing opportunity.

Coho by-catch may be a concern in some areas. Brailing by seines and the use of revival boxes by both gill nets and seines will be required.

Revival Tanks

Revival tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

While gill net fishing, revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank. The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

13.4.2.5 ALLOCATION AND FISHING PLAN

13.4.2.5.1 First Nations Fisheries

Food Social and Ceremonial Fisheries

First Nations opportunities to harvest salmon for FSC purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe details of the FSC fishery, including the dates, times, methods, and locations of harvest. Communal licences for north coast First Nations are typically multi-species, and are issued on an annual basis. Licences may also be amended for shorter durations.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

There are currently no Treaty fisheries for Haida Gwaii Pink salmon.

13.4.2.5.2 Recreational Fisheries

Recreational salmon fishing primarily occurs in the tidal waters surrounding Haida Gwaii, with the majority of effort focused along the shoreline from Masset to Langara Island in Area 1 and between Englefield Bay and Port Louis in Area 2W. Recreational fishing occurs primarily between May and September with peak effort and catch occurring in July and August. Pink salmon are incidentally retained in the recreational fishery which primarily targets Chinook and Coho salmon. The daily aggregate limit of salmon is four (4) per day and a maximum 2 of which may be Chinook.

In-season updates and fishery regulation changes can be found on the recreational fisheries website:

<http://www.dfo-mpo.gc.ca/fisheries-peches/recreational-recreative/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

Fishery Monitoring and Catch Reporting

DFO has been collecting recreational catch data through the Lodge Log Book Program and the Haida Creel Program since 1995. Participation in monitoring and reporting of recreational catch in Areas 1 and 2 has been excellent over the past 28 years. Monitoring is continuing to improve with region wide initiatives.

13.4.2.5.3 Commercial Fisheries

In 2023, potential opportunities for commercial fisheries for Haida Gwaii Pink salmon will be assessed in-season.

Description	Areas	Seine A	Gill Net C	Troll F
North	1, 2E, 2W (even), 3 to 5, 101 to 105	75.5%	22.5% ^a	2.0%

Notes on Pink allocations (North):

^a Skeena sharing 75% seine: 25% gillnet

Haida Gwaii Pink Fisheries

Fishing opportunities may be considered if stocks appear to be returning in sufficient abundance. Commercial harvest opportunities are dependent on run timing, but typically occur in the last half of August.

Area A (Seine)

No seine fisheries will be directed on passing Pink stocks.

Area C (Gill Net)

No gillnet fisheries will be directed on passing Pink stocks.

Area F Troll

July 1– A-B Line Targeted Pink opening with Coho retention. See Section [13.3](#) – Northern Coho for details.

Retention of Pink salmon will also be permitted in conjunction with troll openings targeting Chinook as follows:

13.3 August 10 – Chinook ITQ opening with Pink and Coho retention. See Section 13.1 – Northern AABM Chinook for details.

Fishery Monitoring and Catch Reporting

Fishery Monitoring and Catch Reporting includes the following:

Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.

Mandatory catch reporting by phone-in with a paper harvest log and electronic transmission with an electronic harvest log (E-log) in all commercial fisheries. (*Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type*).

13.4.2.5.4 ESSR Fisheries

There are no anticipated ESSR fisheries for Haida Gwaii Pink salmon.

13.4.3 SKEENA-NASS PINKS

13.4.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

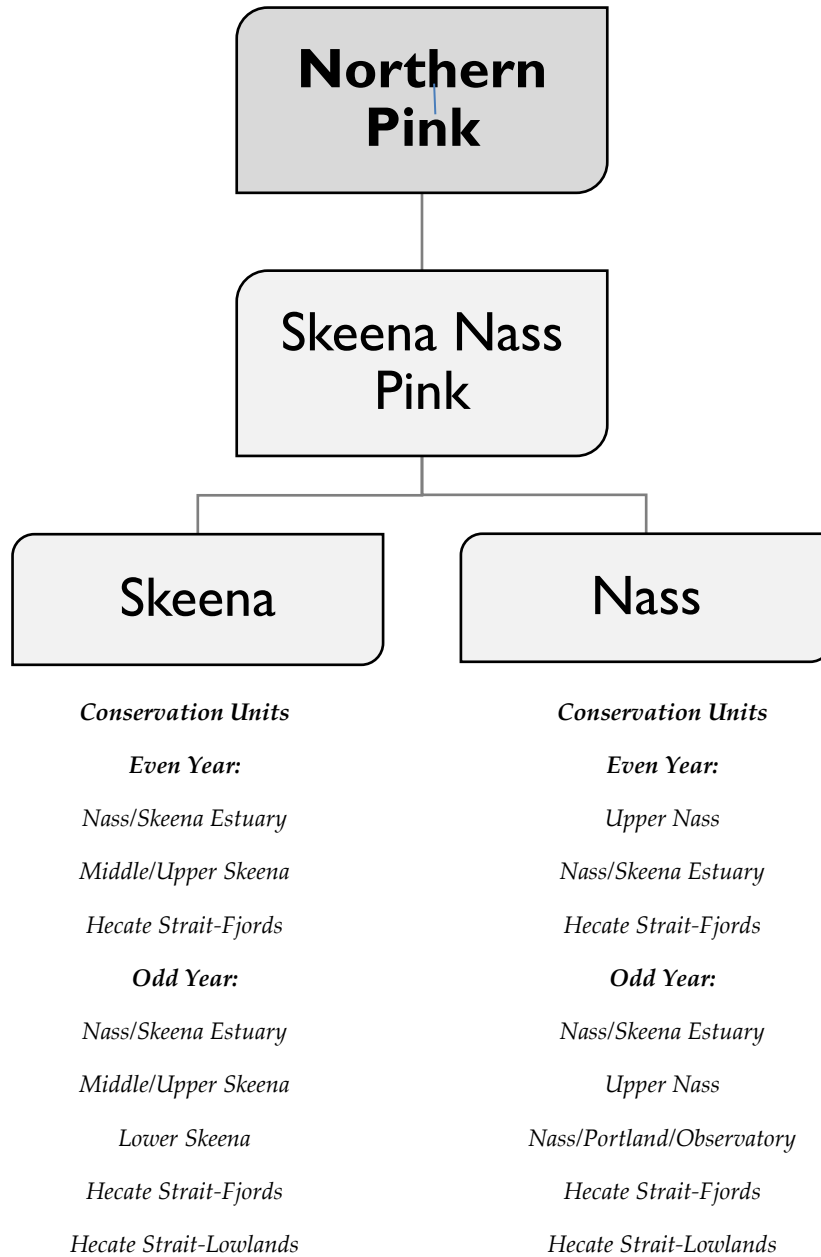


Figure 13-13: Conservation Units in the Skeena-Nass Pink Salmon Management Unit

Pink returns to the Nass watershed are dominant in odd-years with major returns seen to the Iknouk, Kwinimass, and Khutzeymateen Rivers. Most Area 3 Pink stocks arrive in the fishing

area at approximately the same time, usually in mid-July. The outer coastal stocks are an exception, arriving in August and early September.

In the Skeena River, 128 systems have recorded Pink salmon presence. Tagging studies were conducted in 1982, 1984 and 1985. These studies were designed primarily to provide information on interception rates of southeast Alaskan Pink stocks, but also provided information on stock abundance, migration and timing of Canadian stocks. Management stock groupings are Skeena River and Coastal. There are no major coastal Pink stocks in Areas 4 or 5; the majority of returns to these areas are from a number of small streams that contribute to the total return.

13.4.3.2 STOCK ASSESSMENT INFORMATION

13.4.3.2.1 Pre-season

There are no formal pre-season forecasts for Pinks in the Nass or Skeena watersheds. Both areas usually see greater returns in odd years, with smaller returns in even years. Historically Pink returns have been highly variable and expectations are highly uncertain.

See Appendix 9 for more information. Returns are known to be highly variable. Fishing opportunities in Areas 3, 4, and 5 will be based on in-season indications of abundance.

13.4.3.2.2 In-season

Returns of Pink salmon to the Nass River are monitored through the fish wheel program operated by Nisga'a Fisheries. Pink stocks are managed to stream-specific escapement goals in Area 3 while keeping within the Pacific Salmon Treaty Pink annex considerations. Targeted net Pink fisheries will be based upon identified surpluses with consideration for stocks of concern.

The Tyee test fishery on the Skeena River is the main indicator for relative abundance of Pink salmon in Areas 4 and 5 through the use of a multi-panel gill net with varying mesh sizes. Returns are variable and estimates are also subject to error as annual run timing and the annual catchability of salmon by the Tyee test fishery net varies. Fishing opportunities for Pinks in Area 5 are managed through in-season assessments.

13.4.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

In-season Decisions

Weekly in-season decisions for Area 3 Pinks are made from run size predictions based on:

Catch and effort data from the Area 3 and Alaskan Tree Point commercial net fisheries.

Escapement information from the Nisga'a Fishwheel Program conducted at test-fishing sites near Gitwinksihlkw on the Nass River, and later from individual stream inspections for Pinks.

Pink stocks are managed to stream-specific escapement goals in Area 3 while keeping within the Pacific Salmon Treaty Pink annex considerations. Targeted net Pink fisheries will be based upon identified surpluses with consideration for stocks of concern.

Fisheries on the Skeena traditionally switch focus from Sockeye to Pink salmon in mid-August when abundance permits. Once the fishery switches to Pink management, if the yearly escapement is not expected to reach one million, the fishery may close. Pink returns between one and two million are managed with a balance between catch and escapement. This balance depends on escapement distribution and concern for other species. Coastal Area 4 and 5 Pink stocks are traditionally managed in accordance with Skeena runs until early-August when local Pink stocks become prevalent. Care will be taken not to over-harvest local stocks while conducting the Skeena directed fishery. For instance, in years when there are large surpluses of Skeena Pink salmon, boundaries may be established around local, coastal Pink streams to protect Pinks holding in front of these systems while conducting the main Skeena directed Pink fishery. Seine fisheries for coastal Pink stocks are then considered based on catch and stream escapement information generated from Charter Patrol assessments.

Seine fisheries for Area 5 Pink stocks are considered starting in mid-August based on catch and stream escapement information. A targeted selective gill net fishery for Pinks in Area 5 is possible while Skeena Pinks are transiting the area and before the terminal stocks in Ogden Channel appear. Small mesh nets would be implemented to minimize the by-catch of Sockeye and Chum, and the fishery would be terminated if by-catch encounters were found to be high.

If abundances permit, a troll Pink fishery in Area 3 may be conducted. This fishery would be managed to minimize by-catch of Chum and gear conflicts with net fleets.

When FSC fisheries for Skeena Sockeye are closed for conservation purposes, the following will be implemented:

- Recreational fisheries for salmon in the Skeena River will be closed.

- Recreational marine fisheries for salmon in Area 3, 4, and 5 will have existing retention limits reduced by half.
- Area 4 commercial fishing opportunities would be suspended.

The management actions listed above may be modified should abundances of other salmon species be sufficient to allow harvest beyond Food, Social, and Ceremonial requirements, and will be determined in season.

Should in-season estimates indicate FSC closures are no longer warranted, these management measures would be reversed in when the FSC closures are lifted, and they do not preclude management measures already in place for each species.

13.4.3.4 INCIDENTAL HARVEST, BY-CATCH, AND CONSTRAINTS TO SKEENA AND NASS PINK FISHERIES

For Nass area fisheries, Pink fishing opportunities will be managed to conserve weak stocks of Area 3 Chum. Area 3 Chum are subject to a rebuilding plan (see Appendix 7: Nass Chum Draft Rebuilding Plan) and will require continued focused management planning. Measures to limit impacts on Nass Sockeye from Area 3 seine fisheries may be required depending on requirements of PSSl.

Area 4 and 5 fisheries will be managed in late July and early August to minimize impacts to weak Sockeye and Chum stocks.

Skeena Pink fishing opportunities may be limited to reduce harvest impacts on Skeena Sockeye and Chum stocks by restricting late season openings and ensuring compliance during seine Pink harvests.

Revival Tanks

Revival tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

While gill net fishing, revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank.

The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

13.4.3.5 ALLOCATION AND FISHING PLANS

13.4.3.5.1 First Nations Fisheries

Food Social and Ceremonial Fisheries

First Nations opportunities to harvest salmon for FSC purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe details of the FSC fishery, including the dates, times, methods, and locations of harvest. Communal licences for north coast First Nations are typically multi-species, and are issued on an annual basis. Licences may also be amended for shorter durations.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements, if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

Nisga'a Fisheries

The Nisga'a Annual Fishing Plan (NAFP) is developed by the Nisga'a-Canada-BC Joint Fisheries Management Committee (JFMC) and governed by the terms of the Nisga'a Final

Agreement and the Nisga'a Harvest Agreement of the Nisga'a Treaty. The Nisga'a Harvest Agreement includes Nisga'a fish allocations expressed as a percentage of the adjusted total allowable catch of Sockeye and Pink salmon. The NAFP is developed in accordance with Chapter 8 of the Nisga'a Final Agreement. Once approved by the Minister, the Nisga'a Annual Fishing Plan remains in effect until replaced the following year. The fishing plan applies to persons who harvest fish, other than steelhead, in Nisga'a fisheries.

Nisga'a salmon allocations, as defined in the Nisga'a Treaty, are set out as a percentage of the Total Return to Canada (TRTC) up to maximum catch thresholds (63,000 Sockeye [10.5%], 6,300 Pink [0.6%], 12,600 Chinook [21%], 19,200 Coho [8%], and 12,000 Chum [8%]) in large return years. These Nisga'a salmon allocations have the same priority in fisheries management decisions as domestic [food, social and ceremonial (FSC)] fisheries that target Nass salmon.

The NAFP defines the escapement goals required to guide management decisions for Nass salmon stocks, calculates Nisga'a allocations for each salmon species and provides the general regulatory requirements for catches of each salmon species. The NAFP is provided to other Nass watershed First Nations for their information and is reviewed by the JFMC prior to being submitted to the Minister for approval. Nisga'a Lisims Government is responsible for the internal allocation of catch opportunities between Nisga'a fishers and day to day operation of the Nisga'a fishery.

Pre-season estimates and ranges for the Nisga'a salmon allocations in 2023 are:

Nass Pink: The Total Run size probability point estimate for 2023 from a pre-season odd-year brood regression model (2 year) is 348,000 (50%) with a range in point estimates between 189,730 (75%) and 639,077 (25%). Assuming an 8.3% Alaskan exploitation rate (based on the average of odd years from 2009 to 2021 (7 years), approximately 29,000 Nass Pink), the 50% probability point estimate for the Total Return to Canada (TRTC) of Nass Pink is 319,000 with a range of point estimates from 174,000 (75% probability) to 586,000 (25% probability) and is projected to return below average (324,000) based on returns from 1994 to 2021. The forecast method's mean absolute accuracy for predicting TRTC returns is poor to fair, 64.0% (range: 25–97%) based on odd-year returns from 2015 and 2021 returns. Based on the pre-season TRTC forecasts and the minimum escapement goal (225,000) for 2023, the Nisga'a allocation ranges between 1,000 and 57,000. The mean TRTC forecast (319,000) will be used for calculating the initial target for the in-season Nisga'a allocation (16,000) for Nass Area Pink in 2023. The actual Nisga'a allocation target for Nass Pink in 2023 may be higher depending on in-season run strength and reaching aggregate escapement goal (225,000) to account for the current Nisga'a Treaty cumulative underage (approximately 14,000) accrued from odd-year returns from 2000 to 2021.

13.4.3.5.2 Recreational Fisheries

Recreational salmon fishing occurs in the tidal waters adjacent to the Nass and Skeena Rivers, Areas 3 and 4. The fishery is open April 1 to March 31, with the peak of the season being from June to August. The daily limit for Pink salmon in Areas 3 and 4 is four (4) per day, unless otherwise varied.

The Nass and Skeena Rivers and tributaries are in Region 6 freshwater fishing area, and openings for Pink salmon in the Skeena River occur at varying times, throughout the watershed. The minimum size limit is 30 cm, and a daily limit of 2 fish.

The minimum size limit for Pink salmon is 30 cm, in tidal waters and freshwater. The possession limit for salmon is twice the daily limit.

In-season updates and fishery regulation changes can be found on the recreational fisheries website:

<http://www.dfo-mpo.gc.ca/fisheries-peches/recreational-recreative/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

Fishery Monitoring and Catch Reporting

The Area 3 and 4 creel program operated by the North Coast Skeena First Nations Stewardship Society typically runs from May 1 to August 31. Information collected through this program is shared through in-season and post-season processes.

A creel survey of freshwater recreational fisheries on the lower Skeena River watershed is conducted by Kitsumkalum Fish and Wildlife program and LGL. Information collected through this program is shared through in-season and post-season processes.

13.4.3.5.3 Commercial Fisheries

Allocations

Table 13-10: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine A	Gill Net C	Troll F
North	1, 2E, 2W (even), 3 to 5, 101 to 105	75.5%	22.5% ^a	2.0%

Notes on Pink allocations (North):

^a Skeena sharing 75% seine: 25% gillnet

Skeena-Nass Pink Fisheries

Fishing opportunities may be considered if stocks appear to be returning in sufficient abundance. Commercial harvest opportunities are dependent on run timing, but typically occur between mid-July and mid-August. The areas typically fished are outlined below and may be updated in-season.

For Area 3, seine Pink fishing opportunities and opening dates are evaluated pre-season based on brood year escapements, run timing, and any concurrent fisheries taking place in other areas.

For 2023, the Department is proposing a one-day Seine assessment opening in the first week of July to assess opportunities to target Pink stocks returning to Area 3, including the Iknouk, Kwinimass, and Khutzeymateen Rivers. This fishery is planned to get an early assessment of relative run strength. It will have very little impact on the stock because it occurs early in the run and provides information to better manage the fishery later in the season. Additional fishing opportunities are based on in-season assessments of commercial catch per unit effort (CPUE), with high CPUE's being indicative of a strong return. As the season progresses, the in-season indicator changes to the assessment of stream escapements to determine if further fishing opportunities are available.

Area A Seine

Area 3: July 10 – Possible one day Seine Pink assessment opening. Sockeye retention will be determined when the fishery is announced, and will be informed by in-season estimates of abundance and PSSI requirements. Additional seine fishery openings will be determined in-season based on both Sockeye and Pink abundance. Minimum bunt mesh size 70 mm (2.76 inches). Assessment fishery will be limited to one day only.

Areas 4 and 5: Openings will be based on Skeena salmon returns and the target annual exploitation rate and will be similar to previous years subject to ongoing discussions with First Nations and commercial fishing interests.

Area C Gill Net

Area 3: Late June/Early July – The Department will investigate the potential for a one day Gill Net Sockeye opening with Pink retention, informed by data from the Nass fish wheels. Maximum mesh size is 137 mm (5.39 in). This fishery would help assess opportunities to target returning Nass River Sockeye, based on run strength. Fisheries will be operated

with spatial closures in place to avoid Nass Chinook, with maximum mesh size of 137 mm (5.39 in). Fishery will be limited to one day only.

Areas 4 and 5: Openings will be based on Skeena salmon returns and the target annual exploitation rate and will be similar to previous years subject to ongoing discussions with First Nations and commercial fishing interests.

Area F Troll

Area 3: If abundances permit, a troll Pink fishery may be conducted. This fishery would be managed to minimize by-catch of Chum and gear conflicts with net fleets.

Fishery Monitoring and Catch Reporting

For 2023, the Department is continuing to work with Area Harvest Committees on catch monitoring programs in the following areas:

Area A Seine (PFMA 3 to 6):

Designated landing sites (list to be developed based on recommendations from the Area Harvest Committees)

Catch estimates to be communicated prior to any shore-based offload.

Independent verification of landed catch through a designated service provider

Deployment of at-sea observers with priority placed on highest profile fisheries occurring concurrently.

Area C gill net (PFMA 3 to 5):

Designated landing sites (list to be developed based on recommendations from the Area Harvest Committees)

Catch estimates to be communicated prior to any shore-based offload.

Additional details on the catch monitoring programs will be communicated via Fisheries Notices.

13.4.3.5.4 Demonstration and ESSR Fisheries

Commercial Salmon Allocation Framework (CSAF) Demonstration Fisheries

Two pink directed demonstration fisheries have been approved and implemented in Area 3. These fisheries are proposed by Lax Kw'alaams First Nation and Metlakatla First Nation

and North Coast Skeena First Nations Stewardship Society, and are implemented using similar gear types and fishery controls as the Area A fleet.

For more information on CSAF demonstration fisheries, please see Appendix 6.

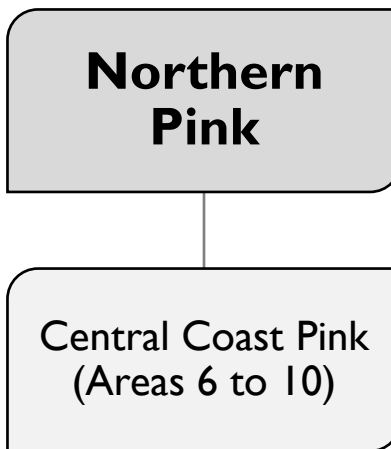
ESSR Fisheries

All Pink ESSR fisheries will be by selective means with live release of all non-target species. Historically, an ESSR opportunity has occurred at the Kitwanga weir (Gitanyow First Nation). More recently, ESSR fisheries are implemented at Moricetown Canyon (Wet'suwet'en First Nation).

For more information on CSAF Demonstration Fisheries and ESSR fisheries, please contact Karlena Lord at (250) 922-4266.

13.4.4 CENTRAL COAST PINK SALMON

**13.4.4.1 SNAPSHOT OVERVIEW AND MAP OF
MANAGEMENT UNIT**



Conservation Units

Areas 6 to 10

Even Year:

Hecate Strait Fjords

Hecate Strait Lowlands

Odd Year:

Hecate Strait Fjords

Hecate Strait Lowlands

Areas 9 and 10

Homathko-Klinaklini Rivers-Smith

Inlet-Bella Coola-Dean

Figure 13-14: Conservation Units in the Central Coast Pink Salmon Management Unit

The Central Coast has more than 250 streams and rivers that support populations of Pink salmon. Central Coast streams support both odd and even year stocks with odd year stocks being more abundant in all areas since the early 2000s. Both Area 6 and Area 8 can see extremely large returns of Pink salmon, with total run averages over a million since 2000 even in even years, which have not been dominant since that time.

13.4.4.2 STOCK ASSESSMENT INFORMATION

13.4.4.2.1 Pre-season

There are no formal pre-season forecasts for Pinks in the Central Coast. Area 6 usually sees greater returns in odd years, while Areas 7 to 10 historically saw larger runs in even years. However, since flood events in 2010 the greater returns to Area 8 have been in odd years. Pink returns have been highly variable and expectations are highly uncertain.

See Appendix 9 for more information.

For Areas 7 to 10, poor returns are expected based on low returns in the 2021 brood year. Fishing opportunities in Areas 6 to 10 will be based on in-season indications of abundance.

13.4.4.2.2 In-season

Catch and spawning escapement data are used as indicators of stock abundance for Central Coast Pink stocks. Catch per unit effort in the commercial fishery is monitored as an indicator of overall Pink abundance, and can be used as an indicator as to whether or not escapement targets will be met. Each area contains key streams whose escapements are actively monitored in-season to determine run timing and size. This is accomplished by visual counts of fish in streams, either from the air or by walking the streams.

13.4.4.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

13.4.4.3.1 In-season Decisions

For Area 6, seine Pink fishing opportunities are evaluated pre-season based on brood year escapements, run timing and any concurrent fisheries taking place in other areas. Seine fisheries will target Pink stocks returning to numerous streams near Gil Island with the Quaal and Kemano Rivers being the main producers in this area. Additional fishing opportunities are based on in-season assessments of commercial catch per unit effort (CPUE), with high CPUE's being indicative of a strong return. As the season progresses, the in-season indicator changes to the assessment of stream escapements to determine if further fishing opportunities are available.

For Areas 7 through 10, in-season decisions are made in consultation with local First Nations, the Central Coast First Nations Salmon Coordinating Committee and Central Coast Advisors for the management of fisheries in these areas.

Pink salmon are mainly caught as by-catch in Chum-directed fisheries in Areas 7 and 8. Area 8 Pink fisheries intercept mainly Atnarko River stocks, but there is a component of Kwatna River and Koeye River Pinks that are encountered. Timing of Kwatna and Atnarko stocks is similar, while Koeye Pink timing is the latter part of August. There are no Pink-directed fisheries in Areas 9 or 10.

13.4.4.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO CENTRAL COAST PINK FISHERIES

Area 6:

Area 6 can produce large returns of Pink salmon in some years. Seine fisheries targeting large Pink returns will be managed with consideration of impacts to non-target species such as wild Chum.

Commercial net fishing is limited to daylight hours.

Other management measures in effect include mandatory brailing for all seine sets and non-retention of Chinook, Coho, Sockeye and Steelhead in all fisheries and non-retention of Chum at the Gil Island seine fishery.

Area 7:

Fishing will be limited to daylight hours.

Net fisheries will be non-retention of Coho. In McLoughlin Bay and Kitasoo hatchery Chum targeted fisheries, Coho retention would only be permitted at high abundance, due to the terminal nature of these fisheries and the hatchery origin of the stocks.

Harvesting opportunities for Pink salmon will be coincidental to Chum-directed harvests.

Seines are required to brail their catch and release Sockeye, Coho, Chinook and Steelhead. Gill nets are required to release Steelhead and Coho.

During periods of high salmon catches in Areas 7 or 8, fisheries will be managed so that there is a maximum of two consecutive days of fishing. This action has been recommended by fishers and processors to maximize the value of the salmon harvested.

Pink salmon productivity in Area 7 has been depressed in recent years. Commercial fisheries are not anticipated for 2023.

Area 8:

Area 8 commercial Chum fisheries have been closed to protect stocks of conservation concern. The closure is expected to remain in place until the fishery is restructured with development of substantial mitigation measures and benchmarks, or until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Section 13.2.3.3 for more information on fishery restructuring.

Areas 9 and 10:

There are no Pink-directed fisheries in these areas.

Revival Tanks

Revival tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

While gill net fishing, revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank.

The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

13.4.4.5 ALLOCATION AND FISHING PLANS

First Nations Fisheries

Food Social and Ceremonial Fisheries

First Nations opportunities to harvest salmon for FSC purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe details of the FSC fishery, including the dates, times, methods, and locations of harvest. Communal licences for north coast First Nations are typically multi-species, and are issued on an annual basis. Licences may also be amended for shorter durations.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

There are no Treaty fisheries for Central Coast Pink salmon.

13.4.4.5.1 Recreational Fisheries

Recreational salmon fishing occurs in the tidal waters of the Central Coast (Areas 6 to 10). The Pink salmon fishery is open April 1 to March 31, with the peak of the season being from June to August. Daily and total possession limits are in effect.

The minimum size limit for Pink salmon is 30 cm, in tidal waters and freshwater. The possession limit for salmon is twice the daily limit.

The Area 6 tidal water recreational salmon fishery begins in late April. Initial effort is mostly by local independent anglers out of Kitimat. One recreational fishing lodge and a number of charter operators also fish in Area 6 with the most significant portion of the recreational fishing season taking place between late May and mid-September.

In Area 7, the main recreational fishing activity takes place in Milbanke Sound off of St. Johns Harbour and in Seaforth Channel between St. Johns and Idol Point; fishing effort is primarily from several recreational lodges and charter operators.

In Area 8, the main recreational fishing effort in tidal water is concentrated in the Hakai Pass area by guests of the recreational lodges in the area. There is also individual angler effort within the area.

In Area 9, the main recreational fishing effort in tidal water is concentrated in Rivers Inlet area by guests of the recreational lodges in the area. There is also individual angler effort within the area.

In Area 9, a condition of licence in the recreational Tidal Waters Sport Fishing Licence, applies to all angling in the Rivers Inlet Special Management Zone (SMZ), and any anglers fishing in this area should consult the Tidal Waters Sport Fishing Regulations prior to commencing fishing.

Recreational harvesting occurs in Area 10 with participation by independent anglers and charter operators.

The Central Coast non-tidal waters are in Regions 5B and 6 freshwater fishing areas, and there are openings for Pink salmon in the different watersheds at different time periods. The minimum size limit is 30 cm, with daily and total possession limits in effect.

In-season updates and fishery regulation changes can be found on the recreational fisheries website:

<http://www.dfo-mpo.gc.ca/fisheries-peches/recreational-recreative/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

Fishery Monitoring and Catch Reporting

In Areas 6 to 9, DFO has been collecting recreational catch data through the Lodge Log Book Program. In Area 10, logbook information is used to provide catch and release numbers from anglers fishing in the area.

The Heiltsuk, Kitasoo/Xai'xais, Nuxalk, and Wuikinuxv Nations, under the direction of the Central Coast Indigenous Resource Alliance (CCIRA) will continue collecting data through a creel survey and over-flight program. The program will assess recreational and First Nations' Food, Social, and Ceremonial (FSC) fisheries in marine portions of Areas 6 to 9, and in the Bella Coola River system within freshwater Region 5B Survey. Survey work will occur between June and September 2023. Recreational and Indigenous fishers should be aware that they may be approached by creel surveyors from the Nations to collect important data from these fisheries.

In Area 10, Logbook information is used to provide catch and release numbers from anglers fishing there.

13.4.4.5.2 Commercial Fisheries

Allocations

Table 13-11: Commercial Allocation Implementation Plan for the 2015–current period

Description	Areas	Seine A	Gill Net C	Troll F
Central	6 to 10	95.0%	5.0% ^b	*

Notes on Pink allocations (north):

* by-catch provision

^b potential for future re-negotiation

Central Coast Pink Fisheries

Fishing opportunities may be considered if stocks appear to be returning in sufficient abundance. Commercial harvest opportunities are dependent on run timing, but typically occur

between mid-July and mid-August. The areas typically fished are outlined below and may be updated in-season.

Area 6

July 17: First potential seine opening; areas open will be determined in-season. Minimum bunt mesh size 70 mm. Catch rates in this fishery will be used as an indicator of returning abundances of Pink salmon to Area 6.

Area 7

Harvest opportunities for Pink salmon will be incidental to Chum-directed fisheries for both seine and gillnets. Commercial fisheries are not anticipated for 2023.

Area 8

Harvest opportunities for Pink salmon will be incidental to Chum-directed fisheries for both seine and gillnets.

Areas 9 and 10

Commercial fisheries are not anticipated for 2023.

Fishery Monitoring and Catch Reporting

Fishery Monitoring and Catch Reporting includes the following:

Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.

Mandatory catch reporting by phone-in with a paper harvest log and electronic transmission with an electronic harvest log (E-log) in all commercial fisheries.

In addition, for any fisheries in Area 6 the following will be implemented as a part of the catch monitoring pilots (Area A Seine: PFMA 3 and 6; Area C Gill net: PFMA 3 to 5):

Area A Seine (PFMA 3 and 6):

Designated landing sites (list to be developed based on recommendations from the Area Harvest Committees)

Catch estimates to be communicated prior to any shore-based offload

Independent verification of landed catch through a designated service provider

Deployment of at-sea observers with priority placed on highest profile fisheries occurring concurrently

Additional details on the catch monitoring programs will be communicated via Fisheries Notices.

13.4.4.5.3 Demonstration and ESSR Fisheries

Commercial Salmon Allocation Framework (CSAF) Demonstration Fisheries

In 2021, a demonstration fishery proposed by Gitga'at First Nation targeting Area 6 pink salmon was approved but not implemented due to insufficient returns. This fishery may be implemented in 2023, subject to area approval of the fishing plan and identified in-season abundance to support a fishery.

For more information on CSAF demonstration fisheries, please see Appendix 6.

ESSR Fisheries

Historically, ESSR opportunities have been provided on the Kemano River and Bish Creek. No Pink ESSR fisheries are anticipated in Area 6 in 2023.

For more information on CSAF Demonstration Fisheries or ESSR fisheries, please contact Karlena Lord at (250) 922-4266.

13.5 NORTHERN SOCKEYE SALMON FISHING PLAN

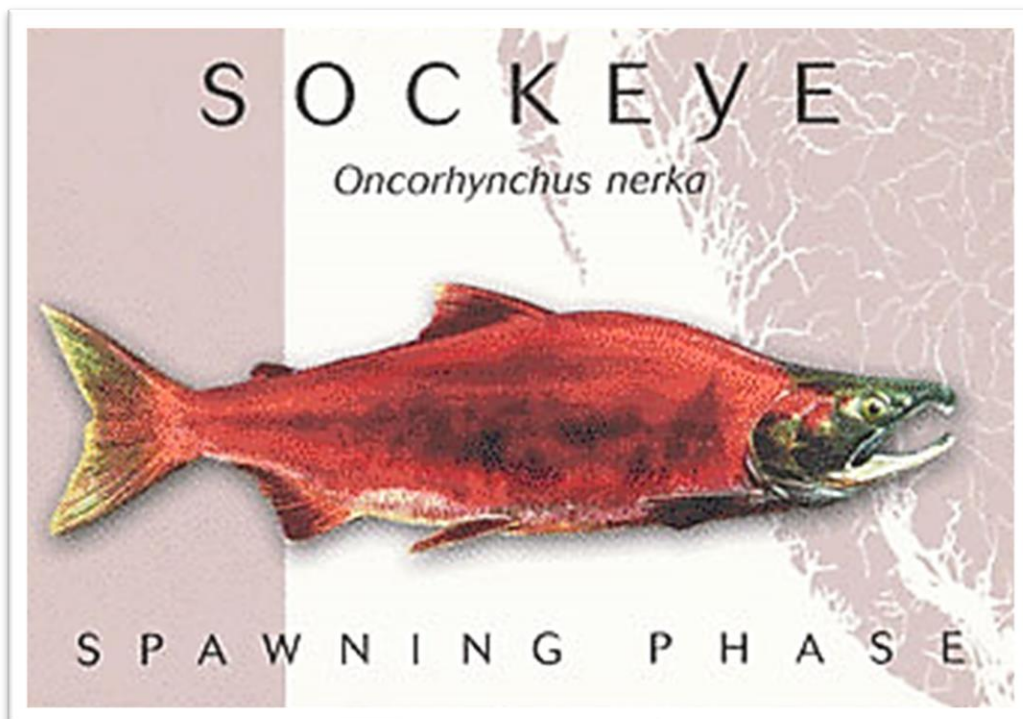
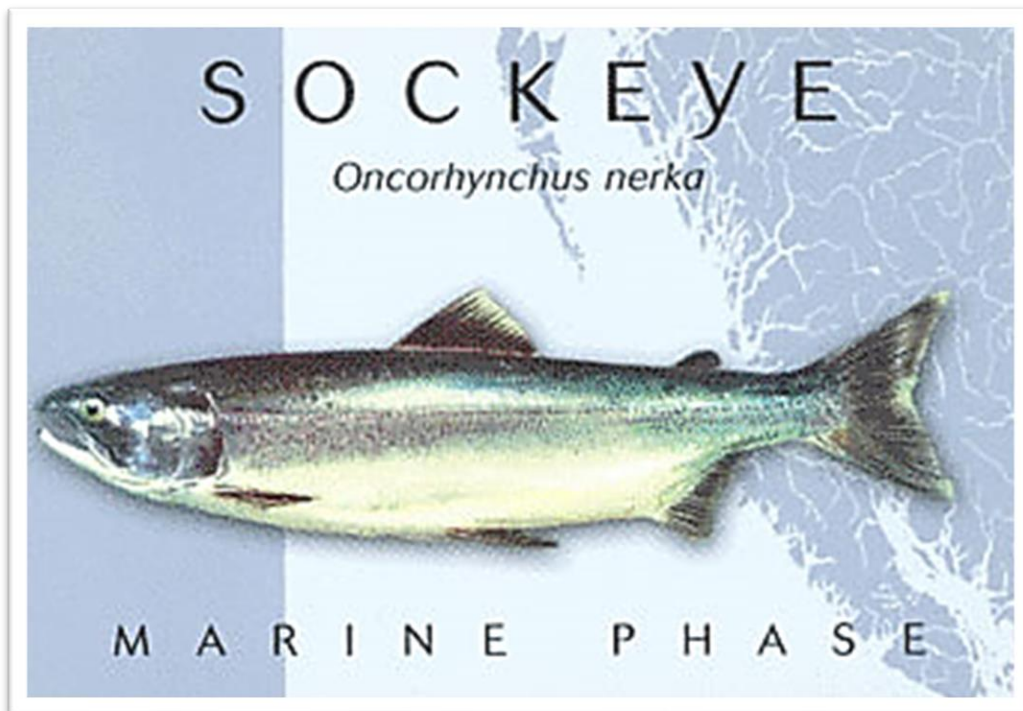


TABLE OF CONTENTS

- 13.5.1 Northern Sockeye Overview311
 - 13.5.1.1 Northern Sockeye Enhancement Information311
 - 13.5.1.2 Northern Sockeye – SEP Proposals or Updates for 2023312
- 13.5.2 Haida Gwaii Sockeye (Areas 1, 2W and 2E)313
 - 13.5.2.1 Snapshot Overview and Map of Management Unit313
 - 13.5.2.2 Stock Assessment Information314
 - 13.5.2.2.1 Pre-season314
 - 13.5.2.2.2 In-season314
 - 13.5.2.3 Decision Guidelines and Management Actions314
 - 13.5.2.4 Incidental Harvest, By-catch and Constraints to Haida Gwaii Sockeye Fisheries314
 - 13.5.2.5 Allocation and Fishing Plans315
 - 13.5.2.5.1 First Nations Fisheries315
 - 13.5.2.5.2 Recreational Fisheries316
 - 13.5.2.5.3 Commercial Fisheries316
 - 13.5.2.5.4 ESSR Fisheries317
- 13.5.3 Nass Sockeye318
 - 13.5.3.1 Snapshot Overview and Map of Management Unit318
 - 13.5.3.2 Stock Assessment Information319
 - 13.5.3.2.1 Pre-season319
 - 13.5.3.2.2 In-season320
 - 13.5.3.3 Decision Guidelines and Management Actions320
 - 13.5.3.4 Incidental Harvest, By-catch and Constraints to Nass River Fisheries320
 - 13.5.3.5 Allocation and Fishing Plans323
 - 13.5.3.5.1 First Nations Fisheries323
 - 13.5.3.5.2 Recreational Fisheries326
 - 13.5.3.5.3 Commercial Fisheries327
 - 13.5.3.5.4 ESSR Fisheries329
- 13.5.4 Skeena Sockeye331

- 13.5.4.1 *Snapshot Overview and Map of Management Unit*331
- 13.5.4.2 *Stock Assessment Information*332
 - 13.5.4.2.1 Pre-season.....332
 - 13.5.4.2.2 In-season Assessment333
- 13.5.4.3 *Decision Guidelines and Management Actions*333
- 13.5.4.4 *Incidental Harvest, By-catch and Constraints to Skeena Sockeye Fisheries*335
- 13.5.4.5 *Allocation and Fishing Plans*339
 - 13.5.4.5.1 First Nations Fisheries339
 - 13.5.4.5.2 Recreational Fisheries340
 - 13.5.4.5.3 Commercial Fisheries.....342
 - 13.5.4.5.4 ESSR Fisheries347
- 13.5.5 Central Coast Sockeye348
 - 13.5.5.1 *Snapshot Overview and Map of Management Unit*348
 - 13.5.5.2 *Stock Assessment Information*348
 - 13.5.5.2.1 Pre-season.....348
 - 13.5.5.2.2 In-season Assessment349
 - 13.5.5.3 *Decision Guidelines and Management Actions*349
 - 13.5.5.4 *Incidental Harvest, By-catch and Constraints to Central Coast Sockeye Fisheries*349
 - 13.5.5.5 *Allocation and Fishing Plans*351
 - 13.5.5.5.1 First Nations Fisheries351
 - 13.5.5.5.2 Recreational Fisheries352
 - 13.5.5.5.3 Commercial Fisheries.....353
 - 13.5.5.5.4 ESSR Fisheries354
- 13.5.6 Rivers & Smith Inlet Sockeye.....355
 - 13.5.6.1 *Snapshot Overview and Map of Management Unit*355
 - 13.5.6.2 *Stock Assessment Information*356
 - 13.5.6.2.1 Pre-season.....356
 - 13.5.6.2.2 In-season Assessment356
 - 13.5.6.3 *Decision Guidelines and Management Actions*357

13.5.6.4 *Incidental Harvest, By-catch and Constraints to Rivers and Smith Inlet Sockeye Fisheries* 358

13.5.6.5 *Allocation and Fishing Plans*360

 13.5.6.5.1 *First Nations Fisheries*360

 13.5.6.5.2 *Recreational Fisheries*361

 13.5.6.5.3 *Commercial Fisheries*.....361

13.5.1 NORTHERN SOCKEYE OVERVIEW

Major spawning runs of Sockeye salmon occur in the Skeena and Nass watersheds and historically in Rivers and Smith Inlets. Sockeye salmon are among the most economically and culturally important of Pacific salmon species.

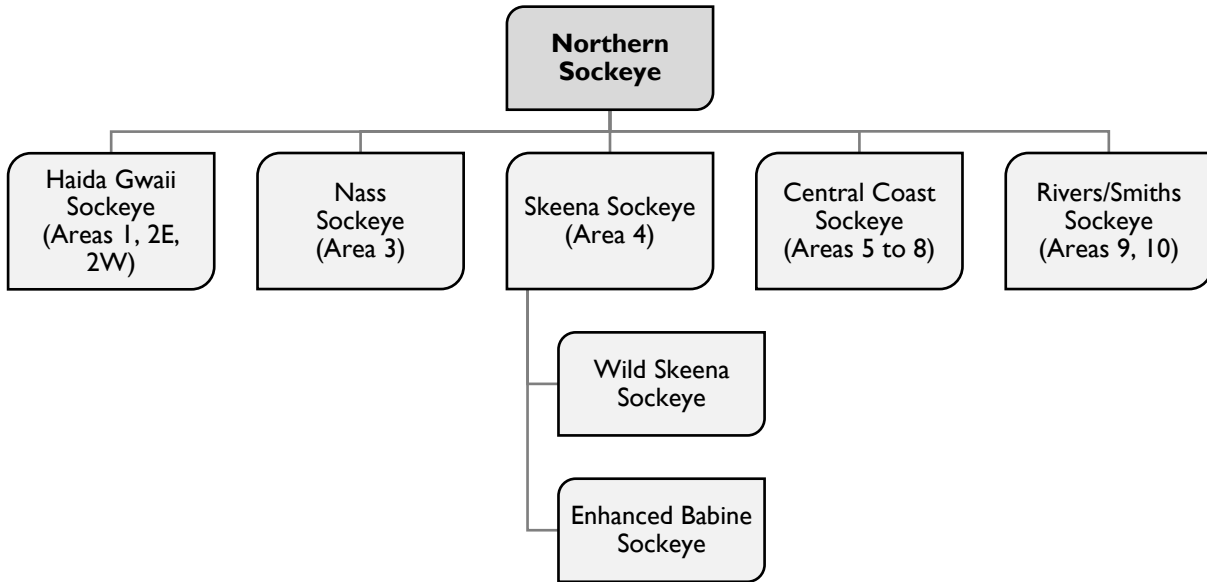


Figure 13-15: Overview of Northern Sockeye Salmon

13.5.1.1 NORTHERN SOCKEYE ENHANCEMENT INFORMATION

The major BC North Coast DFO Operation enhancement facilities that produce Sockeye are:

- Fulton River project
- Pinkut Creek project
- Snootli Creek hatchery

The information available at the link below addresses production from major DFO Operations (OPS) facilities, contracted Community Economic Development Program hatcheries (CEDP), Public Involvement Projects (PIP) operated by volunteers, and Aboriginal Fisheries Strategy (AFS).

SEP Production Plans

There are three datasets available: Post-Season Production from the 2020 brood year (i.e., 2021 and 2022 releases), Post-Season Production from the 2021 brood year (i.e., 2022 releases, and

numbers on hand for 2023 release), and the Production Plan, which includes proposed targets for the upcoming 2023 brood year. These are available at the following website:

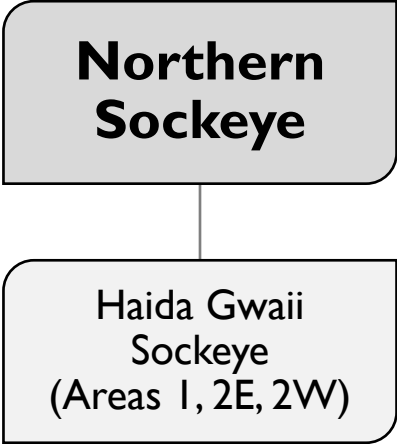
<https://www.pac.dfo-mpo.gc.ca/sep-pmvs/data-donnees/index-eng.html>

13.5.1.2 NORTHERN SOCKEYE – SEP PROPOSALS OR UPDATES FOR 2023

The Kitwanga Sockeye satellite enhancement pilot project, which started in 2022 with support from Snootli hatchery, will continue in 2023 (egg target 30K).

13.5.2 HAIDA GWAI SCKEYE (AREAS I, 2W AND 2E)

13.5.2.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT



Conservation Units

- Ain/Skundale*
- Awun*
- Fairfax*
- Jalun*
- Marian/Eden*
- Marie*
- Mathers*
- Mercer*
- Skidegate*
- Yakoun*

Figure 13-16: Overview of Haida Gwaii Sockeye

Sockeye returning to Haida Gwaii are relatively small stocks and are primarily harvested in targeted Haida food, social and ceremonial (FSC) fisheries.

13.5.2.2 STOCK ASSESSMENT INFORMATION

13.5.2.2.1 Pre-season

There are no formal quantitative pre-season forecasts for Haida Gwaii Sockeye. See Appendix 9 for more information.

13.5.2.2.2 In-season

The Haida Fisheries Program conducts the stock assessment of Haida Gwaii Sockeye to facilitate management of FSC fisheries. Sockeye returning to Skidegate Lake are visually enumerated at a floating fish fence at Copper Creek while the remainder of Sockeye stocks are typically enumerated using visual stream counts during spawning. The Haida Fisheries Program is also developing an ARIS sonar program on the lower Yakoun River, which has generated Sockeye escapement estimates since 2019.

13.5.2.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

There are no commercial fisheries and very little recreational effort directed on Haida Gwaii Sockeye. The Haida Fisheries Program facilitates the management of the FSC harvest by conducting stock assessment, monitoring, FSC harvesting and develops FSC fishery management guidelines based on consultation with the Haida community.

13.5.2.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO HAIDA GWAII SOCKEYE FISHERIES

Haida Gwaii Sockeye are generally very early-timed and return from mid-May to late June. Sockeye are very small in size and do not contribute to any commercial net harvest as a target species or as by-catch, and are not subject to any known recreational harvest. Haida Gwaii Sockeye are mainly harvested in First Nations FSC fisheries.

The main producers of Sockeye harvested in the Area F troll fishery are the Skeena and Nass Rivers, and trollers at times intercept a small amount of these fish in Dixon Entrance as by-catch in their directed Fisheries on Coho, Pink and Chinook. Fisheries are managed to avoid the interception of migrating Fraser River Sockeye by prohibiting Sockeye retention west of 133 degrees West Longitude. In years of low Skeena or Nass Sockeye returns, Sockeye retention may be prohibited throughout the North Coast area.

13.5.2.5 ALLOCATION AND FISHING PLANS

13.5.2.5.1 First Nations Fisheries

Food Social and Ceremonial

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe the details of the FSC fishery including the dates, times, methods, locations of harvest. Communal licences for Northern Coastal First Nations are typically multi-species and are issued on an annual basis. Shorter duration amendments to licences are also issued on occasion.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

First Nations Specific Conservation Measures

When a conservation concern has been identified for an individual stock that is harvested by First Nations, consultations will be undertaken to adapt the fishing plan to provide the necessary protection to the weak stock.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

There are currently no Treaty fisheries for Sockeye in Haida Gwaii.

13.5.2.5.2 Recreational Fisheries

Recreational salmon fishing occurs primarily in the tidal waters surrounding Haida Gwaii, with the majority of effort focused along the shoreline from Masset to Langara Island in Area 1 and between Englefield Bay and Port Louis in Area 2W. Recreational fishing occurs primarily between May and September with peak effort and catch occurring in July and August. Sockeye salmon are incidentally retained in the recreational fishery which primarily targets Chinook and Coho salmon. The daily aggregate limit of salmon is four (4) per day.

In-season updates and fishery regulation changes can be found on the recreational fisheries website:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

Fishery Monitoring and Catch Reporting

DFO has been collecting recreational catch data through the Lodge Log Book Program and the Haida Creel Program since 1995. Participation in monitoring and reporting of recreational catch in Areas 1 and 2 has been excellent over the past 28 years. Monitoring is continuing to improve with region wide initiatives.

13.5.2.5.3 Commercial Fisheries

Allocation

Description	Areas	Seine A	Gill Net C	Troll F
Skeena/Nass	1, 3 to 5, 101 to 105	25%	75%	*

Notes on Sockeye allocation (North):

* by-catch provisions

Haida Gwaii Local Sockeye Fisheries

There are no commercial fisheries targeting Haida Gwaii Sockeye stocks, and incidental harvest by the Area F troll fishery is thought to be negligible.

Area A&C

There are no commercial net fisheries that target Haida Gwaii Sockeye salmon.

Area F Troll

If forecasted returns to the Skeena River exceed the commercial trigger of 1.05 M TRTC retention of Sockeye salmon will be permitted as by-catch in 2023.

Troll fisheries will be managed to avoid migrating Fraser River Sockeye. This includes prohibitions of Sockeye salmon retention West of 133 degrees West longitude as well as in-season closures should Sockeye targeting be observed in the Area F Troll fishery.

Fishery Monitoring and Catch Reporting

Fishery Monitoring and Catch Reporting includes the following:

Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.

Mandatory catch reporting by phone-in with a paper harvest log and electronic transmission with an electronic harvest log (E-log) in all commercial fisheries. (*Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type*).

13.5.2.5.4 ESSR Fisheries

There are currently no ESSR fisheries taking place for Haida Gwaii Sockeye.

13.5.3 NASS SOCKEYE

13.5.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

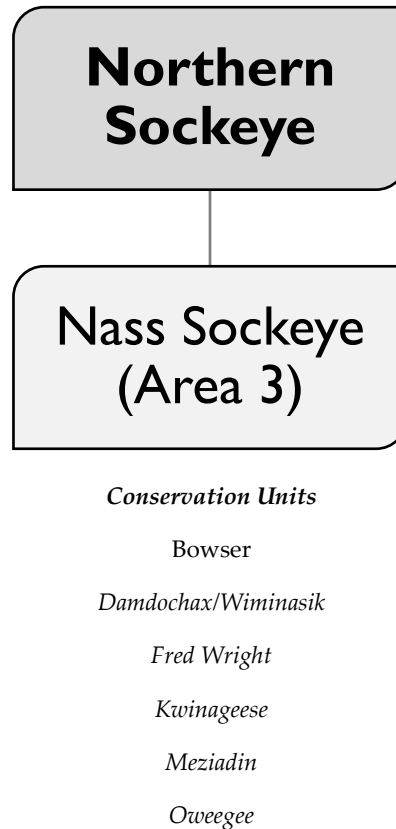


Figure 13-17: Overview of Nass Sockeye Salmon

There are 14 Sockeye streams in Area 3, of which all but two are tributaries to the Nass River. The major producers of lake-type Sockeye are Bowser, Damdochax, Kwinageese and Meziadin lakes, of which Meziadin Lake is the most significant and accounts for up to 75% of Sockeye salmon production in the Nass watershed. Escapements to Meziadin in the last two years have been above the target escapement. Kwinageese River Sockeye returns were severely affected by a rockslide in 2009 that blocked access to spawning grounds. Sockeye salmon escapements have improved since 2011, when fish passage improvement measures were implemented by Nisga’a Fisheries.

Fisheries targeting Nass Sockeye are managed to meet commitments in accordance with the Nisga’a Final Agreement (NFA), to meet First Nations FSC goals, Pacific Salmon Treaty (PST)

obligations, and to provide ocean commercial and inland commercial fisheries harvest opportunities.

The northern Chatham Sound portion of Area 3 is managed in conjunction with the Skeena River fishery after the beginning of July due to the large numbers of Skeena Sockeye and Pink salmon passing through the area at that time.

13.5.3.2 STOCK ASSESSMENT INFORMATION

13.5.3.2.1 Pre-season

Decisions are made about the spawning escapement plan, management priorities and identification of conservation constraints prior to each fishing season. These decisions are made based on pre-season forecasts of run size, timing, stock composition, other technical information and input from various consultative processes. Potential fishing opportunities are identified based on these pre-season guidelines and subsequently updated using in-season information.

Seasonal management, assessment of Nass Area salmon stocks and minimum and production-based salmon escapement goals are discussed in the Nass Fisheries Operational Guidelines (FOG) which were developed to aid in the implementation of the Nisga'a Final Agreement. Additional information regarding the Nisga'a Fisheries Program can be found at: <https://www.nisgaanation.ca/fisheries-management>

Nass Sockeye are managed to achieve an aggregate spawning escapement target of 200,000. Returns in excess of the escapement target are harvested in Nisga'a Treaty, First Nations, recreational, and commercial harvest opportunities. Management measures will be in place to reduce impacts to specific stocks of concern.

Opportunities for a gill net fishery are evaluated during the pre-season planning process and implemented based on in-season returns. The seine fishery is usually a targeted Pink fishery with restrictions such as time, area and gear restrictions in place to pass stocks of concern through to the spawning grounds.

See Appendix 9 for more information.

2023 Pre-season Nass River Sockeye Run Size Forecast:

Nass River Sockeye returns are forecasted to be below average with an expected total return to Canada from 323,000 (75% probability) to 655,000 (25% probability) and a point estimate of 459,000 (50% probability) based on a sibling-regression model. Nass Sockeye returns will be carefully monitored to take into account increasing uncertainty and recent trends towards lower survival.

13.5.3.2 In-season

In-season Decisions

Weekly decisions are made from run size predictions based on:

Catch and effort data from the Area 3 and Alaskan Tree Point commercial net fisheries;

Escapement information from the Nisga'a Fishwheel Program conducted at test fishing sites near Gitwinksihlkw on the Nass River, fish counts at the Meziadin fishway, fish counts at the Kwinageese weir, and later from individual stream inspections.

13.5.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Nass Sockeye are managed to achieve an aggregate spawning escapement target of 200,000. Returns in excess of the escapement target are harvested in Nisga'a Treaty, recreational and commercial harvest opportunities, both in marine and in-river fisheries. The escapement target for Meziadin Sockeye is 160,000. In years when Meziadin Sockeye escapement is expected to be below this target, management considerations to reduce impacts on this stock will influence decision-making for terminal commercial Sockeye harvests.

13.5.3.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO NASS RIVER FISHERIES

All Nass area net fisheries will normally be restricted to daylight hours.

The local manager may vary these net fishing times depending on circumstances such as by-catch concerns, strong returns of target species and abundance of prohibited species, weather or other factors. Fishing times will be specified in fishery notices released prior to the fishery.

Commercial marine constraints this year include:

Non-retention of Steelhead is mandatory in all fisheries.

Fisheries will continue to be managed to reduce impacts to Canadian Chum. The rebuilding plan for the immediate future is to keep the Canadian average ER to below 10%.

Brailing and sorting, with the mandatory release of all Chinook, Coho, and Steelhead will be in place for the seine fishery; gill net fisheries will be non-retention of Chinook, Coho, and Steelhead.

Gill nets have a 137 mm (5.39 in) maximum mesh restriction. This restriction is in place so that Sockeye is targeted and larger non-target species such as Chum and Chinook are impacted to a lesser degree.

Figure 13-18 KWINAGEESE SOCKEYE BROOD RETURN STATUS, 2015 TO 2025

Brood year	Escapement	Return Year										
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
2010	48	Age 5										
2011	10,273	Age 4	Age 5									
2012	3,688		Age 4	Age 5								
2013	398			Age 4	Age 5							
2014	438				Age 4	Age 5						
2015	6,888					Age 4	Age 5					
2016	19,797						Age 4	Age 5				
2017	7,240							Age 4	Age 5			
2018	290								Age 4	Age 5		
2019	6,007									Age 4	Age 5	
2020	3,256										Age 4	Age 5
2021	8,478											Age 4

Kwinageese sockeye returns for 2023 are expected to be poor following a very low brood year escapement in 2018. The majority of Kwinageese Sockeye pass through the Area 3 commercial fishery areas from July 8 to July 28, with the peak occurring between July 12 and July 24.

For 2023, the Department is proposing the following management actions to reduce harvest impacts on Kwinageese Sockeye for a one week period (July 17-23):

- 1-week closure for commercial gillnet fisheries in Area 3
- 1-week non-retention Sockeye period for commercial seine fisheries in Area 3.

Spatial restrictions to protect Chinook, and retention restrictions to protect Chum will also be implemented.

Revival Tanks

Tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

While gill net fishing, revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and

while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank. The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

Gill Net Construction

In Areas 1 to 10, gill nets of different constructions may be used. Net construction may be either multistrand (30 filaments), or four, five or six filaments (Alaska twist). Specific restrictions such as the specifications for net construction and revival boxes are found in the conditions of the individual licences, which are attached to the licence. Fishers are urged to read these conditions carefully to ensure that their vessel and fishing techniques are in accordance with their licence.

All gill nets will meet one of the following configurations:

Nets may be hung without a weed line (corkline to web distance 0 to 45 cm) to a maximum of 60 meshes deep.

In Management Areas 3 to 5, nets may be greater than 60 meshes deep, but must be hung with a weedline (corkline to web distance minimum 0.76 m, maximum 1.5 m) to a maximum of 90 meshes deep. As well, every fifth cork must be red or another distinctive colour (not white).

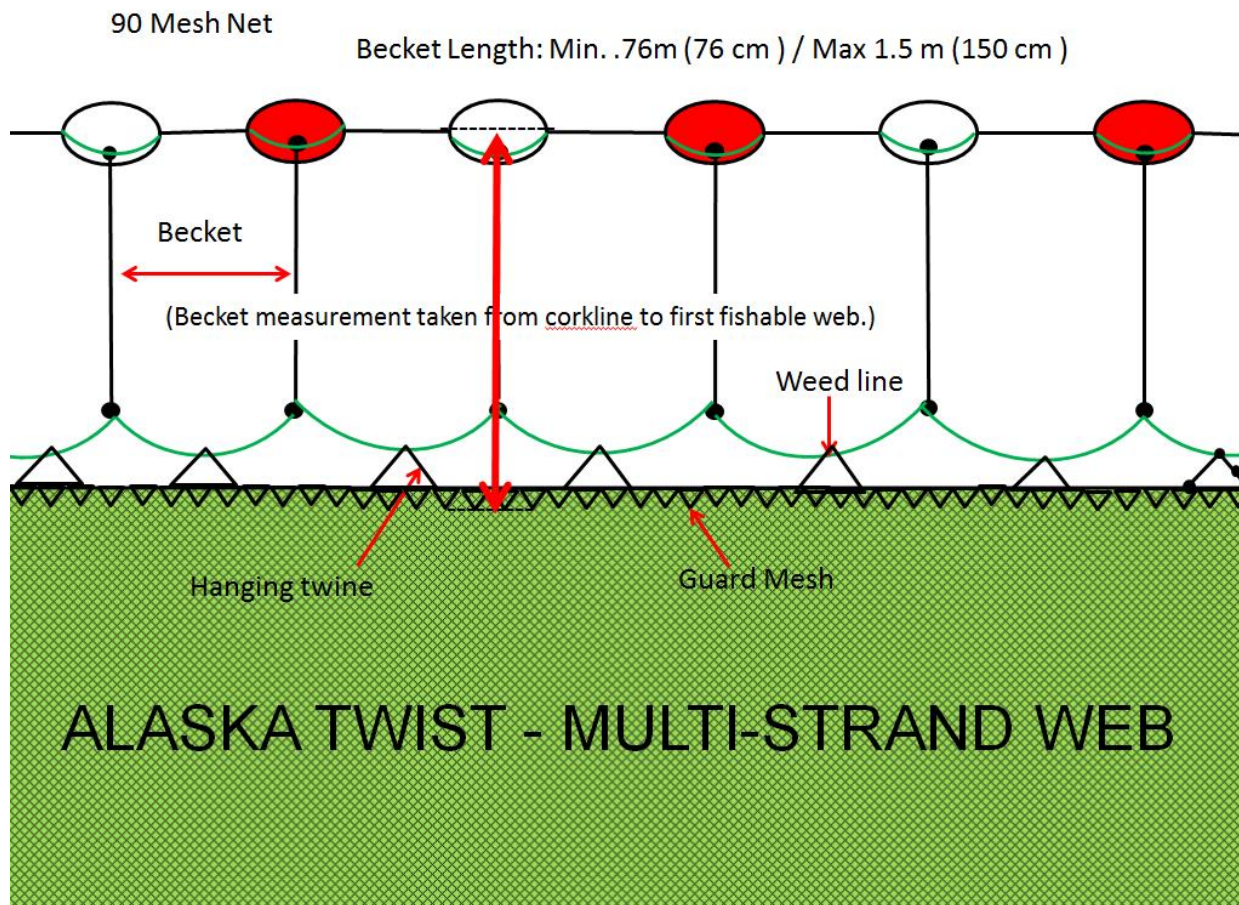


Figure 13-19: 90 Mesh Net Construction

Specific restrictions for net configuration are found in the Fishery Notice issued prior to every commercial fishery. Fishers must ensure that are urged to read these carefully to ensure that their fishing gear is in accordance with the regulations for each opening.

13.5.3.5 ALLOCATION AND FISHING PLANS

13.5.3.5.1 First Nations Fisheries

Food Social and Ceremonial

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe the details of the FSC fishery including the dates, times, methods, locations of harvest. Communal licences for Northern Coastal First

Nations are typically multi-species and are issued on an annual basis. Shorter duration amendments to licences are also issued on occasion.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

First Nations Specific Conservation Measures

When a conservation concern has been identified for an individual stock that is harvested by First Nations, consultations will be undertaken to adapt the fishing plan to provide the necessary protection to the weak stock.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

Nisga'a Fisheries

The Nisga'a Annual Fishing Plan (NAFP) is developed by the Nisga'a-Canada-BC Joint Fisheries Management Committee (JFMC) and governed by the terms of the Nisga'a Final Agreement and the Nisga'a Harvest Agreement of the Nisga'a Treaty. The Nisga'a Harvest Agreement includes Nisga'a fish allocations expressed as a percentage of the adjusted total allowable catch of Sockeye and Pink salmon. The NAFP is developed in accordance with Chapter 8 of the Nisga'a Final Agreement. Once approved by the Minister of Fisheries, the Nisga'a Annual Fishing Plan remains in effect until replaced the following year. The fishing plan applies to persons who harvest fish, other than steelhead, in Nisga'a fisheries.

Nisga'a salmon allocations, as defined in the Nisga'a Treaty, are set out as a percentage of the Total Return to Canada (TRTC) up to maximum catch thresholds (63,000 Sockeye [10.5%], 6,300 Pink [0.6%], 12,600 Chinook [21%], 19,200 Coho [8%], and 12,000 Chum [8%]) in large return years. These Nisga'a salmon allocations have the same priority in fisheries management decisions as domestic [food, social and ceremonial (FSC)] fisheries that target Nass salmon.

The NAFP defines the escapement goals required to guide management decisions for Nass salmon stocks, calculates Nisga'a allocations for each salmon species and provides the general regulatory requirements for catches of each salmon species. The NAFP is provided to other Nass watershed First Nations for their information and is reviewed by the JFMC prior to being submitted to the Minister for approval. Nisga'a Lisims Government is responsible for the internal allocation of catch opportunities between Nisga'a fishers and day to day operation of the Nisga'a fishery.

Pre-season estimates and ranges for the Nisga'a salmon allocations in 2023 are:

Nass Sockeye: The Total Run size probability point estimate for 2023 from a pre-season sibling-regression model is 459,000 (50%) with a range in point estimates between 323,000 (75%) and 655,000 (25%). Assuming a 20% Alaskan exploitation rate (based on the average of run reconstructed odd years from 1998 to 2021, approximately 93,000 Nass Sockeye), the 50% probability point estimate for the Total Return to Canada (TRTC) of Nass Sockeye is 366,000 with a range of estimates from 257,000 (75% probability) to 522,000 (25% probability) and is projected to return well below average (616,000) based on returns from 1994 to 2022. The forecast method's mean absolute accuracy for predicting TRTC returns is good; 79.7% (range: 52–99%) based on 2003 to 2022 returns. Based on the pre-season TRTC forecasts and the minimum escapement goal (200,000) for 2023, the Nisga'a allocation ranges between 27,000 and 90,000. The mean TRTC forecast (366,000) will be used for calculating the initial target for the in-season Nisga'a allocation (55,000) for Nass Sockeye in 2023. While returns of Sockeye to the Nass River are anticipated to be above the escapement goal (200,000) in 2023, harvests in all fisheries need to be carefully monitored during the season due to poor returns in 2018 to Kwinageese River (<300 spawners), Meziadin River (<100,000 spawners), and extreme low water conditions during migration and spawning throughout the Nass watershed. Genetic and radio telemetry results in 2018 estimated that approximately 45% of the migrating Meziadin Sockeye stock did not enter the Meziadin River to spawn⁸. Depending on in-season run strength

⁸ Alexander, R. F., D. Robichaud, I. A. Beveridge, C. A. J. Noble, C. T. McCulloch, S. C. Kingshott, K. K. English, N. Morven, N. Percival, B. Guno, T. Angus, and S. Haldane. 2022. Nass River Sockeye Salmon (*Oncorhynchus nerka*) Radio-tagging Project 2018 and Genetic Stock Composition Review, 2018–2021. Prepared for the Pacific Salmon Commission, Vancouver, BC, and the Nisga'a–Canada-BC Treaty's Joint Fisheries Management Committee,

and reaching the aggregate escapement goal for 2023, the actual Nisga’a allocation target for Nass Sockeye in 2023 may be higher to account for the current cumulative Nisga’a Treaty underage (approximately 3,000) accrued from 2000 to 2022.

13.5.3.5.2 Recreational Fisheries

Recreational salmon fishing occurs in the tidal waters adjacent to the Nass River, with the peak of the season being from June to August.

The Nass River and tributaries are in Region 6 freshwater fishing area and a Sockeye opening occurs in Meziadin Lake and the Nass mainstem from July to September. The minimum size limit is 30 cm, and daily and total possession limits are in effect.

Triggers for the recreational fishery in Meziadin Lake were implemented in 2020 in response to recent poor returns of Meziadin Sockeye. These triggers will continue in 2023.

Table 13-12 Recreational Sockeye Fishery Triggers for Meziadin Lake

Sockeye Past Meziadin Fishway	Daily Recreational Retention Limit – Meziadin Lake
Less than 120,000	0 per day
Between 120,000 and 160,000	1 per day
Greater than 160,000	2 per day

In-season updates and fishery regulation changes can be found on the recreational fisheries website:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

Fishery Monitoring and Catch Reporting

The Area 3 and 4 creel program operated by the North Coast Skeena First Nations Stewardship Society typically runs May through August, information collected by this program typically is shared through in-season and post season process. There is continued interest in implementing

Gitlaxt’aamiks and Prince Rupert, BC, by LGL Limited, Sidney, BC, and Nisga’a Fisheries and Wildlife Department, Gitlaxt’aamiks, BC. Nisga’a Fisheries Report #22-02: xvi + 155 p.

a creel survey of the freshwater recreational fisheries in the Nass watershed, however there is no program currently in place. The mean average in-river recreational catch of Nass Sockeye from 2000-2015 is 540 fish.

13.5.3.5.3 Commercial Fisheries

Allocation and Fishing Plans

Description	Areas	Seine A	Gill Net C	Troll F
Skeena/Nass	1, 3 to 5, 101 to 105	25%	75%	*

Notes on Sockeye allocation (North):

* by-catch provisions

Nass Fisheries

For 2023, the Department will be maintaining a precautionary approach. Any fishery openings will be informed by in-season assessment of run size from the Nass fish wheels and other available sources of information.

Fishing opportunities will also be subject to achieving fisheries management objectives for constraining stocks and species of concern (e.g. Kwinageese Sockeye, Nass Chinook, Nass Chum) in areas where they are present. Later-timed fisheries will not be permitted in order to minimize interactions with wild Nass Chum stocks of concern. Additional management considerations to address concerns for Nass Coho may be required.

Anticipated Net Opening Dates:

Area C Gill Net

Beginning in 2022, additional mitigation measures were implemented in this fishery to increase protection for stocks of conservation concern. These measures include: delayed fishing start to when in-season escapement estimates become more accurate and to avoid weak Meziadin Sockeye and Northern Chinook stocks, season end date late July to avoid wild Area 3 Chum stocks. See Appendix 10 for a complete list of fisheries where additional mitigations measures will be implemented.

Early July: First Sockeye-directed opening will occur only if supported by in-season run size information from sources such as the Nass fish wheels. This will be a one-day gill net Sockeye fishery to inform further commercial fishing opportunities. Maximum mesh size is 137 mm (5.39 in). This fishery will be operated with spatial closures in place to avoid Nass Chinook.

Area A Seine

July 10: First anticipated Pink targeted seine fishery opening will be determined in-season based on Pink abundance. Sockeye retention and other management actions in this fishery will be informed by in-season abundance and other considerations. Minimum bunt mesh size 70 mm (2.76 in).

Fishery Monitoring and Catch Reporting

For 2023, the Department is continuing to work with Area Harvest Committees on catch monitoring programs in the following areas:

Area A Seine (PFMA 3 to 6):

- Designated landing sites (list to be developed based on recommendations from the Area Harvest Committees)
- Catch estimates to be communicated prior to any shore-based offload.
- Independent verification of landed catch through a designated service provider
- Deployment of at-sea observers with priority placed on highest profile fisheries occurring concurrently.

Area C Gill net (PFMA 3 to 5): Designated landing sites (list to be developed based on recommendations from the Area Harvest Committees)

- Catch estimates to be communicated prior to any shore-based offload.
- Additional details on the catch monitoring programs will be communicated via Fisheries Notices.

Nass Sockeye Inland Demonstration Fisheries

The concept of the inland demonstration fishery is to transfer the catch of commercial gill net or seine licences to inland portions of the Nass system. These inland demonstration fisheries will only take place if the Nass Sockeye run returns in sufficient strength to implement commercial fisheries. These fisheries will be managed in accordance with the approved fishing plans.

Gill net or seine licence shares set aside for the inland demonstration fisheries will be based on each commercial licence having an equal share of the available commercial allocation, by gear type in the Management Area 3 commercial fishery, and the weekly in-season forecast for aggregate Sockeye returns to the Nass system. The total inland allocation will be equal to the gill net and seine shares multiplied by the number of licences set aside for the inland fishery. There are approximately 107 Area A seine licences and 626 Area C gill net licences in the

commercial fleets (these numbers could vary slightly prior to the fishery). The licence share will be further adjusted to reflect the stock proportion available in a specific fishing area

For the inland demonstration fisheries, the intent will be to continue the selective methods that have been developed during the 1990s pilot sales fisheries. These could include beach seine, dip net, fishwheels or other selective gear types. Sockeye (and possibly Pink and Coho when abundance permits) may be retained, based on the weekly allocation issued by Prince Rupert DFO, and all other species will be returned to the water with the least possible harm.

All inland commercial Sockeye salmon harvests shall be checked through a compulsory landing station. All appropriate records are to be kept for proper monitoring and enforcement. No FSC fishing or retention will be allowed while participating in the inland demonstration fishery.

Each First Nations engaging in an inland demonstration fishery must submit a demonstration fishery plan. This plan must be approved by the Department prior to harvesting.

The DFO contact for more information is Karlena Lord at (250) 922-4266.

Licence Set-aside rules:

DFO may contribute commercial licences that are currently held by the Department. In addition, commercial licences may also be solicited through private ventures, through an arrangement between Nass First Nations and individual licence holders.

All licences that will be used in the inland demonstration fisheries will have to be either Area C gill net or Area A seine, and annual renewal fees will be paid in full for the current season. These licences cannot have been fished in any Area C or A fisheries during the current year. Licence documents will be held in the DFO office. This process may be updated to be consistent with licence issuance through the National Online Licensing System. Catch share transfers will be calculated based on the number of licences as indicated above. Catch shares will not be provided for marine commercial fisheries that have been announced prior to the licence transfer. Licenses transferred inland may be used simultaneously in other inland watershed demonstration fisheries as approved by DFO.

It is anticipated that the Nisga'a Lisims Government and Gitanyow First Nations demonstration fishery proposals under the Commercial Salmon Allocation Framework process will be considered in 2023. See Appendix 6 for more details.

13.5.3.5.4 ESSR Fisheries

For 2023, Gitanyow First Nation has approached the Department with expressed interest to conduct an ESSR fishery for 2023 if abundance permits. Review, and discussion around this

proposal are have been informed by the ongoing Nass Sockeye Escapement Goal analysis work being completed through updates to Chapter 2 of the Pacific Salmon Treaty, through the Nass Watershed Technical Committee, the Nisga'a JFMC, the North Coast IHPC, and other processes. A decision will be communicated directly to proponents when this review is complete.

13.5.4 SKEENA SOCKEYE

13.5.4.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

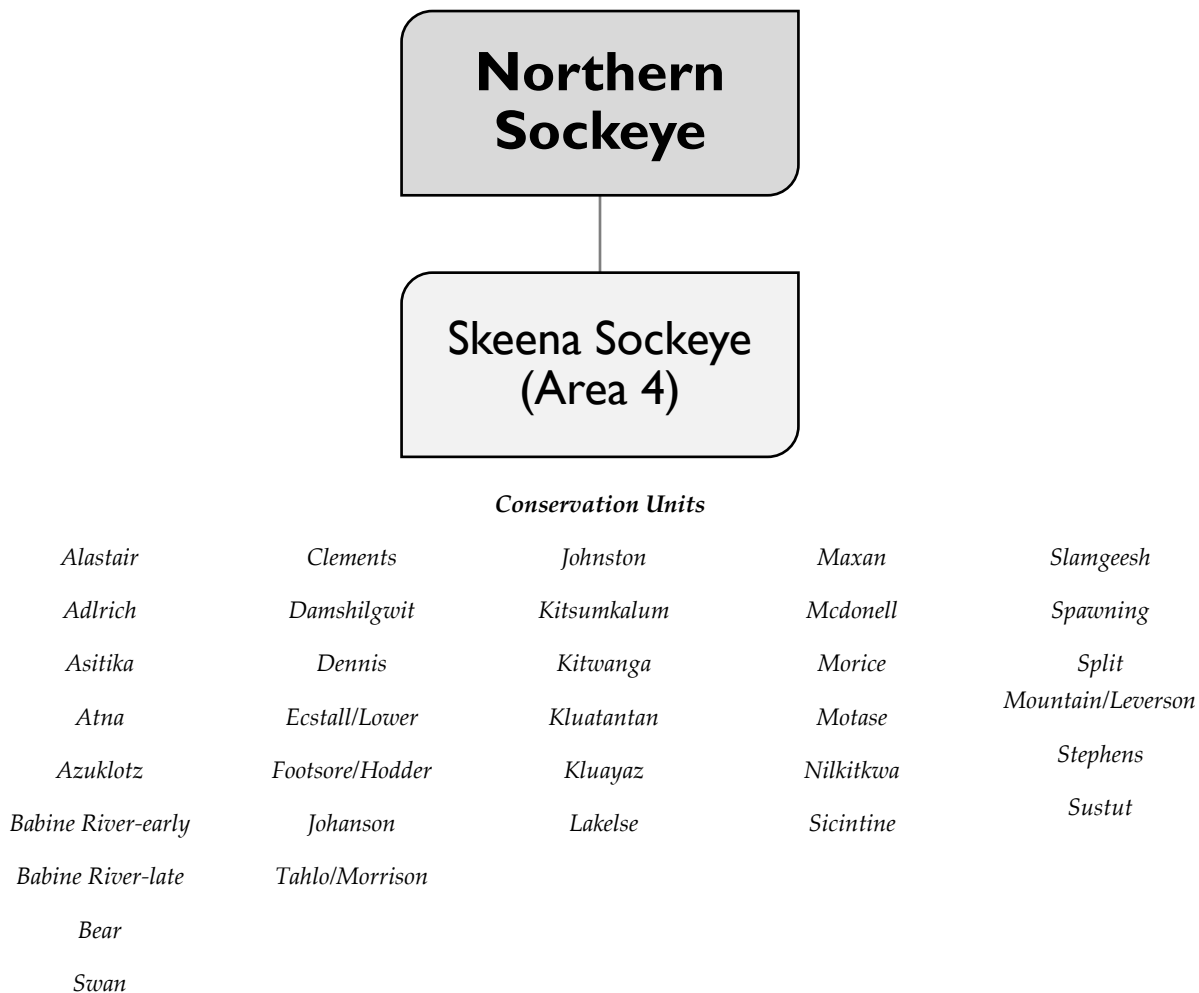


Figure 13-20: Overview of Skeena Sockeye Salmon

The Skeena River is the second largest producer of Sockeye in B.C. The largest producers of Sockeye salmon in the Skeena system are the enhanced runs to the Babine Lake tributary spawning channels at Fulton River and Pinkut Creek.

Sockeye from various streams and lake systems migrate up the Skeena from June through August. Wild stocks are generally less productive and therefore cannot withstand the same exploitation rate as the enhanced Babine stocks of Pinkut Creek and Fulton River. While there are a number of wild stocks of concern, current IFMP discussions have focused on three wild Sockeye stocks, the Nanika-Morice, Kitwanga and Babine River. The Nanika-Morice Sockeye

peak through the fishing area in early July (early timing), while the Kitwanga and Babine River Sockeye stocks peak through the fishing area in late July and early August.

Measures have been taken to reduce fishery impacts on Skeena River Chinook, Chum, Steelhead, and wild Sockeye stocks. These measures include non-retention in commercial fisheries, gear and fishing modifications, and specific timing closures or Sockeye harvest rate reductions when weak stocks are present.

Skeena River Sockeye returns are harvested in Areas 3, 4 and 5.

13.5.4.2 STOCK ASSESSMENT INFORMATION

13.5.4.2.1 Pre-season

The aggregate escapement target for Skeena Sockeye is currently under review. The current interim minimum escapement goal, of 400,000 is based on the lowest observed escapement from which Skeena Sockeye recovered after a landslide in 1950 that blocked fish passage into Babine River. This aggregate escapement goal does not account for the higher proportion of enhanced Babine Sockeye in the aggregate return since the inception of the Fulton and Pinkut spawning channels.

In 2017, the Skeena First Nations Technical Committee (SFNTC) provided advice to guide management of First Nations FSC fisheries in the Skeena and approach areas. At the time, the SFNTC recommended that the FSC management trigger be increased from the minimum escapement goal of 400,000 to 600,000. This recommendation was supported by the North Coast Stock Assessment Division as an interim measure to increase the likelihood of attaining a higher escapement goal for wild Skeena Sockeye populations. As a part of recent updates to Chapter 2 of the Pacific Salmon Treaty, a review of biological benchmarks for aggregate and component Skeena and Nass sockeye stocks, which may result in an updated aggregate escapement goal for Skeena River Sockeye. This updated information is scheduled to be completed by Fall 2023.

See Appendix 9 for more information.

Pre-season Skeena River Sockeye Run Size Forecast:

The total Skeena Sockeye return is expected to be low to average with a pre-season return forecast range from 1.50 million (90% probability) to 6.83 million (10% probability) and a point estimate of 3.21 million (50% probability) based on the sibling model. For more information, see Appendix 9.

13.5.4.2.2 In-season Assessment

The Tyee Test fishery is the main in-season stock assessment tool for estimating the relative abundance of Skeena River salmon and Steelhead through the use of a multi-panel gill net with varying mesh sizes. Daily in-season escapements and total run size are estimated for Sockeye only. These in-season estimates are made possible due to the Babine fence operations that allow for post-season calibration of the Tyee Test fishery for Sockeye. Salmon returns are variable and estimates are also subject to error as annual run timing and the annual catchability of salmon by the Tyee test fishery net varies.

13.5.4.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Historically, an in-season return to Canada forecasts of less than 550,000 Skeena Sockeye would trigger consultations with First Nations who harvest Skeena Sockeye, to limit food, social and ceremonial fisheries. If Skeena Sockeye return to Canada are forecasted to be less than 400,000 all fishing activity on Sockeye will cease.

For 2023, it is anticipated that there will be sufficient Skeena Sockeye to meet Skeena First Nations FSC needs. However, the Department will continue to support the management recommendations developed by the Skeena First Nations Technical Committee and supported by individual Skeena First Nations regarding Skeena Sockeye.

The Skeena First Nations Technical Committee has recommended that the FSC management trigger level for First Nations Section 35(1) Sockeye fisheries be maintained at 400,000. As proposed in previous SFNTC fishing plans, Skeena First Nations may choose to close or curtail First Nations section 35(1) FSC sockeye fisheries anytime if the in-season TRTC estimate is below 600,000. Individual Skeena First Nations FSC harvest plans will continue to be developed and refined based on in-season salmon return information including FSC opportunities in marine areas.

The current Skeena Sockeye aggregate escapement target is 900,000 and combined First Nations food, social and ceremonial fishery requirements are in the range of 150,000 annually.

Commercial fisheries will not take place until the in-season run size prediction is greater than 1.05 million.

The allowable Canadian commercial exploitation rate on the Skeena Sockeye aggregate increases as the return to Canada increases. The allowable commercial exploitation rate will be 0% for returns to Canada less than 1,050,000. The allowable exploitation rate will increase

linearly from 0% at 1,050,000 to 20% at a run size of 2.0 million, 30% at 3.0 million, and up to a maximum of 40% at a return of 4.0 million or greater. See Figure 13-21.

Early and late commercial gill net fisheries may require additional management measures to protect weak stocks. Any gill net fisheries occurring in Area 4 will have additional management measure to protect bycatch and weak and wild later timed Sockeye stocks. While the aggregate harvest rate schedule shown in [Figure 13-21](#) guides the overall commercial exploitation rate, other important considerations include protecting and rebuilding identified stocks and species of concern, incorporating concerns expressed by First Nations and stakeholders and impacts of other fisheries in setting weekly harvest rates. These additional considerations will guide weekly harvest rates in late July and early August.

DFO may reserve Sockeye allocation for seine vessels to account for Sockeye by-catch during a directed Pink fishery.

Excess to Salmon Spawning Requirement opportunities for Sockeye at the Babine Lake spawning channels may be considered should abundance permit, even in the absence of marine commercial fishing opportunities.

When FSC fisheries for Skeena Sockeye are closed for conservation purposes, the following will be implemented:

- Recreational fisheries for salmon in the Skeena River will be closed.
- Recreational marine fisheries for salmon in Area 3, 4, and 5 will have existing retention limits reduced by half.
- Area 4 commercial fishing opportunities would be suspended.

The management actions listed above may be modified should abundances of other salmon species be sufficient to allow harvest beyond Food, Social, and Ceremonial requirements, and will be determined in season.

Should in-season estimates indicate FSC closures are no longer warranted, these management measures would be reversed in when the FSC closures are lifted, and they do not preclude management measures already in place for each species.

SKEENA SOCKEYE Commercial Mixed-Stock Fishery Abundance-Based Management Plan

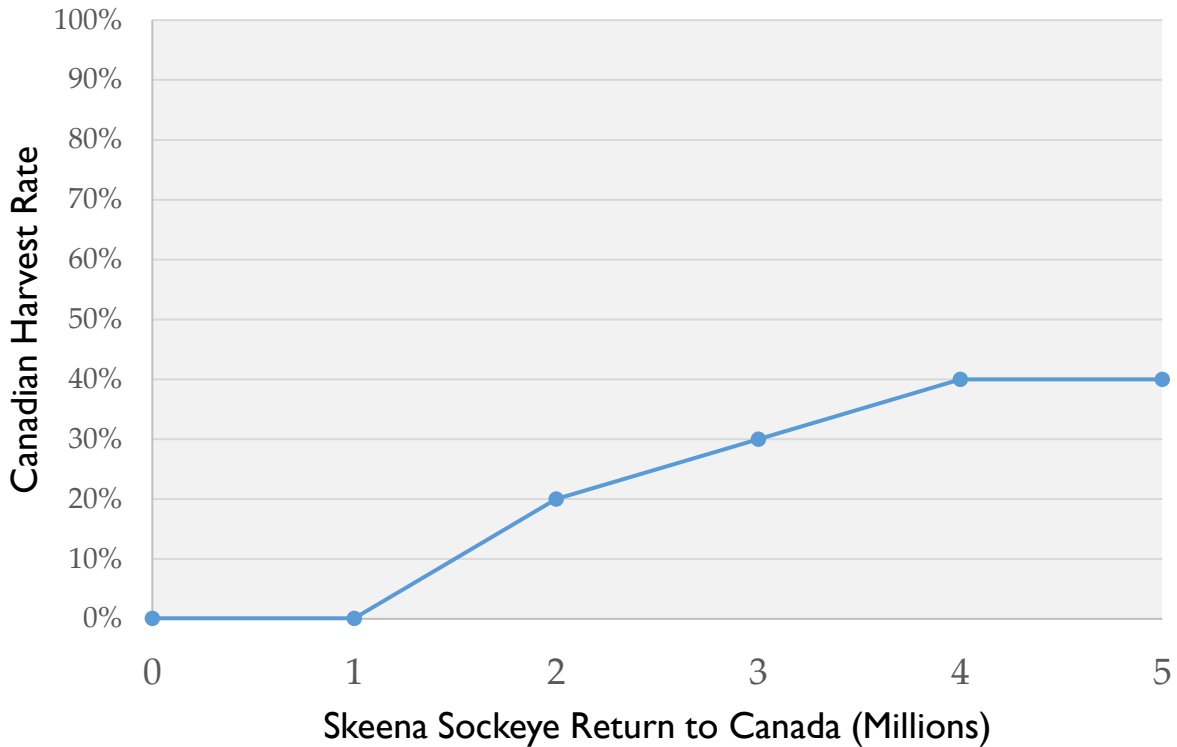


Figure 13-21: The allowable abundance based Canadian commercial harvest rate on Skeena Sockeye. This includes gillnet, seine and inland demonstration fisheries.

13.5.4.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO SKEENA SOCKEYE FISHERIES

Beginning in 2022, additional mitigation measures will be implemented in this fishery to increase protection for stocks of conservation concern. These measures include: implement season end date in early-August to avoid later timed wild stocks, implement late season gillnet selective fishing practices for entire season to reduce bycatch mortalities (Steelhead, Chum, Coho) and support fisheries monitoring with enhanced at-sea observer coverage. See Appendix 10 for a complete list of fisheries where additional mitigations measures will be implemented.

Weaker runs of wild Sockeye salmon co-migrate with strong Sockeye stocks are, as well as stocks of all Pacific salmon species.

Fishing is limited to daylight hours. There is a request for First Nations not to fish near the confluence of the Kitwanga River, to protect Kitwanga Sockeye that may be holding in that area.

The first Sockeye opening will be scheduled to reduce impacts on Nanika Sockeye, based on most up to date run timing information it is currently anticipated that no fisheries will occur before July 10. Retention of Coho, Chinook, Chum and Steelhead is prohibited in all net fisheries. Fishery openings will be informed by catch information from any earlier fisheries and the Tye Test fishery; however, the season will end in early August to avoid interceptions of Chum and Steelhead and to reduce impacts on late timed wild Babine Sockeye.

Of additional concern for the 2023 season, the largest portion of Kitwanga Sockeye escapement in escapement in 2023 will be coming off a record poor return in 2019 of only 125 adults. Kitwanga sockeye smolt outmigration in 2021 further confirmed the low abundance, the current forecast for adult returns in 2023 is approximately 172 fish. Measures to reduce exploitation on this stock are being investigated for 2023 and beyond, measures including additional fishery restrictions or closures may be considered.

Skeena Chum remain a stock of concern and Canadian harvest impacts will be limited to a maximum exploitation rate of 10% in Canadian fisheries. This is a ceiling, and harvest impacts would be expected to be well below this level in most years. It is anticipated that these management measures will be in place for an extended period.

Brailing and sorting with mandatory release of Chinook, Coho, Chum, and Steelhead will be in place for the seine fishery.

Gill net Sockeye fisheries will be mandatory non-retention for Chinook, Coho, Chum, and Steelhead. Additional restrictions to reduce impacts on these species may be necessary.

Gill nets have a 137 mm (5.39 in) maximum mesh restriction during the Sockeye fishery. This restriction is in place so that Sockeye is targeted selectively and larger non-target species such as Chum and Chinook are impacted to a lesser degree.

In-season assessments may change the management measures taken for various stocks. Measures taken could include non-retention of some species, gear and fishing modifications and specific timing closures or Sockeye harvest rate reductions when weak stocks are present.

Selective fishery constraints required to protect weak stocks will be maintained even if late season Sockeye run size upgrades indicate a remaining allowable harvest.

Any fisheries in 2023, will be short-net, short-set gill net fisheries to reduce impact on Steelhead and Chum. For the gill net fishery, the following rules will apply:

- Half-length nets: Maximum net length will be 100 fathoms, or 187.5 m. It will not be acceptable to have a regular length net on your drum and only set half. It will also not be acceptable to have both halves of the net on your drum. Only one (half-length) net will be allowed on your drum or in the water.
- 20 minute soak times: The maximum amount of time the net is allowed to be in the water from the time it is completely set to the time it begins to be retrieved is 20 minutes. Note that this “soak time” is designed to equal a 40 minute time from when the first portion of the net enters the water to the time when the last portion of the net leaves the water. Times will be monitored on the grounds.
- Fish handling: Gill net fishers are encouraged to handle prohibited species with the greatest of care. Operating revival boxes are mandatory as in all gill net fisheries. However, if the salmon is in a vigorous condition, it is best to release it directly to the water rather than put it in the revival box. Fishers are asked to use their judgment on which fish should go into the revival box before they are then released to the water.
- Reduced fishing area: In order to effectively monitor this selective fishery, the fishing area may be adjusted in-season.
- Enhanced at-sea monitoring of releases to improve information on bycatch of stocks of concern.

Revival Tanks

Revival tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

Gill net revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank. The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

Gill Net Construction

In Management Areas 1 to 10, gill nets of different constructions may be used. Net construction may be either multistrand (30 filaments), or four, five or six filaments (Alaska twist). Specific restrictions such as the specifications for net construction and revival boxes are found in the conditions of the individual licences, which are attached to the licence. Fishers are urged to read these conditions carefully to ensure that their vessel and fishing techniques are in accordance with their licence.

All gill nets will meet one of the following configurations:

Nets may be hung without a weed line (corkline to web distance 0 to 45 cm) to a maximum of 60 meshes deep.

In Management Areas 3 to 5, nets may be greater than 60 meshes deep, but must be hung with a weedline (corkline to web distance minimum 0.76 m, maximum 1.5 m) to a maximum of 90 meshes deep. As well, every fifth cork must be red or another distinctive colour (not white).

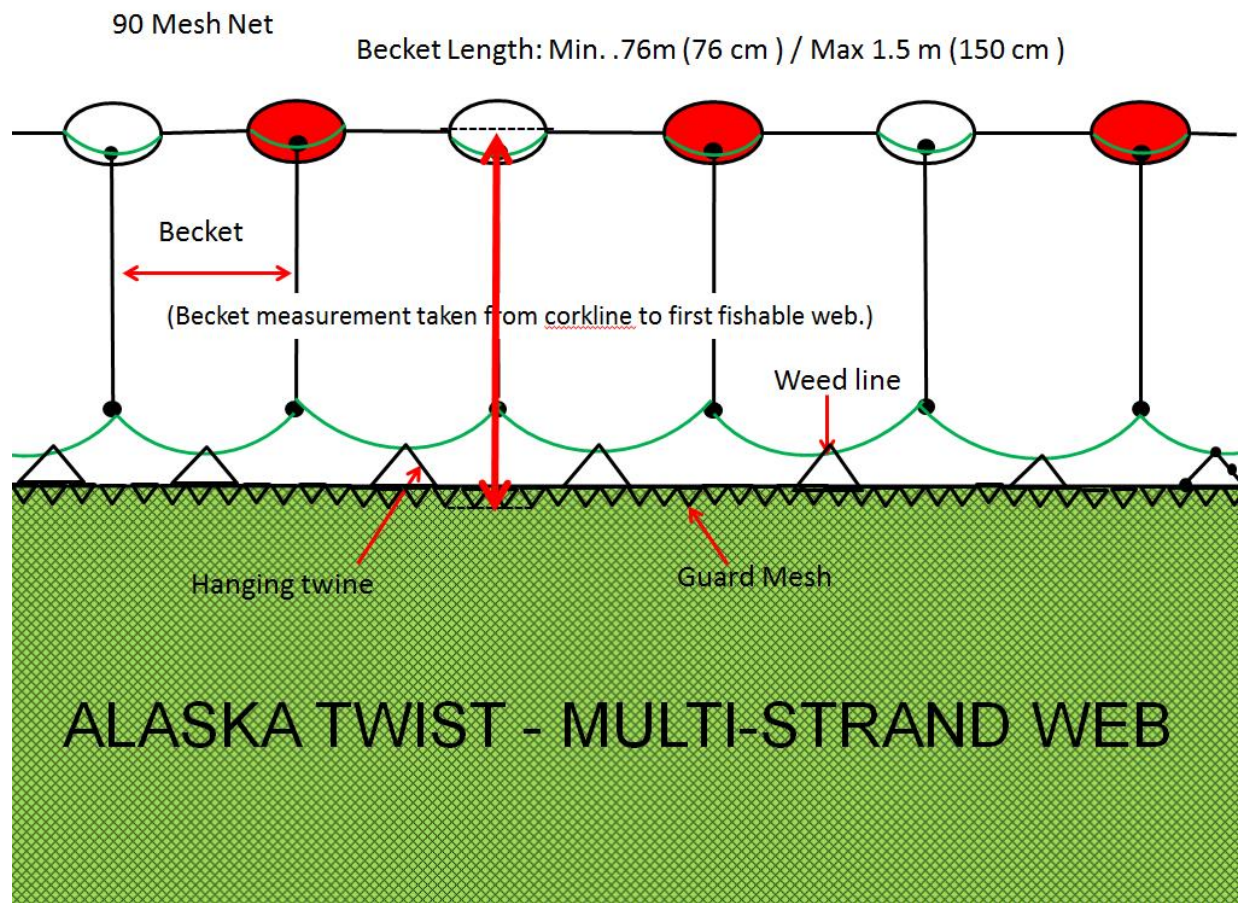


Figure 13-22: 90 Mesh Net Construction

Specific restrictions for net configuration are found in the Fishery Notice issued prior to every commercial fishery. Fishers are urged to read these carefully to ensure that their fishing gear is in accordance with the opening.

13.5.4.5 ALLOCATION AND FISHING PLANS

13.5.4.5.1 First Nations Fisheries

Food Social and Ceremonial

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe the details of the FSC fishery including the dates, times, methods, locations of harvest. Communal licences for Northern Coastal First

Nations are typically multi-species and are issued on an annual basis. Shorter duration amendments to licences are also issued on occasion.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

First Nations Specific Conservation Measures

When a conservation concern has been identified for an individual stock that is harvested by First Nations, consultations will be undertaken to adapt the fishing plan to provide the necessary protection to the weak stock.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

There are currently no Treaty fisheries for Skeena Sockeye.

13.5.4.5.2 Recreational Fisheries

Recreational salmon fishing occurs in the tidal waters adjacent to the Skeena River, with the peak of the season being from June to August. The daily limit for Sockeye in Areas 3 to 5 is four (4) per day, unless otherwise varied, and open based on in-season estimates of escapement at the Tyee Test Fishery.

The minimum size limit for Sockeye salmon is 30 cm, in tidal waters and freshwater. The possession limit for salmon is twice the daily limit.

The Skeena River and tributaries are in Region 6 freshwater fishing area, and there are openings for Skeena Sockeye in Babine River and Lake, Pinkut Creek, Fulton River, and the Skeena mainstem.

The daily limits for Skeena Sockeye in non-tidal waters, are set by the guidelines for management actions table below.

Table 13-13: Guidelines for Management Actions for Recreational Sockeye Fisheries in the Skeena Watershed

Estimated Abundance	Daily Limits		
	Skeena Mainstem	Babine River	Babine Lake
Fewer than 0.8 million past Tyee	0	0	0
Between 0.8 million and 1.0 million past Tyee	1	1	1
Greater than 1.0 million past Tyee	2	2	2
Greater than 2.0 million return to Canada forecasted as of July 25th.	4	2	n/a
ESSR fishery on Babine Lake	n/a	n/a	4

* Return to Canada includes Sockeye caught in Canadian marine waters

For the 2023 season, the daily limit for Sockeye will be 0 per day from the start of the season until the in-season trigger of 800 thousand estimated past Tyee is reached. In years of high abundance, the daily limit in Babine River will remain at 2 per day as per an agreement between DFO and BC Parks. Once DFO identifies a surplus to the spawning channels that would provide for an ESSR fishery on Babine Lake, the recreational Sockeye limits in Babine Lake will be increased to 4 per day.

In-season updates and fishery regulation changes can be found on the recreational fisheries website:

<https://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

When FSC fisheries for Skeena Sockeye are closed for conservation purposes, the following will be implemented:

- Recreational fisheries for salmon in the Skeena River will be closed.
- Recreational marine fisheries for salmon in Area 3, 4, and 5 will have existing retention limits reduced by half.
- Area 4 commercial fishing opportunities would be suspended.

The management actions listed above may be modified should abundances of other salmon species be sufficient to allow harvest beyond Food, Social, and Ceremonial requirements, and will be determined in season.

Should in-season estimates indicate FSC closures are no longer warranted, these management measures would be reversed in when the FSC closures are lifted, and they do not preclude management measures already in place for each species.

Fishery Monitoring and Catch Reporting

The Area 3 and 4 creel program operated by the North Coast Skeena First Nations Stewardship Society typically runs from May 1 to August 31. Information collected through this program is shared through in-season and post-season processes.

A creel survey of freshwater recreational fisheries on the lower Skeena River watershed is conducted by Kitsumkalum Fish and Wildlife program and LGL. Information collected through this program is shared through in-season and post-season processes.

13.5.4.5.3 Commercial Fisheries

Allocation

Description	Areas	Seine A	Gill Net C	Troll F
Skeena/Nass	1, 3 to 5, 101 to 105	25%	75%	*

* by-catch provisions

Skeena Fisheries

Commercial Sockeye fisheries will take place in Management Area 4 when the predicted return to Canada is greater than 1,050,000. Allowable exploitation rates for returns greater than 1,050,000, will be determined based on the abundance based exploitation rates showing in the Skeena Sockeye harvest rate table above.

For 2023 Skeena River Sockeye, returns are expected to be above average (range from approximately 01.51 million to 6.83 million). Fisheries will be informed by in-season assessments of actual Sockeye returns.

The commercial allocation of Skeena and Nass Sockeye (Areas 3 to 5) is 75% of the commercial TAC assigned to the gill net fleet, and 25% assigned to the seine fleet. The management strategy to achieve these allocations is to open the gill net fishery first, followed by the seine fishery, depending on estimated run size, current escapement information, and gill net catch to date. The Sockeye allocation for seines may be caught in Area 3 when Pink salmon are abundant in Area 3.

Area 4 Skeena River Sockeye Seine ITQ Fishery Management Plan

Any seine fishery for Sockeye salmon in Management Area 4 (Skeena) will be an Individual Transferable Quota (ITQ) demonstration fishery. The Sockeye fishery will be managed to an equal share of a weekly quota for Sockeye salmon for each of the registered seine licences (exact share of license to be determined once total licences in area is available). The opening times and quota will be posted weekly by fishery notice on the Department's website. ITQ management for the Sockeye fishery may not apply to Pink-directed seine fisheries that may occur in August. Any Sockeye harvested in a Pink-directed commercial fishery will still be subject to the Sockeye abundance-based management rules.

The Sockeye ITQ seine fishery will usually open for 5 days per week. Areas 4-12 and 4-15 will be among the Subareas open, but all vessels will be requested to exit this area if a concurrent gill net opening occurs. These areas will close on short notice if a gear conflict cannot be resolved.

Valid licence eligibilities will be permitted to reallocate (transfer) their quota to another valid licence eligibility each week or for the whole season. Both weekly and whole-season "Request for Temporary Reallocation of Quota" forms are available by email, fax or pick up at the Prince Rupert office. Verbal reallocation transfers will not be accepted. For an email or fax copy, please contact Corey Martens (Corey.Martens@dfo-mpo.gc.ca).

Vessels receiving a reallocation for the season will receive one licence amendment with a new quota amount expressed as a percentage. Vessels requesting a short-term reallocation (less than the whole season) will receive an amendment after the TAC has been set for the given management week and vessels will receive an amendment that includes the number of Sockeye reallocated.

Weekly TACs will expire, not be cumulative, and not carry over past the end of fishing on any given management week. Vessel masters must cease fishing when their quota has been achieved. All amendments to quota must be aboard the fishing vessel or the fishing vessel must

have the DFO issued confirmation number of the quota transaction prior to fishing. As per the conditions of licence, quota reallocations will be permitted up to 48 hours after the fishery closes. Failure to reconcile quota within 48 hours of the fishery closure is a violation of the conditions of licence and will be forwarded on to DFO C&P for investigation.

Vessels must have a valid ASA licence (seine) with current Conditions prior to receiving or reallocating quota.

Start, end, pause and daily catch reports (per conditions of licence) must be made by Area A vessel masters to the salmon catch monitoring service provider or by E-log (refer to the conditions of licence).

Catch validation is mandatory for all ITQ fishery participants. This catch validation must be performed by an approved service provider, be done at dockside (no packers), and be done in Prince Rupert, Port Edward or Lax Kw'alaams. The contact number to arrange registration and validation will be published in a Fishery Notice immediately prior to any fishery.

Observers will be an integral part of this fishery and vessels may be requested to take an observer as per their licence conditions. Seines participating in the ITQ fishery will be required to participate in the at-sea observer program.

All vessels must enter Management Area 4 with clean holds, proper hail procedures and no overages from the previous week. If a vessel leaves the fishery to fish in another fishery, the catch shall be offloaded and verified by a validator prior to entering another fishery.

ITQ reallocations to the inland demonstration fishery will be allowed as long as there is at least one seine licence assigned to the inland demonstration fishery. The weekly inland transfer deadline will be announced in-season.

Anticipated Net Opening Dates

Openings will be based on Skeena salmon returns, PSSSI considerations, and the target annual exploitation rate and will be similar to previous years subject to ongoing discussions with First Nations and commercial fishing interests.

Fishery Monitoring and Catch Reporting

For 2023, the Department is continuing to work with Area Harvest Committees on catch monitoring programs in the following areas:

Area A Seine (PFMA 3 to 6):

Designated landing sites (list to be developed based on recommendations from the Area Harvest Committees)

Catch estimates to be communicated prior to any shore-based offload

Independent verification of landed catch through a designated service provider

Deployment of at-sea observers with priority placed on highest profile fisheries occurring concurrently

Area C Gill net (PFMA 3 to 5):

Designated landing sites (list to be developed based on recommendations from the Area Harvest Committees)

Catch estimates to be communicated prior to any shore-based offload

Additional details on the catch monitoring programs will be communicated via Fisheries Notices.

Skeena Sockeye Inland Demonstration Fisheries

Opportunities for inland demonstration fisheries on Skeena River in 2023 are currently dependent on implementation of marine commercial fisheries in Area 4, although the Department has received recommendations from inland demonstration proponents to reconsider this approach in light of PSSI considerations. This fishery is managed as a part of the aggregate Skeena Sockeye Canadian commercial harvest decision rule ceiling.

The concept of the inland demonstration fishery is to transfer the catch of a number of commercial gill net or seine licences to the inland portion of the Skeena River. DFO may contribute licences that have been relinquished from the commercial fleet and remain in the Department's inventory. In addition, commercial licences may also be solicited through private ventures, through an arrangement between Skeena First Nations and individual licence holders.

The inland demonstration fisheries will only take place if the Skeena Sockeye run returns in sufficient strength to trigger commercial fisheries and the respective fishing plans are approved through the area office.

The Sockeye migration time from the marine commercial fishing area to the Terrace area is approximately 1 week; to the mid-river area around Hazelton is 2 weeks; and to the Babine River weir is 3 weeks. This timing is used to develop fishing plans with First Nation proponents on the Skeena, and any flexibilities will be reflected in the fishing plans.

Gill net licence shares set aside for the inland demonstration fishery, will be based on each commercial licence having an equal share of the available commercial allocation (currently based on actual weekly catches) by that gear type in the Management Area 4 commercial fishery. The total inland gill net allocation will be equal to the share multiplied by the number

of licences set aside for the inland fishery. There are approximately 626 Area C gill net licences in the commercial fleet (these numbers could vary slightly prior to the fishery). The licence share will be further adjusted to reflect the stock proportion available in a specific inland fishing area (Marine – 100%; Mid-river – 95%; Upper-river – 93%).

Seine licence shares set aside for the inland demonstration fishery will be based on each commercial licence having an equal share of the available commercial allocation by that gear type in the Management Area 4 commercial fishery. The individual vessel quota is set each week by the DFO Prince Rupert office. The total inland seine allocation will be equal to the share multiplied by the number of licences set aside for the inland fishery. There are approximately 107 Area A seine licences in the commercial fleet (these numbers could vary slightly prior to the fishery). The licence share will be further adjusted to reflect the stock proportion available in a specific inland fishing area (Marine – 100%; Mid-river – 95%; Upper-river – 93%).

For the inland demonstration fishery, the intent will be to continue the selective methods that were developed during the 1990s pilot sales fisheries. These could include beach seine, fishwheel, dip net, and weirs. Gill nets will not be permitted. Sockeye (and possibly Pink) may be retained, based on the weekly allocation issued by Prince Rupert DFO, and all other species will be returned to the water with the least possible harm.

All inland demonstration salmon harvest shall be checked through a compulsory landing station. All appropriate records are to be kept for proper monitoring and enforcement. No FSC fishing or retention will be allowed while participating in the inland demonstration fishery.

More information on approved or proposed demonstration fisheries can be found in Appendix 6.

The DFO contact for more information is Karlena Lord (Karlena.Lord@dfo-mpo.gc.ca).

Licence Set-aside rules:

DFO may contribute commercial licences that are currently held by the Department. In addition, commercial licences may also be solicited through private ventures, through an arrangement between Skeena First Nations and individual licence holders.

All licences that will be used in the inland demonstration fisheries will have to be either Area C gill net or Area A seine, and annual renewal fees will be paid in full for the current season. These licences cannot have been fished in any Area C or A fisheries during the current year. Licence documents will be held in the DFO office. This process may be updated to be consistent with licence issuance through the National Online Licensing System. Catch share transfers will be calculated based on the number of licences as indicated above. Catch shares will not be

provided for marine commercial fisheries that have been announced prior to the licence transfer.

Licenses may be used simultaneously in other inland watershed demonstration fisheries (e.g. Nass) as approved by DFO.

13.5.4.5.4 ESSR Fisheries

All ESSR fisheries are opportunistic and are not guaranteed from year to year. Harvests will be terminal in location and conducted by selective means, with live release of all non-target species. ESSR opportunities for Sockeye at the Babine Lake spawning channels may be considered should abundance permit, even in the absence of marine commercial fishing opportunities.

The Lake Babine Nation has conducted ESSR fisheries in recent years in Babine Lake, targeting excess returns of enhanced Sockeye to the Pinkut and/or Fulton spawning channels. A fishing plan for this fishery has been developed and is reviewed on an annual basis; details are available upon request.

Harvest amounts are calculated in-season and along with harvest timing will be determined in close liaison with Pinkut Creek and Fulton River Spawning Channel managers and Lake Babine Nation Fisheries to ensure enough Sockeye are available to meet the annual loading requirements for the Pinkut and Fulton systems.

Lake Babine Nation may implement a fishery on Jack Sockeye at the Babine Fence. A precautionary plan has been developed for this fishery and details are available upon request.

For more information on ESSR Fisheries, please contact Karlana Lord (Karlana.Lord@dfo-mpo.gc.ca).

13.5.5 CENTRAL COAST SOCKEYE

13.5.5.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

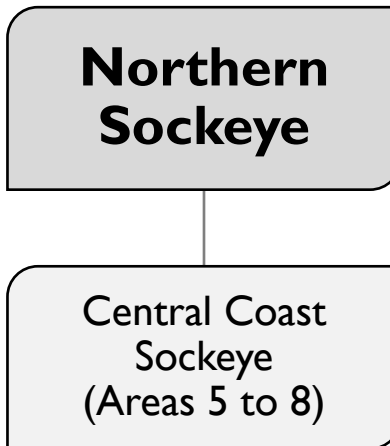


Figure 13-23: Overview of Central Coast Sockeye

The Central Coast MU is comprised of a number of small Sockeye stocks from Areas 5 through 8. Portions of Area 5 are traditionally managed in conjunction with Area 4 to target Skeena Sockeye and harvest opportunities may occur until mid- August when local Pink stocks become abundant. There are a number of Sockeye streams in Area 5 that may have small surpluses that have provided for some FSC harvest by local First Nations. Sockeye stocks in Areas 6, 7 and 8 have been weak in recent years and measures are in place to avoid interception of these stocks during commercial fisheries.

13.5.5.2 STOCK ASSESSMENT INFORMATION

13.5.5.2.1 Pre-season

There is no formal pre-season forecast done for Central Coast Sockeye.

Sockeye stocks in Areas 6 through 8 continue to be uncertain and measures will be implemented to avoid interception of these fish.

As noted above, commercial Sockeye opportunities in portions of Area 5 will be managed in conjunction with Area 4. These portions include sub-areas 5-1, 5-2, 5-3, 5-10, and a portion of 5-13.

See Appendix 9 for more information.

13.5.5.2 In-season Assessment

There is currently no in-season assessment tool for Sockeye in Areas 7 and 8. In-stream enumerations are performed on some systems as well as overflights to estimate total escapement.

13.5.5.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

In Area 5, local streams could develop small surpluses, and these will be monitored in-season. Portions of Area 5 may open in conjunction with Area 4 Sockeye-directed openings until early August.

For Area 6, there will be no targeted Sockeye openings and Sockeye will not be permitted as by-catch in the seine fishery.

For Area 7 and 8, there will be no targeted Sockeye openings and Sockeye will not be permitted as by-catch in gillnet or seine fisheries.

13.5.5.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO CENTRAL COAST SOCKEYE FISHERIES

Commercial gillnet fisheries targeting local stocks in Area 5 may be considered after discussion with the Gitxaala Nation on FSC harvest opportunities. For commercial gillnet fisheries to take place on local stocks, a stock assessment, catch monitoring and enforcement plan will be required.

Revival Tanks

Revival tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

While gill net fishing, revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank.

The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

Gill Net Construction

In Management Areas 1 to 10, gill nets of different constructions may be used. Net construction may be either multistrand (30 filaments), or four, five or six filaments (Alaska twist). Specific restrictions such as the specifications for net construction and revival boxes are found in the conditions of the individual licences, which are attached to the licence. Fishers are urged to read these conditions carefully to ensure that their vessel and fishing techniques are in accordance with their licence.

All gill nets will meet one of the following configurations:

Nets may be hung without a weed line (corkline to web distance 0 to 45 cm) to a maximum of 60 meshes deep.

In Management Areas 3 to 5, nets may be greater than 60 meshes deep, but must be hung with a weedline (corkline to web distance minimum 0.76 m, maximum 1.5 m) to a maximum of 90 meshes deep. As well, every fifth cork must be red or another distinctive colour (not white).

Between July 10 and August 13 weed lines are required for gill nets in Subareas north of Bold Point and 8-8. Maximum depth is 60 Meshes. Corkline to Web Distance a minimum of 100 cm and a maximum of 154 cm.

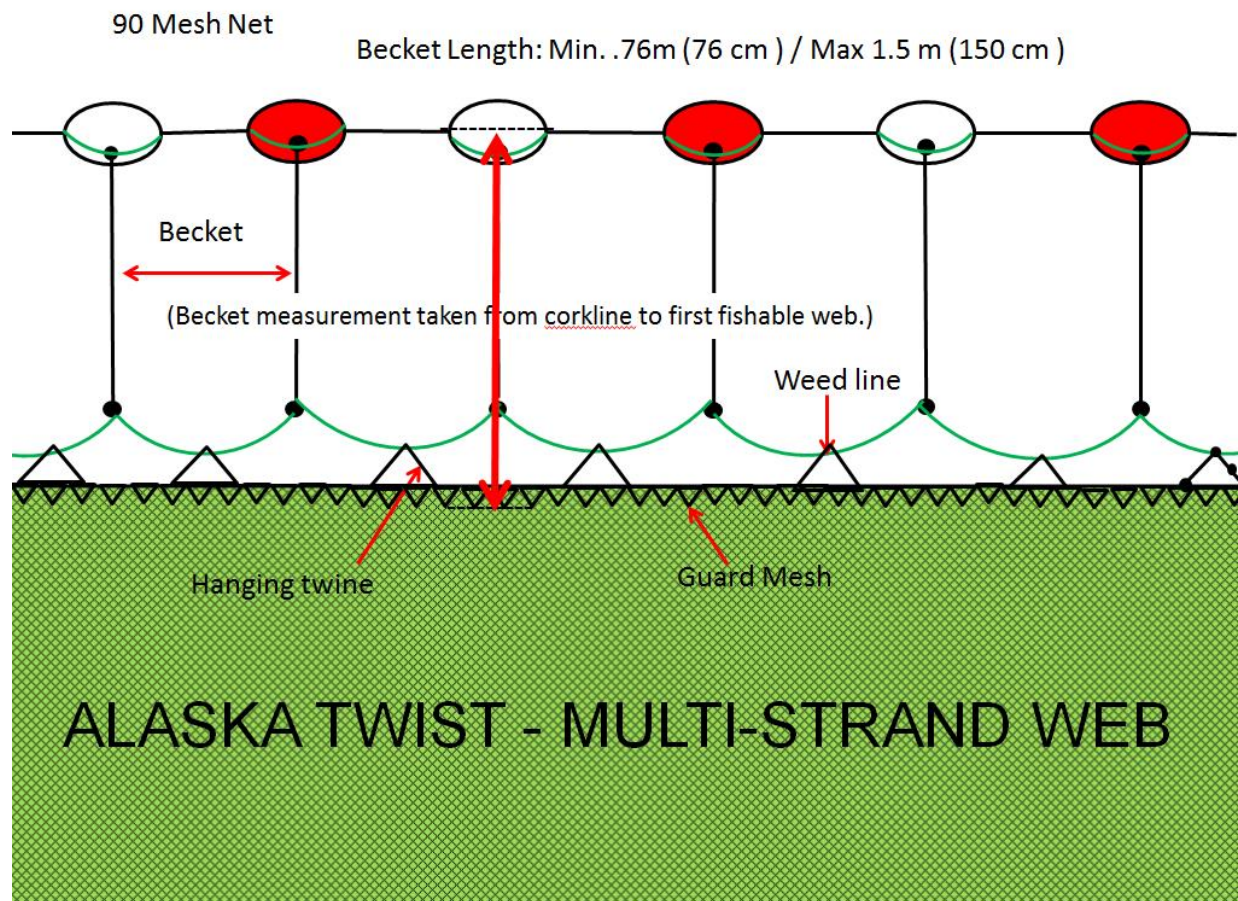


Figure 13-24: 90 Mesh Net Construction

Specific restrictions for net configuration are found in the Fishery Notice issued prior to every commercial fishery. Fishers are urged to read these carefully to ensure that their fishing gear is in accordance with the opening.

13.5.5.5 ALLOCATION AND FISHING PLANS

13.5.5.5.1 First Nations Fisheries

Food Social and Ceremonial

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe the details of the FSC fishery including the dates, times, methods, locations of harvest. Communal licences for Northern Coastal First

Nations are typically multi-species and are issued on an annual basis. Shorter duration amendments to licences are also issued on occasion.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

First Nations Specific Conservation Measures

When a conservation concern has been identified for an individual stock that is harvested by First Nations, consultations will be undertaken to adapt the fishing plan to provide the necessary protection to the weak stock.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

There are currently no Treaty fisheries for Central Coast Sockeye.

13.5.5.5.2 Recreational Fisheries

Recreational salmon fishing occurs in the tidal waters of the Central Coast (Areas 5 to 8) with interception fisheries beginning in late April and the peak of the season being from June to August.

In Area 5 the early season effort is mostly by local independent anglers out of Prince Rupert and Port Edward; however, the most significant portion of the recreational fishing season develops late May and continues to mid-September. The fleet operating in Area 5 is made up mainly of independent anglers and charter operators.

In Area 6, tidal water recreational salmon fisheries begin in late April. Initial effort is mostly by local independent anglers out of Kitimat. One recreational fishing lodge and a number of charter operators also fish in Area 6 with the most significant portion of the recreational fishing season taking place between late May and mid-September.

The daily limit for Sockeye in Areas 5 and 6 is four (4) per day, unless otherwise varied, and the open time is April 1 to March 31. The catch of Sockeye is most likely very small.

There is no retention of recreationally caught Sockeye salmon in Areas 7 and 8 at any time of year. There are several recreational lodges and charter operators in these areas.

The Central Coast non-tidal waters are in Regions 5B and 6 freshwater fishing areas, and there are no openings for Sockeye.

Detailed information on salmon closures, daily limits, size limits, gear restrictions, and other management measures are found online at BC Sport Fishing Guide. This webpage contains a link to subscribe to recreational Fishery Notices, which can be sent to your email address.

BC Sport Fishing Guide link:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

Fishery Monitoring and Catch Reporting

In Areas 6 to 8, DFO has been collecting recreational catch data through the Lodge Log Book Program.

13.5.5.5.3 Commercial Fisheries

Allocation

Description	Areas	Seine A	Gill Net C	Troll F
Skeena/Nass	1, 3 to 5, 101 to 105	25%	75%	*
Central Coast	6 to 8	80% ^a	20% ^b	*

Notes on Sockeye allocation (North):

* by-catch provisions

^a share reflects current Sockeye by-catch during Pink directed fisheries

^b potential for re-negotiation of sharing arrangements in event of a future directed Sockeye fishery

Central Coast Fisheries

No commercial opportunities are expected for Sockeye stocks in Areas 6, 7 and 8. Area 5 fisheries may open in conjunction with Sockeye-directed openings in Area 4, should they occur.

13.5.5.4 ESSR Fisheries

There are currently no ESSR fisheries for Central Coast Sockeye.

13.5.6 RIVERS & SMITH INLET SOCKEYE

13.5.6.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

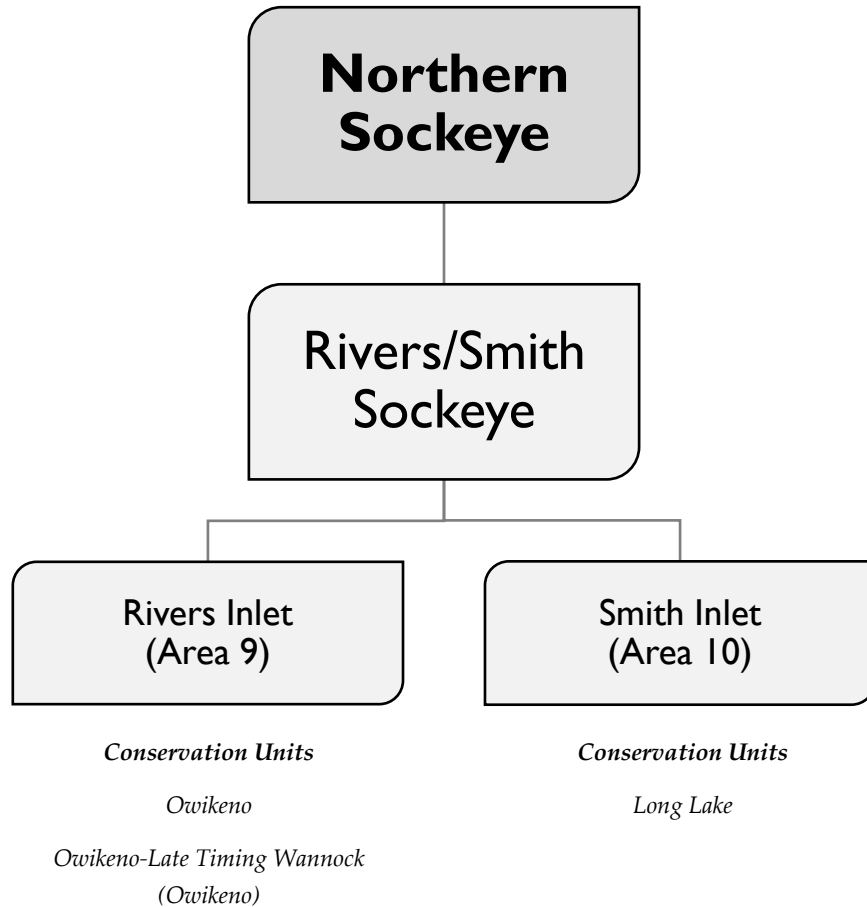


Figure 13-25: Overview of Rivers and Smith Inlet Sockeye

The Sockeye fishery on stocks from Rivers and Smith Inlets began in the late 19th century and increased rapidly during the early part of the 20th century. Both systems experienced dramatic declines in total returns of spawning adults since the mid-1990's and a high degree of variability in returns since that time.

There has been no gill net fishery in Rivers Inlet since 1995 after the Sockeye returns declined dramatically in 1994. This decline was caused by poor marine survival beginning with the 1990 and 1991 brood years. Stocks have shown some inconsistent improvement in recent years but remain in a period of low productivity.

Over the last 25 years Sockeye returns to Long Lake in Smith Inlet have generally been poor, resulting in only three commercial fisheries since 1996. In more recent years, returns have shown signs of improving, resulting in the three previously mentioned fishery opportunities, including a strong return in 2016 which resulted in a substantial gill net opportunity. A long-term Smith Inlet counting weir program was suspended in 2017, as a result there has not been sufficient abundance data to assess the strength of the run since then.

Long Lake Sockeye productivity has probably decreased in recent years following cessation of a fertilization program that occurred in the 1980s and 1990s. The escapement goal is currently under review and a more cautious management strategy has been adopted.

13.5.6.2 STOCK ASSESSMENT INFORMATION

13.5.6.2.1 Pre-season

There is no formal pre-season forecast done for either Rivers Inlet or Smith Inlet Sockeye. See Appendix 9 for more information.

Pre-season Rivers and Smith Inlet Sockeye Run Size Forecast:

No commercial or recreational fisheries are expected in 2023. The Docee River fence provided in-season assessment of sockeye salmon return to Long Lake in Area 10 from 1972-2016, but has not operated since 2017. As such, in-season estimation of returns to Long Lake are not possible, and the 2023 return is coming off unknown escapements.

13.5.6.2.2 In-season Assessment

There is currently no in-season assessment tool for Rivers Inlet Sockeye. The Wuikinuxv Nation, with assistance from LGL and PSF, have designed and implemented an in-season escapement monitoring system for Rivers Inlet Sockeye from 2014-2021 using DIDSON/ARIS sonar and a gillnet test fishery, as documented in annual reports (e.g. English and Rojas 2020). This system provides daily estimates of Sockeye migrating past the sonar sites on the Wannock (Waanukv) River. The results from these monitoring efforts are currently under review.

Prior to 2017, in-season assessment of Smith Inlet Sockeye was conducted at the Docee counting fence. Installed in 1972, the Docee fence allowed for reliable in-season enumeration of escapements to Long Lake, facilitating the management of the Sockeye fishery in-season. As noted above, the Docee Fence has not been in operation since 2017 and is not expected to be operating in 2023.

13.5.6.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Rivers Inlet

Beginning in 2022, this fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

DFO continues to work with the local First Nations via the First Nations Central Coast Salmon Coordinating Committee and local recreational and commercial advisors to review fishing plans for this area. The current target escapement has been set as a range with the lower threshold of 200,000 Sockeye. DFO continues to work collaboratively with First Nations and stakeholders to review this target using Science based evaluation of the system as a whole, through a request to the Canadian Science Advisory Secretariat (CSAS) process. Working with First Nations and stakeholders, it is anticipated that the results of this review will be used to inform a further evaluation of the management framework for Sockeye fisheries in Rivers Inlet.

Nevertheless, with a pre-season forecast expectation failing to meet the lower threshold of escapement currently in place for the system, no commercial or recreational Sockeye fisheries are planned for Area 9 in 2023.

Smith Inlet

Beginning in 2022, this fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

Prior to 2017, the escapement target for Smith Inlet of 100,000 was evaluated in-season based on fish counts past the Docee counting fence. The Long Lake Sockeye stock remains a stock of concern because of the long period of generally low productivity.

Opportunities for Long Lake Sockeye directed fisheries have been dependent on in-season evaluation from the Docee Fence which operates in collaboration with the Gwa'sala-'Nakwaxda'xw Nations (GNN).

The Docee fence has not operated since 2017 and operation of the Docee Fence in 2023 is not expected. The Government of Canada has made reconciliation with Indigenous Peoples of Canada, and respecting Aboriginal rights a priority. The Department is committed to developing a collaborative approach that will lead to a long-term agreement with the GNN, enabling the operation of the Docee Fence Assessment program and other matters of common interest.

13.5.6.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO RIVERS AND SMITH INLET SOCKEYE FISHERIES

Rivers Inlet

Beginning in 2022, this fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

Smith Inlet

Beginning in 2022, this fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.

Revival Tanks

Revival tanks conforming to the Conditions of Licence are required, and all prohibited species captured as by-catch must be either revived in the revival tank and released, or released directly to the water with the least possible harm. Management decisions will be influenced by compliance with revival tank provisions.

While gill net fishing, revival tanks must be operating from 10 minutes prior to the commencement of retrieval of the net and continue in operation at all times during retrieval and while fish are being held in the tank. For seine and troll fishers, the revival tanks must be operating while the seine net or hooks are in the water and while fish are being held in the tank. The revival tank(s) and equipment must be kept clean and in operable condition and shall be used for no other purpose than that outlined above.

Gill Net Construction

In Management Areas 1 to 10, gill nets of different constructions may be used. Net construction may be either multi-strand (30 filaments), or four, five or six filaments (Alaska twist). Specific restrictions such as the specifications for net construction and revival boxes are found in the conditions of the individual licences, which are attached to the licence. Fishers are urged to read these conditions carefully to ensure that their vessel and fishing techniques are in accordance with their licence.

All gill nets will meet one of the following configurations:

Nets may be hung without a weed line (corkline to web distance 0 to 45 cm) to a maximum of 60 meshes deep.

In Management Areas 3 to 5, nets may be greater than 60 meshes deep, but must be hung with a weedline (corkline to web distance minimum 0.76 m, maximum 1.5 m) to a maximum of 90 meshes deep. As well, every fifth cork must be red or another distinctive colour (not white).

Between July 10 and August 13 weed lines are required for gill nets in Subareas north of Bold Point and 8-8. Maximum depth is 60 Meshes. Corkline to Web Distance a minimum of 100 cm and a maximum of 154 cm.

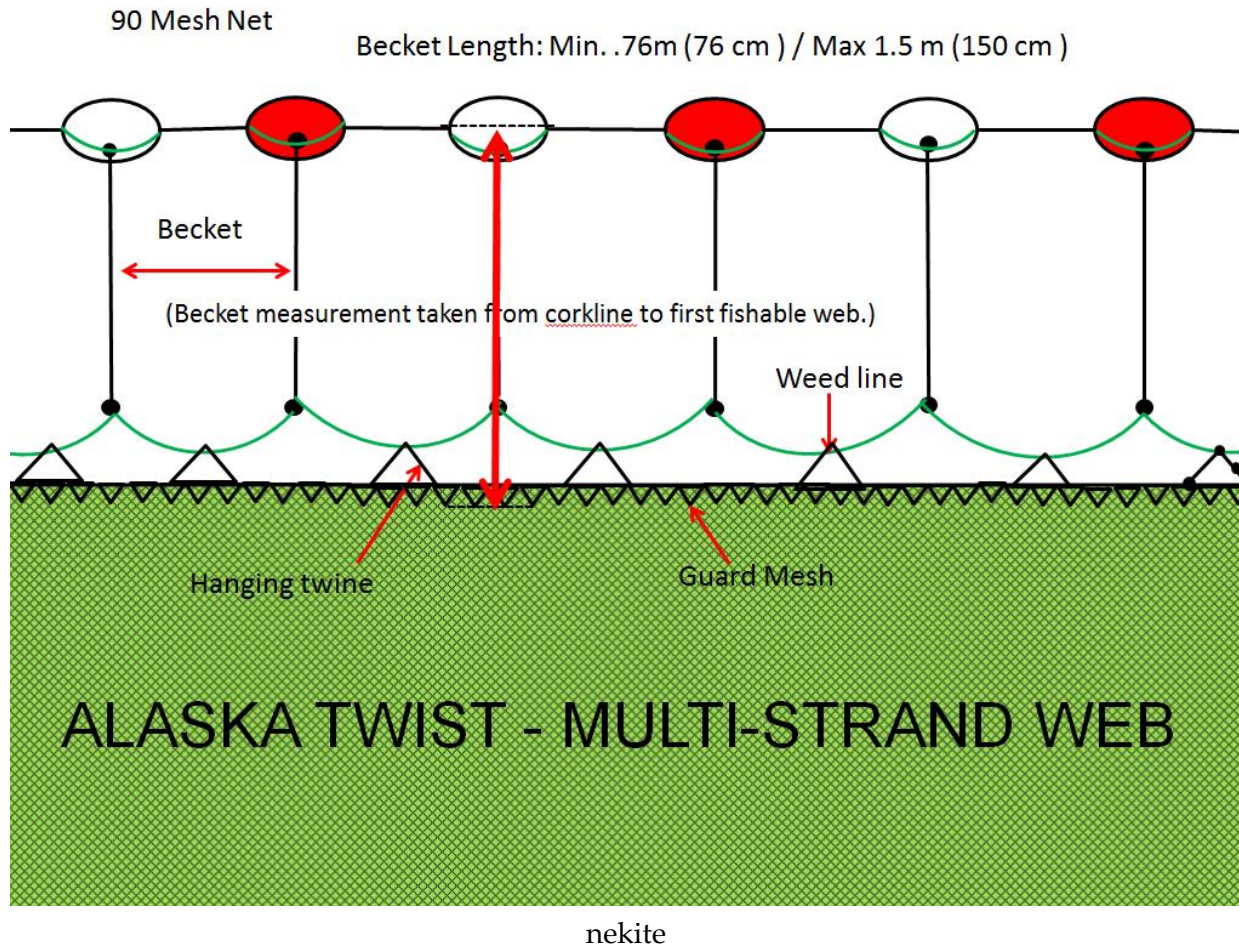


Figure 13-26: 90 Mesh Net Construction

Specific restrictions for net configuration are found in the Fishery Notice issued prior to every commercial fishery. Fishers are urged to read these carefully to ensure that their fishing gear is in accordance with the opening.

13.5.6.5 ALLOCATION AND FISHING PLANS

13.5.6.5.1 First Nations Fisheries

Food Social and Ceremonial

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is provided through communal licences issued by DFO. These licences support the effective management and regulation of First Nations fisheries. These licences are typically issued to individual bands or tribal groupings, and describe the details of the FSC fishery including the dates, times, methods, locations of harvest. Communal licences for Northern Coastal First Nations are typically multi-species and are issued on an annual basis. Shorter duration amendments to licences are also issued on occasion.

Actual opportunities and catches will be dependent on, among other factors; in-season stock strength, management measures taken to ensure conservation of individual stocks, community needs of First Nations, and alternative sources of salmon if preferred species are not available locally due to low abundance.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount Table 10-1 in Northern BC First Nations Fisheries.

First Nations Specific Conservation Measures

When a conservation concern has been identified for an individual stock that is harvested by First Nations, consultations will be undertaken to adapt the fishing plan to provide the necessary protection to the weak stock.

Fishery Monitoring and Catch Reporting

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly

(Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

Treaty Fisheries

There are currently no Treaty fisheries for Rivers or Smith Inlet Sockeye.

13.5.6.5.2 Recreational Fisheries

Recreational salmon fishing occurs in the tidal waters of Rivers and Smith Inlets, with several recreational lodges and independent anglers fishing from late June to early September.

In 2023, Rivers and Smith Inlets will remained closed to recreational Sockeye fishing. A condition of licence in the recreational Tidal Waters Sport Fishing Licence applies to all angling in the Rivers Inlet Special Management Zone (SMZ).

Please consult the regulations on tidal and freshwater salmon recreational fishing which can be found online at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html>

For direct notification of regulatory changes, individuals may sign up to have recreational fishery notices sent directly to their email at the website above. Refer to the link to subscribe to fishery notices on the right hand side of the page.

Fishery Monitoring and Catch Reporting

In Area 9, DFO has been collecting recreational catch data through the Lodge Log Book Program. In Area 10, logbook information is used to provide catch and release numbers from anglers fishing in the area.

13.5.6.5.3 Commercial Fisheries

Allocation

Description	Areas	Seine A	Gill Net C	Troll F
Rivers/Smith Inlets	9 to 10	5%	95%	0%*

* potential for future re-negotiation

Rivers and Smith Inlet Fisheries

No commercial or recreational fisheries are expected for Rivers or Smith Inlet Sockeye in 2023, and will remain unlikely until there is a trend towards higher ocean survival and significant and consistent improvements in escapement.

ESSR Fisheries

There are currently no ESSR fisheries for Rivers Inlet or Smith Inlet Sockeye.

APPENDIX I: LOGBOOK SAMPLES

SALMON TROLL Logbook I.D. # T21001 **SAMPLE** Report Catch to: 1-(888) 387-0007 Record all catch in pieces Page #

Date		Mgmt. Area	Zone or Subarea	Hours Fished	Catch: Frozen or Iced?	¹ Kept or Released	Sockeye	Coho	Pink	Chum	² Legal Sized Chinook	² Sublegal Sized Chinook	³ Grilse	Atlantic	⁴ Rockfish	⁵ Other Species								
Vessel Name: Shirley May VRN (CFV#): 12346																								
8	Aug	101	4	7.5	(F) or I	Kept		20	54															
Trip ID #: FOS-12345															Rel.					4	2		4 Yellowtail, 3 Canary	1 L, 2 H
Comments: Lots of seals around															⁶ DCR Conf. #:		FOS-12346							
Vessel Master Name: Dan Doe Signature: Dan Doe ⁷ F.I.N.: 99999																								
9	Aug	101	4	6	(F) or I	Kept		23	37															
Trip ID #: FOS-12345															Rel.									
Comments: Released 2 Salmon Sharks															⁶ DCR Conf. #:		FOS-12347							
Vessel Master Name: Dan Doe Signature: Dan Doe ⁷ F.I.N.: 99999																								
10	Aug	101	4	8	(F) or I	Kept		23	47															
Trip ID #: FOS-12345															Rel.				2			2 Chilipepper, 6 unknown rockfish	3 H	
Comments:															⁶ DCR Conf. #:		FOS-12348							
Vessel Master Name: Dan Doe Signature: Dan Doe ⁷ F.I.N.: 99999																								
12	Aug	101	3	12	F or I	Kept		17	17		19				3 Black RF	4 L								
Trip ID #: FOS-12398															Rel.					4	2			10 D, 2 H
Comments: Saw a sea turtle. Suspect it was Leatherback															⁶ DCR Conf. #:		FOS-12402							
Vessel Master Name: John Smith Signature: John Smith ⁷ F.I.N.: 77777																								
13	Aug	142	2	14	F or I	Kept		79	12		36				8 Yellowtail RF	2 L								
Trip ID #: FOS-12398															Rel.		1							2 D
Comments: Killer Whales															⁶ DCR Conf. #:		FOS-12403							
Vessel Master Name: John Smith Signature: John Smith ⁷ F.I.N.: 77777																								

1. Catch: **Kept** are species retained on board; **Released** are species returned to the ocean. 2. As defined in the applicable Fishery Notice. 3. **Grilse** are juvenile salmon under 30 cm. 4. Rockfish are to be identified by species; if unsure of species, record as Unknown Rockfish. 5. **Other Species**: L=Lingcod, H=Halibut, D=Dogfish, M=Mackerel, S= Steelhead. Please specify **White or Green Sturgeon** in Comments Section. If any **birds, marine mammals, or turtles** were encountered, give time of capture and full name of species in comments. 6. **DCR Conf. #** is the confirmation number received upon completion of the Daily Catch Report. 7. Vessel master's **Fisher**

APPENDIX I: LOGBOOK SAMPLES

SALMON GILLNET Logbook I.D. # **G24001** Report Catch to: 1-(888) 387-0007 Record all catch in pieces Page # **11111**

Vessel Name:		Shirley May										VRN (CFV#):		12346			
Net Details		Type ¹ :	A	# Strands ² :	6	Length:	200 (fathoms)	Weedline Depth ³ :	30cm	Hang Ratio:	3:1	Mesh Size ³ :	4 7/8"	# Meshes:	90		
Daily Catch Records																	
Date		Mgmt. Area	Sub-area(s)	Hours Fished	# of sets	⁴ Kept or Released	Sockeye	Coho	Pink	Chum	Chinook	Steel-head	Atlantic	Dogfish	⁵ Sturgeon	⁶ Other Fish	⁷ Non-fish
4	Aug	12	12-4	5.5	5	Kept	4		23	127							<input checked="" type="radio"/>
Trip ID #:						FOS-12480	Rel.		9								No
Comments: 2 birds killed in 10AM set, kept for research program. Rhinoceros Auklets.																	
Vessel Master Name: Dan Doe Signature: Dan Doe ⁹ F.I.N.: 99999																	
5	Aug	12	12-5	7	3	Kept	73		245	4			1				<input checked="" type="radio"/>
Trip ID #:						FOS-12480	Rel.		2				2			2M, 1 salmon shark	No
Comments: Offloaded at CANFISCO in Port Hardy on August 5 at 14:00.																	
Vessel Master Name: Dan Doe Signature: Dan Doe ⁹ F.I.N.: 99999																	
6	Aug	12	12-4	6	3	Kept	88		116	7			2				<input checked="" type="radio"/>
Trip ID #:						FOS-12480	Rel.					1				11 M, 2 R	No
Comments: Steelhead released in good condition. 2 sea lions released alive around 11AM.																	
Vessel Master Name: Dan Doe Signature: Dan Doe ⁹ F.I.N.: 99999																	
29	Aug	17	17-11	6	6	Kept	163		328								<input checked="" type="radio"/>
Trip ID #:						FOS-12773	Rel.				3	1					No
Comments: Fished two management areas today																	
Vessel Master Name: John Smith Signature: John Smith ⁹ F.I.N.: 77777																	
29	Aug	29	29-2	4	6	Kept	205		493								<input checked="" type="radio"/>
Trip ID #:						FOS-12773	Rel.		2		1	1					No
Comments: Both coho put in rev. tank, one died, one released in good condition																	
Vessel Master Name: John Smith Signature: John Smith ⁹ F.I.N.: 77777																	

1. **Net Types:** enter 'A' for Alaska Twist, 'M' for Multi Strand or 'C' for Combination. 2. Enter number of strands if net is 'Alaska Twist' type mesh. 3. Give measurement units (in or " = inches, cm = centimeters, mm = millimeters). 4. **Kept** are species retained on board; **Released** are species returned to the ocean. 5. Please specify White or Green Sturgeon in **Comments** Section. 6. **Other Fish:** M= Mackerel, L= Lingcod, H= Halibut. Give full name for other species. 7. Circle Yes or No as appropriate if any **birds, marine mammals, or turtles** were encountered. Give time of capture and species details in comments. 8. **DCR Conf. #** is the confirmation number received upon completion of the Daily Catch Report. 9. **F.I.N.** Is the Fisher Identification Number.

APPENDIX I: LOGBOOK SAMPLES

SALMON SEINE Logbook I.D. # S20001 **Report Catch to: 1-(888) 387-0007** Record all catch in pieces **Page # 11111**

Vessel Name:		Shirley May										VRN (CFV#):		12346	
Daily Catch Records															
Date	Mgmt. Area	Sub-area(s)	Hours Fished	# of sets	¹ Kept or Released	Sockeye	Coho	Pink	Chum	Adult Chinook	² Jack Chinook	Steelhead	Atlantic	³ Other Fish	⁴ Non-fish
14	Aug	3	3-3, 3-2	8	5	Kept	42		431				6		<input checked="" type="radio"/> Yes
Trip ID #:					FOS-12281		Rel.		3		12	2			No
Comments: 2 Rhinoceros Auklets released alive at 10 AM, 1 coho clipped, 2 coho dead, 1 rel'd alive											DCR Conf. #: ⁵ FOS-12346				
Vessel Master Name:		Dan Doe				Signature:		<i>Dan Doe</i>				F.I.N.: 99999			
15	Aug	4	5	5.5	2	Kept	38		850						<input checked="" type="radio"/> Yes
Trip ID #:					FOS-12281		Rel.			2	1	1		4 D, 1 L, 1 salmon shark	No
Comments: 1 harbour seal released, steelhead revived in tank, then released in good condition											DCR Conf. #: ⁶ FOS-12358				
Vessel Master Name:		Dan Doe				Signature:		<i>Dan Doe</i>				F.I.N.: 99999			
19	Aug	4	5	9	4	Kept	53		560						<input checked="" type="radio"/> Yes
Trip ID #:					FOS-12403		Rel.		2		17	4	12		No
Comments: Both coho rel'd in good condition. 12 jack chinook squishers all dead.											DCR Conf. #: ⁶ FOS-12428				
Vessel Master Name:		John Smith				Signature:		<i>John Smith</i>				F.I.N.: 77777			

Offload Catch Records								Sockeye	Coho	Pink	Chum	Chinook	(Other)	Complete if catch pooled with that of another vessel:			
Dates Fished		# Days Fished	Date Offloaded		<input type="checkbox"/> Pieces	<input type="checkbox"/> Pcs	<input type="checkbox"/> Pieces	<input type="checkbox"/> Pieces	<input type="checkbox"/> Pieces	<input type="checkbox"/> Pcs	Received from:		Offloaded to:		Vessel		
First date	Last date		Day	Month	Day	Month	<input checked="" type="checkbox"/> Lbs	<input type="checkbox"/> Lbs	<input checked="" type="checkbox"/> Lbs	<input type="checkbox"/> Lbs	<input type="checkbox"/> Kgs	<input type="checkbox"/> Kgs	<input type="checkbox"/> Kgs	<input type="checkbox"/> Kgs	Name:	VRN (CFV#):	
14	Aug	15	Aug	2	15	Aug	471		3958								
Business and port offloaded to:					Canfisco, Pr. Rupert			Fish slip #:		79768		OCR Conf. #: ⁶ FOS-12380		<input type="checkbox"/>	<input type="checkbox"/>	Name: VRN (CFV#):	
19	Aug	19	Aug	1	20	Aug	310		1692					<input type="checkbox"/>	<input checked="" type="checkbox"/>	Name: VRN (CFV#):	
Business and port offloaded to:								Fish slip #:		79801		OCR Conf. #: ⁶ FOS-12482		<input type="checkbox"/>	<input checked="" type="checkbox"/>	Name: VRN (CFV#):	
																Name: VRN (CFV#):	
																Name: VRN (CFV#):	
																Name: VRN (CFV#):	
																Name: VRN (CFV#):	

1. Catch: Kept are species retained on board; Released are species returned to the ocean. 2. **Jack Chinook** are all chinook smaller than 67 cm fork length (approx 26 inches). 3. **Other Fish:** M= Mackerel, L= Lingcod, H= Halibut, D= Dogfish. Please specify **White or Green Sturgeon** in Comments Section. Give full name for other species. 4. Circle Yes or No as appropriate if any **birds, marine mammals, or turtles** were encountered. Give time of capture and full name of species in comments. 5. **DCR Conf. #** is the confirmation number received upon completion of the Daily Catch Report. 6. **OCR Conf. #** is the Offload Catch confirmation number. 7. Enter the vessel master's Fisher Identification Number.

APPENDIX 2: FISHING VESSEL SAFETY

TABLE OF CONTENTS

1	Overview – Fishing Vessel Safety	367
2	Important Priorities for Vessel Safety	368
2.1	Fishing Vessel Stability	368
2.2	Emergency Drill Requirements	370
2.3	Cold Water Immersion	371
2.4	Other Issues.....	372
2.4.1	<i>Weather</i>	372
2.4.2	<i>Emergency Radio Procedures, EPIRB's and AIS</i>	372
2.4.3	<i>Collision Regulations</i>	373
2.4.4	<i>Buddy System</i>	374
3	WorkSafeBC.....	374
4	Fish Safe BC	375
5	Transportation Safety Board.....	376

I OVERVIEW – FISHING VESSEL SAFETY

Vessel owners and masters have a duty to ensure the safety of their crew and vessel. Adherence to safety regulations and good practices by owners, masters and crew of fishing vessels will help save lives, prevent vessel damage and protect the environment. All fishing vessels must be in a seaworthy condition and maintained as required by Transport Canada (TC), WorkSafeBC, and other applicable agencies. Vessels subject to inspection should ensure that the certificate of inspection is valid for the area of intended operation.

In the federal government, responsibility for shipping, navigation, and vessel safety regulations and inspections lies with TC; emergency response with the Canadian Coast Guard (CCG) and DFO has responsibility for management of the fisheries resources. The Transportation Safety Board is an independent agency that advances transportation safety by investigating selected occurrences in the air, marine, pipeline and rail modes of transportation including fishing vessel occurrences. In BC, WorkSafeBC exercises jurisdiction over workplace health and safety and conducts inspections on commercial fishing vessels in order to ascertain compliance with the *Workers Compensation Act (WCA)* and the *Occupational Health and Safety Regulation (OHSR)*.

Before departing on a voyage the owner, master, or operator must ensure that the fishing vessel is capable of and safe for the intended voyage and fishing operations. Critical factors for a safe voyage include the seaworthiness of the vessel, having the required personal protective and life-saving equipment in good working order, adequate number of properly trained crew, and knowledge of current and forecasted weather conditions. As safety requirements and guidelines may change, the vessel owner, crew, and other workers must be aware of the latest legislation, policies and guidelines prior to each trip.

There are many useful tools available for ensuring a safe voyage. These include:

- Education and training programs
- Marine emergency duties training
- Fish Safe – Stability Education Program & 1 Day Stability Workshop
- Fish Safe – SVOP (Subsidized rate for BC commercial fishers provided)
- Fish Safe – *Safest Catch* program – **FREE** for BC commercial fishers
- Fish Safe *Safe At Sea* DVD Series – Fish Safe
- Fish Safe Stability Handbook – *Safe at Sea* and *Safest Catch* – DVD Series
- Fish Safe *Safest Catch* Log Book
- Fish Safe *Safety Quiz*
- 5. First Aid training
- 6. Radio Operators Course (Subsidized rate for BC commercial fishers provided)
- 7. Fishing Masters Certificate training
- 8. Small Vessel Operators Certificate training

Publications:

- Gearing Up for Safety - WorkSafeBC
- <https://tc.canada.ca/en/marine-transportation/marine-safety/tp-15393e-adequate-stability-safety-guidelines-fishing-vessels> TP 15393E - Adequate stability and safety guidelines for fishing vessels
- TP 15392E - Guidelines for fishing vessel major modification or a change in activity. <https://tc.canada.ca/en/marine-transportation/marine-safety/tp-15392e-guidelines-fishing-vessel-major-modification-change-activity>
- Transport Canada Publication TP 10038 Small Fishing Vessel Safety Manual (can be obtained at Transport Canada Offices from their website at: <http://www.tc.gc.ca/eng/marinesafety/tp-tp10038-menu-548.htm>)
- Amendments to the Small Fishing Vessel Inspection Regulations (can be obtained from: <http://www.gazette.gc.ca/rp-pr/p2/2016/2016-07-13/html/sor-dors163-eng.php>)
- Safety Issues Investigation into Fishing Safety in Canada report can be accessed: <https://www.tsb.gc.ca/eng/rapports-reports/marine/etudes-studies/M09Z0001/M09Z0001.html>

For further information see: <https://tc.canada.ca/en/marine-transportation>
www.fishsafebc.com
www.worksafebc.com
www.tsb.gc.ca/eng/rapports-reports/marine/index.html

2 IMPORTANT PRIORITIES FOR VESSEL SAFETY

There are three areas of fishing vessel safety that should be considered a priority. These are: vessel stability, emergency preparedness, and cold water immersion.

2.1 FISHING VESSEL STABILITY

Vessel stability is paramount for safety. Care must be given to the stowage and securing of all cargo, skiffs, equipment, fuel containers and supplies, and to correct ballasting. Fish harvesters must be familiar with their vessel's centre of gravity, the effect of liquid free surfaces on stability (e.g. loose water or fish on deck), loading and unloading operations, watertight integrity and the vessel's freeboard. Know the limitations of your vessel; if you are unsure, contact a naval architect, marine surveyor or the local Transport Canada Marine Safety Office.

Fishing vessel owners are required to develop detailed instructions addressing the limits of stability for each of their vessels. These instructions must include detailed safe operation documentation kept on board the vessel.

In 2017, Transport Canada Marine Safety (TC) issued Ship Safety Bulletin (SSB) [No. 03/2017](#) announcing the coming into force of the *New Fishing Vessel Safety Regulations*. The initial

regulations were published in the Canada Gazette Part II on July 13, 2016 and came into force on July 13, 2017. The bulletin includes important information on changes to requirements for Written Safety Procedures, Safety Equipment and Vessel Stability.

As of July 13, 2017, new regulations pertaining to stability assessments to be performed by a competent person came into effect, as follows:

- A new fishing vessel that has a hull length of more than 9 m where the vessel construction was started or that a contract was signed for the construction after July 13, 2018;
- A fishing vessel more than 9 m and that has undergone a major modification or a change in activity that is likely to adversely affect its stability;
- A fishing vessel that is fitted with an anti-roll tank at any time;
- A fishing vessel more than 15 gross tonnage and used for catching herring or capelin during the period beginning on July 6, 1977 and ending on July 13, 2017.
- For an existing fishing vessel that is not required to undergo a stability assessment, the owner shall be capable of demonstrating that their vessel has adequate stability to safely carry out the vessel's intended operations. Guidelines have been developed and are available online to help small fishing vessel owners and operators meet their regulatory requirements
- Two good resources can be found here: [TP 15393 - Adequate stability and safety guidelines for fishing vessels \(2018\)](#) and [TP 15392 – Guidelines for fishing vessel major modification or a change in activity \(2018\)](#)

Further, the new Regulation requires a “Stability Notice” to be developed after a stability assessment. This notice includes a simple diagrammatic of the vessel, its tanks and fish holds, or deck storage as the case may be. It is intended to assist fishing vessel crews in quickly determining the safe carriage limits of the vessel without having to reference a complicated Trim and Stability Book.

Additionally, Transport Canada published a Stability Questionnaire ([SSB No. 04/2006](#)) and Fishing Vessel Modifications Form ([SSB No. 01/2008](#)) which enable operators to identify the criteria which will trigger a stability assessment. Please contact the nearest Transport Canada office if you need to determine whether your vessel requires a stability assessment or to receive guidance on obtaining competent assessor.

In 2019, TC provided an updated [SSB 03/2019](#), which sets out a voluntary record of modifications for the benefit of owners/masters of any fishing vessels. For vessels of more than 15 gross tons, the record of modifications was to be reviewed by TC inspectors during regular

inspections and entered on the vessel's inspection record. However, information gathered during the Transportation Safety Board's (TSB) Safety Issues Investigation into the fishing industry showed minimal recording of vessel modifications prior to this date.

The TSB has investigated several fishing vessel accidents since 2005 and found a variety of factors that effected the vessel's stability were identified as contributing factors in vessels capsizing, such as with: [M05W0110](#) - *Morning Sunrise*, [M07M0088](#) - *Big Sisters*, [M08W0189](#) - *Love and Anarchy*, [M09L0074](#) - *Le Marsouin I*, [M10M0014](#) - *Craig and Justin*, [M12W0054](#) - *Jessie G*, [M12W0062](#) - *Pacific Siren*, [M14P0121](#) - *Five Star*, [M15P0286](#) - *Caledonian*, [M16A0140](#) - *C19496NB*, [M17C0061](#) - *Emma Joan*, [M17P0052](#) - *Miss Cory*, [M18P0073](#) - *Western Commander*, and [M18A0425](#) - *Charlene A* and [M18A0454](#) - *Atlantic Sapphire*, [M20P0229](#) - *Arctic Fox II*.

Vessel masters are advised to carefully consider stability when transporting gear. Care must be given to the stowage and securing of all traps, cargo, skiffs, equipment, fuel containers and supplies and also to correct ballasting. Know the limitations of your vessel; if you are unsure contact a reputable marine surveyor, naval architect or the local Transport Canada Marine Safety office.

WorkSafeBC's *Occupational Health and Safety Regulations* (OHSR) require owners of fishing vessels to provide documentation on board, readily accessible to crew members, which describes vessel characteristics, including stability.

Fish Safe has developed a code of best practices for the food and bait/roe herring fisheries and the prawn fishery: These Best Practices are available on Fish Safe's website for convenient download here: <https://www.fishsafebc.com/best-practices>. Please contact Fish Safe for a copy of the program materials they developed to address safety and vessel stability in these fisheries. Office: (604) 261-9700, Email: fishsafe@fishsafebc.com.

2.2 EMERGENCY DRILL REQUIREMENTS

The *Canada Shipping Act* 2001 requires that the Authorized Representative of a Canadian Vessel shall develop procedures for the safe operation of the vessel and for dealing with emergencies. The Act also requires that crew and passengers receive safety training. The *Marine Personnel Regulations* require that all personnel on board required to meet the minimum safe manning levels have received MED (Marine Emergency Duties) training to an A1 or A3 level, depending on the vessel's voyage limits, within 6 months of serving aboard. MED A3 training is 8 hours in duration and is applicable to seafarers on fishing vessels less than 150 GRT that are within 25 miles from shore (NC2). MED A1 training is 19.5 hours duration and is applicable to all other fishing vessels.

To assist fishers in meeting their crew training requirements, Fish Safe has created a downloadable 'New Crew Orientation Form and How To Guide' available on Fish Safe's website here: <https://www.fishsafebc.com/downloadable-tools>

MED provides a basic understanding of the hazards associated with the marine environment; the prevention of shipboard incidents; raising and reacting to alarms; fire and abandonment situations; and the skills necessary for survival and rescue.

WorkSafeBC's *Occupational Health and Safety Regulation* (OHSR) requires written rescue and evacuation procedures for work on or over water. Additionally, fishing vessel masters must establish procedures and assign responsibilities to each crew member to cover all emergencies, including the following: crew member overboard, fire on board, flooding of the vessel, abandoning ship, and calling for help. Fishing vessel masters are also required to conduct emergency drills at the start of each fishing season, when there is a change of crew, and at periodic intervals to ensure that crewmembers are familiar with emergency procedures.

Between 2011 and 2015 the TSB investigated 17 fishing vessel accidents which resulted in 17 fatalities. The report's findings highlighted the lack of safety drills and safety procedures and practices.

The *Safest Catch* program, delivered by Fish Safe and free to BC commercial fishers, includes comprehensive practice of drills such as abandon ship, man overboard and firefighting drills.

2.3 COLD WATER IMMERSION

Drowning is the number one cause of death in BC's fishing industry. Cold water is defined as water below 25 degrees Celsius, but the greatest effects occur below 15 degrees C. BC waters are usually below 15 degrees C. Normal body temperature is around 37 degrees Celsius; cold water rapidly draws heat away from the body. The effects of cold water on the body occur in four stages: cold shock, swimming failure, hypothermia and post-rescue collapse. Know what to do to prevent you or your crew from falling into the water and what to do if that occurs. More information is available in the WorkSafeBC Bulletin *Cold Water Immersion* (available from the WorkSafeBC website at www.worksafebc.com)

Under the recently amended (June 2019) *OHS Regulation*, section 24.96.1, a crewmember must wear a PFD or lifejacket when on board a fishing vessel that has no deck or deck structure or when on the deck of a fishing vessel that has a deck or deck structure. The use of a PFD will prepare a crewmember to remain afloat, to survive the effects of cold shock, reduce the need to swim and give rescuers time to respond.

Section 8.26, which requires workers to wear a PFD or lifejacket when working “under conditions which involve a risk of drowning”, would continue to apply to fishing crewmembers and other workers (e.g. when they are working on shore, docks and other vessels).

The specific requirements can be found on WorkSafeBC’s PFD Primer provided on Fish Safe’s website here: <https://www.fishsafebc.com/cold-water-survival>.

It has been demonstrated time and again that, when worn, PFD’s save lives - and the chance of surviving a mishap increases significantly when these devices are worn while working on deck.

Resulting from the TSB investigations into the *Diane Louise* - [M14P0110](#) and the *Caledonian* – [M15P0286](#) fishing vessel accidents, the Board recommended that both TC and WorkSafeBC require that persons wear a suitable personal flotation devices (PFDs) at all times when: on the deck of a commercial fishing vessel; or, when on board a commercial fishing vessel without a deck or deck structure, and ensure that programs are developed to confirm compliance.

2.4 OTHER ISSUES

2.4.1 WEATHER

Vessel owners and masters are reminded of the importance of paying close attention to current weather trends and forecasts during the voyage. Marine weather information and forecasts can be obtained on VHF channels 21B, Wx1, Wx2, Wx3, or Wx4. Weather information is also available from Environment Canada website at: https://weather.gc.ca/marine/index_e.html

2.4.2 EMERGENCY RADIO PROCEDURES, EPIRB’S, AND AIS

Vessel owners and masters should ensure that all crew are able to activate the Search and Rescue (SAR) system early rather than later by contacting the Canadian Coast Guard (CCG). All fishing vessels greater than 20m in length must carry a Class A AIS, as well as a float free 406 MHz Emergency Position Indicating Radio Beacon (EPIRB). These beacons must be registered with the Canadian Beacon Registry. When activated, an EPIRB transmits a distress call that is picked up or relayed by satellites and transmitted via land earth stations to the Joint Rescue Co-ordination Centre (JRCC), which will task and co-ordinate rescue resources. The TSB has identified that between 2015 and 2021, 15 occurrences were reported to the TSB, resulting in the loss of life of 34 fish harvesters. In all 15 occurrences, distress alerting devices (e.g., emergency position-indicating radio beacons [EPIRBs] and personal locator beacons (PLB) were not used. In 11 of the 15 occurrences, personal flotation devices were not used either.

The carriage of PLB and/or a EPIRB is strongly encouraged for all fishing vessels who do not fall under the mandatory threshold.

Fish harvesters should monitor VHF channel 16 or MF 2182 KHz and make themselves and their crews familiar with other radio frequencies. All crew should know how to make a distress call and should obtain their restricted operator certificate from Industry Canada. However, whenever possible, masters should contact the nearest Canadian Coast Guard (CCG) Marine Communications and Traffic Services (MCTS) station (on VHF channel 16 or MF 2182 kHz) prior to a distress situation developing. Correct radio procedures are important for communications in an emergency. Incorrect or misunderstood communications may hinder a rescue response. Further information is available at [Radio Aids to Marine Navigation General](#)

Since August 1, 2003, all commercial vessels greater than 8 metres in length are required to carry a Class D VHF Digital Selective Calling (DSC) radio. A registered DSC VHF radio has the capability to alert other DSC equipped vessels in your immediate area and MCTS that your vessel is in distress. Masters should be aware that they should register their DSC radios with Industry Canada to obtain a Marine Mobile Services Identity (MMSI) number or the automatic distress calling feature of the radio may not work. For further information see the Coast Guard website at: <http://www.ccg-gcc.gc.ca/eng/CCG/Home> or go directly to the Industry Canada web page: www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01032.html

A DSC radio that is connected to a GPS unit will also automatically include your vessel's current position in the distress message. More detailed information DSC can be found here: [TC DSC Safety Bulletin](#). Questions regarding Coast Guard DSC capabilities can be obtained by contacting your local MCTS centre (Prince Rupert MCTS (250) 627-3070 or Victoria MCTS (250)363-6333).

The TSB continues to identify in occurrence investigations that a fishing vessel's VHF-DSC radio has not allows functioned as intended. Either from an absence of familiarity of the radio's function or the radio is not connect to GPS or not registered with the appropriate agency.

2.4.3 COLLISION REGULATIONS

Fish harvesters must be knowledgeable of the Collision Regulations and the responsibilities between vessels where risk of collision exists. Navigation lights must be kept in good working order and must be displayed from sunset to sunrise and during all times of restricted visibility. To help reduce the potential for collision or close quarters situations which may also result in the loss of fishing gear, fish harvesters are encouraged to monitor the appropriate local Vessel Traffic Services (VTS) VHF channel when travelling or fishing near shipping lanes or other areas frequented by large commercial vessels. Vessels required to participate in VTS include:

- every ship twenty metres or more in length,

every ship engaged in towing or pushing any vessel or object, other than fishing gear,
where the combined length of the ship and any vessel or object towed or pushed by the ship is forty five metres or more in length; or
where the length of the vessel or object being towed or pushed by the ship is twenty metres or more in length.

Exceptions include:

- 1 a ship towing or pushing inside a log booming ground,
a pleasure yacht less than 30 metres in length, and
a fishing vessel that is less than 24 metres in length and *not* more than 150 tons gross.

More detailed information on VTS can be obtained by calling (either Prince Rupert MCTS (250)627-3070 or Victoria MCTS (250)363-6333 or from the Coast Guard website:

<https://www.ccg-gcc.gc.ca/publications/mcts-sctm/ramn-arnm/part3-eng.html>

2.4.4 BUDDY SYSTEM

Fish harvesters are encouraged to use the buddy system when transiting and fishing as this allows for the ability to provide mutual aid. An important trip consideration is the use of a sail/voyage plan which includes the particulars of the vessel, crew and voyage. The sail plan should be left with a responsible person on shore or filed with the local MCTS. After leaving port the fish harvester should contact the holder of the sail plan daily or as per another schedule. The sail plan should ensure notification to JRCC when communication is not maintained which might indicate your vessel is in distress. Be sure to cancel the sail plan upon completion of the voyage.

3 WORKSAFEBC

WorkSafeBC exercises jurisdiction over workplace health and safety, including the activities of crews of fishing vessels. Commercial fishing, diving and other marine operations are subject to the provisions of the *Workers Compensation Act (WCA,)* and requirements in Part 24 of the *Occupational Health and Safety Regulation (OHSR)*.

Examples of Part 24 regulatory requirements related to fishing include, but are not limited to, the requirement to establish emergency procedures, to conduct emergency drills, to provide immersion suits for the crew, to provide stability documentation for the vessel, safe work procedures, injury reporting, correction of unsafe working conditions, the requirement to wear personal flotation devices (PFDs), etc.

Other sections of the OHSR also apply to commercial fishing operations. For example, Part 3 addresses training of young and new workers, first aid and employer incident/accident investigations. Part 4 addresses general conditions such as maintenance of equipment, workplace conduct and impairment. Part 8 addresses issues related to safety headgear, safety footwear, eye and face protection, limb and body protection and personal flotation devices (PFDs) when working on the dock. Part 12 addresses issues related to tools, machinery and equipment, including safeguarding. Part 15 addresses issues related to rigging.

Both owners and masters of fishing vessels are considered to be employers. Under the *Workers Compensation Act* and the *OHS Regulation* (OHSR) they have varying and overlapping duties and responsibilities. Masters, because they have the most control during fishing and related activities, are considered to be the employer with primary responsibility for the health and safety of the crew.

The OHSR and the WCA are available from the Provincial Crown Printers or by visiting the WorkSafeBC website: www.worksafebc.com

NOTE: Regarding the OHSR requirement to wear PFD's, WorkSafeBC has produced a video entitled "Turning the Tide – PFD's in the Fishing Industry". For more information on PFD use, including a link to the video, please access the following site:

<https://www.worksafebc.com/en/about-us/news-events/news-releases/2018/November/new-fishing-industry-safety-video?origin=s&returnurl=https%3A%2F%2Fwww.worksafebc.com%2Fen%2Fsearch%23q%3DTurning%2520the%2520Tide%26sort%3Drelevancy%26f%3Alanguage-facet%3D%5BEnglish%5D>

For further information, contact an Occupational Safety Officer:

Bruce Logan	Field Services - Vancouver/Richmond/Delta	(604) 244-6477
Cody King	Field Services - Courtenay	(250) 334-8733
Paul Matthews	Field Services - Courtenay	(250) 334-8741

Wayne Tracey – Field Services Central (604) 232-1939 or the Manager of Interest for Marine and Fishing, Pat Olsen (250) 334-8777.

For information on projects and initiatives related to commercial fishing health and safety please contact Tom Pawlowski, Manager, OHS Consultation and Education Services, at (604) 233-4062 or by email: tom.pawlowski@worksafebc.com or [Helen Chandler, OHS Consultant at \(604\) 276-3174 or by email: helen.chandler@worksafebc.com](mailto:Helen.Chandler@worksafebc.com).

4 FISH SAFE BC

Fish Safe encourages vessel masters and crew to take ownership of fishing vessel safety. Through this industry driven and funded program, Fish Safe provides fishing relevant tools and programs to assist fishers in this goal. The Fish Safe Stability Education Program and 1 Day Stability Workshop are available to all fishers who want to improve their understanding of stability and find practical application to their vessel's operation. The SVOP (Small Vessel Operator Proficiency) Course is designed to equip crew with the skills they need to safely navigate during their wheel watch. The Safest Catch Program, along with fisher-trained Safety Advisors, is designed to give fishers the tools they need to create a vessel specific safety management system.

As referenced throughout the above documentation, Fish Safe provides a broad range of courses, programs and services that are either free for BC commercial fishers or highly subsidized.

Fish Safe is managed by Program Manager and support staff including John Krgovich, Program Coordinator, Stephanie Nguyen, Program Assistant, Rhoda Huey, Bookkeeper/Administrative Assistant and an experienced team of fisher Safety Advisors. All activities and program development is directed by the Fish Safe Advisory Committee (membership is open to all interested in improving safety on board fishing vessels). The Advisory Committee meets two to three times annually to discuss safety issues and give direction to Fish Safe in the development of education and tools for fish harvesters.

Fish Safe also works closely with WorkSafeBC to improve the fishing injury claims process. For further information contact:

John Krgovich
Program Coordinator
Fish Safe
#100, 12051 Horseshoe Way
Richmond, BC V7A 4V4

Cell: (604) 739-8407
Office: (604) 261-9700
Email: ryan@fishsafefbc.com
www.fishsafefbc.com

5 TRANSPORTATION SAFETY BOARD

The Transportation Safety Board (TSB) is not a regulatory board. The TSB is an independent agency that investigates marine, pipeline, railway and aviation transportation occurrences to determine the underlying risks and contributing factors. Its sole aim is the advancement of transportation safety by reporting publicly through Accident Investigation Reports or Marine Safety Information Letters or Advisors. It is not the function of the Board to assign fault or

determine civil or criminal liability. Under the *TSB Act*, all information collected during an investigation is completely confidential.

In 2014 the TSB pacific region released three investigation reports:

- the collision between trawl fishing vessel [Viking Storm](#) and US long line fishing vessel *Maverick* and the subsequent fatality,
- the person over board off the prawn fishing vessel [Diane Louise](#) and the subsequent fatality, and
- the capsizing of the crab fishing vessel [Five Star](#) and subsequent fatality.

In 2016 the TSB pacific region released one investigation report:

- the capsizing of the trawl [Caledonian](#) and subsequent fatalities.

In 2018 the TSB pacific region released two investigation reports:

- the capsizing and sinking of the [Miss Cory](#) and subsequent fatality.
- the sinking of the [Western Commander](#) and loss of life.

In 2022 the TSB pacific region released one investigation report:

- the sinking of the [Arctic Fox II](#) and subsequent fatalities.
- The report found that if TC's regulatory oversight continues to be reactive and reliant on the vessel's authorized representative to understand regulations and ensure compliance with them, there is a risk that vessels and crews will continue to operate without the minimum defences provided by meeting regulatory requirements, leading to unsafe conditions and potentially fatal accidents.

The TSB issued five recommendations following the *Caledonian* report. Three recommendations issued are aimed at ensuring all crews have access to adequate stability information that meets their needs. That means:

- All commercial fishing vessels should have a stability assessment appropriate for their size and operation.
- The information from that assessment must then be kept current, and it must be used to determine safe operating limits.

Moreover, these operating limits must be easily measurable, and relevant to the vessel's operation. For example, that could mean marking the sides of a vessel's hull to indicate the maximum operating waterline, or maximum permitted loads can be specified in the most relevant unit of measure—total catch weight for instance, or the safe number of traps.

Regardless, for it to be of real, practical use, the information must be presented in a format that is clearly understood and easily accessible to crew.

The other two recommendations address the most basic step that harvesters can take: wearing a personal flotation device. Here in British Columbia, roughly 70 percent of all fishing-related fatalities in the past decade came while not wearing a PFD. Yet many harvesters still do not wear them. TC regulations currently require that PFDs be worn only if harvesters identify a risk, however; you never know when you could end up in the water. Therefore the TSB is recommending to TC to require persons to wear suitable personal flotation devices at all times when on the deck of a commercial fishing vessel or when on board a commercial fishing vessel without a deck or deck structure and that programs are developed to confirm compliance. In June 2019, WorksafeBC amended its fishing regulation related to the use of PFDs. Under the amendments, crewmembers must wear a PFD or lifejacket when on board a fishing vessel that has no deck or deck structure, or when on the deck of a fishing vessel that has a deck or deck structure. Crewmembers are not required to wear lifejackets or PFDs below deck or when inside a deck structure where there is risk of entrapment. This amendment removes the need for a risk of drowning to be present before a PFD must be worn.

For more information about the TSB, visit the website at www.tsb.gc.ca

For information about the TSB's investigation into fishing safety, or to view a brief video, visit: <http://www.tsb.gc.ca/eng/medias-media/videos/marine/m09z0001/index.asp>

To view information on the TSB's recent safety Watchlist, visit: <http://www.tsb.gc.ca/eng/surveillance-watchlist/marine/2020/marine-01.html>

Reporting an Occurrence: www.tsb.gc.ca/eng/incidents-occurrence/marine/
After a reportable occurrence happens; you can fill out the TSB 1808 form or call the TSB at the contact information below.

The TSB produced a Safe at Sea: Activity book on fishing safety intended for the next generation of fish harvesters (ages 4-7). Download a copy.

www.tsb.gc.ca > [eng](#) > [medias-media](#) > [prudence-safe](#) > [safe-at-sea](#)

[Glenn Budden](#), Investigator, Marine - Fishing Vessels

Transportation Safety Board of Canada

4 - 3071 No. 5 Road

Richmond, BC, V6X 2T4

Telephone: (604) 619-6090

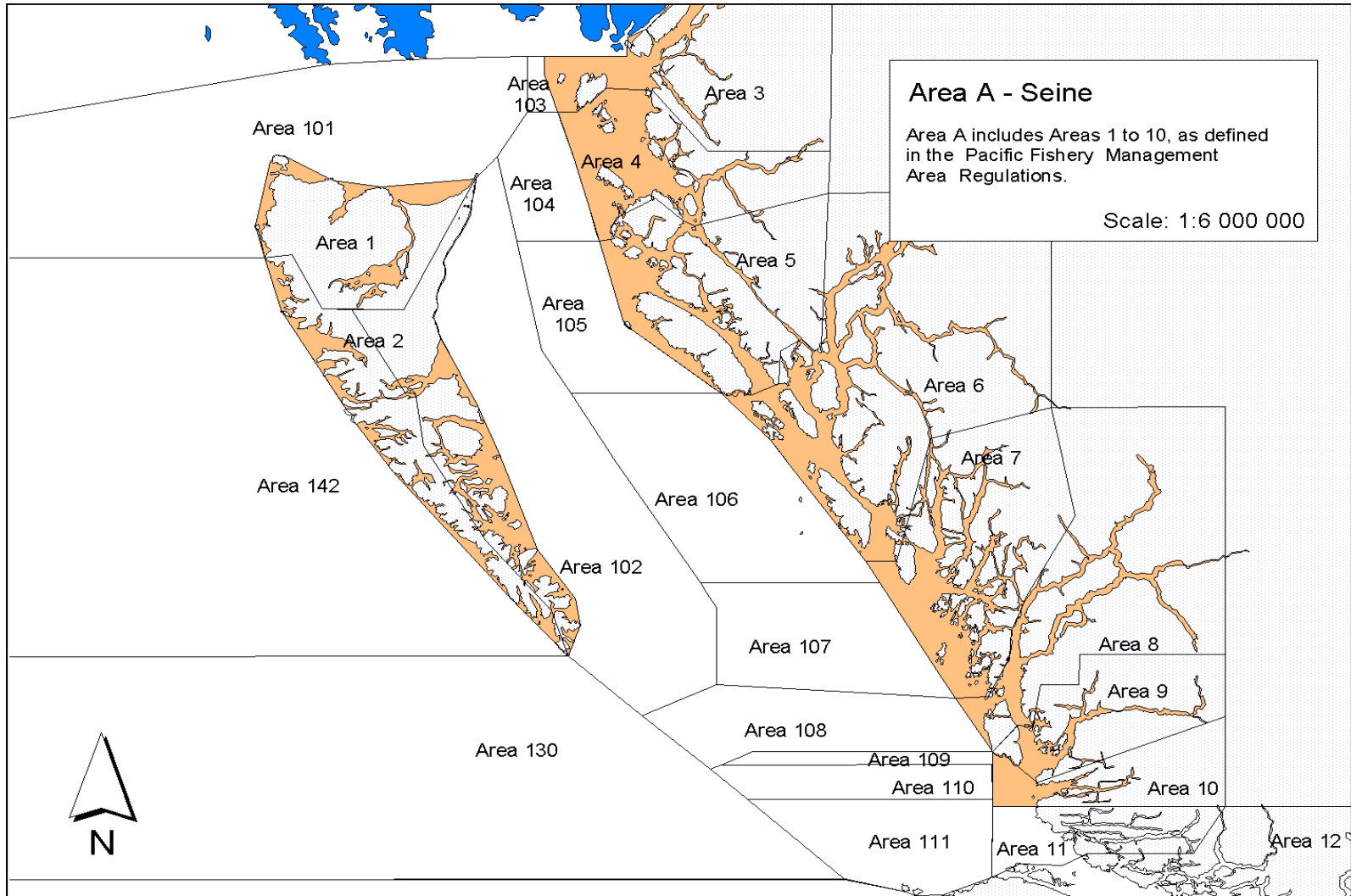
Email: glenn.budden@tsb-bst.gc.ca

APPENDIX 3: COMMERCIAL SALMON LICENCE AREAS

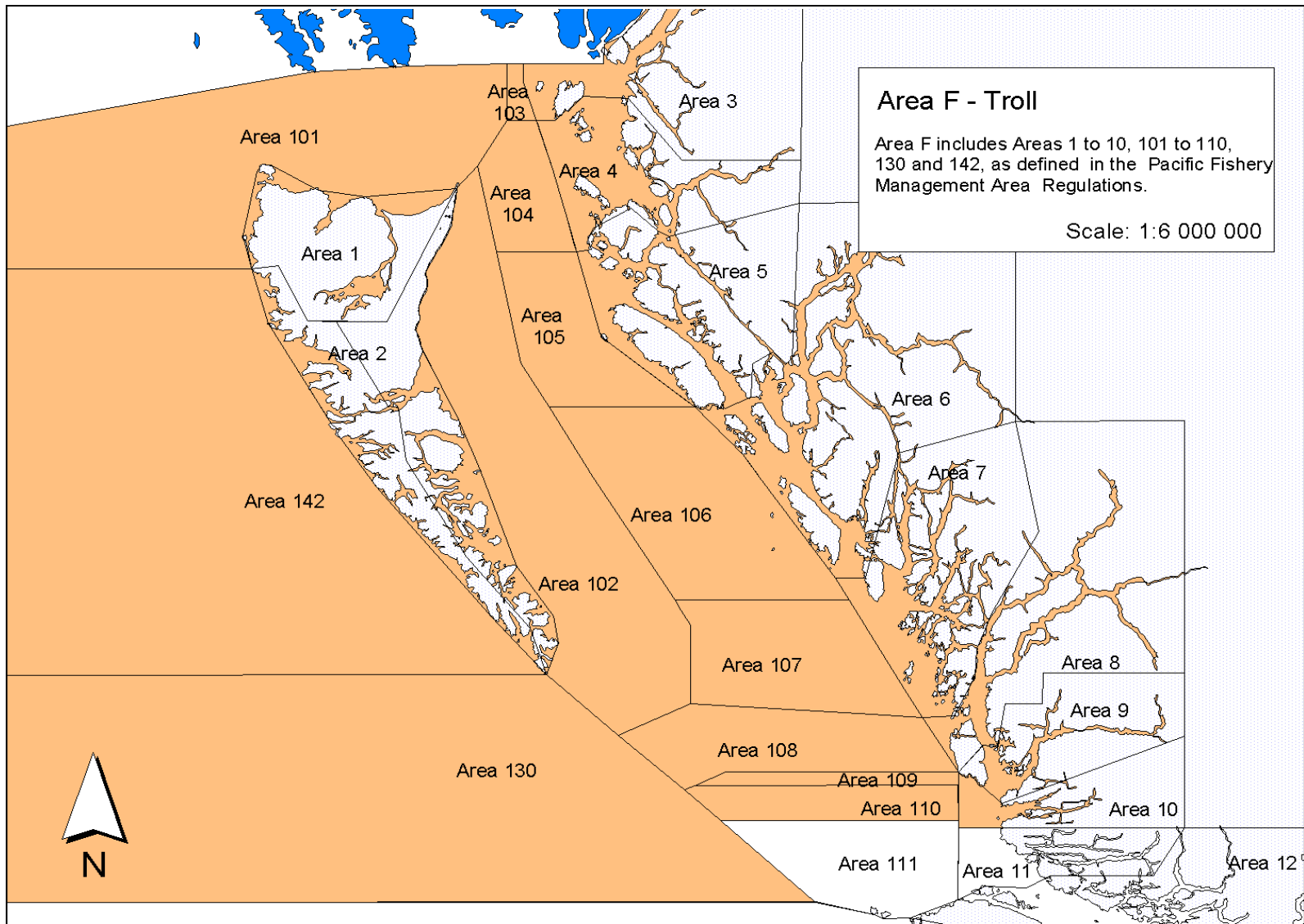
Pacific Salmon Fishing Area	Gear	Corresponding Pacific Fisheries Management Areas (PFMA)
Salmon Area A	Seine	Areas 1 to 10, Subarea 101-7
Salmon Area B	Seine	Areas 11 to 29 and 121
Salmon Area C	Gill net	Areas 1 to 10, Subarea 101-7
Salmon Area D	Gill net	Areas 11 to 15 and 23 – 27
Salmon Area E	Gill net	Areas 16 to 22, 28, 29 and 121
Salmon Area F	Troll	Areas 1 to 10, 101 to 110, 130 and 142
Salmon Area G	Troll	Areas 11, 20 to 28, 111, 121, 123 to 127 and Subareas 12-5 and 12-6
Salmon Area H	Troll	Areas 12 to 19, 28 and 29

For maps of North Coast commercial licence areas, please see Appendix 4.

APPENDIX 4: MAPS OF NORTHERN BC COMMERCIAL LICENCE AREAS



APPENDIX 4: MAPS OF NORTHERN BC COMMERCIAL LICENCE AREAS



APPENDIX 5: ADVISORY BOARD MEMBERSHIPS

Meeting dates and records of consultation can be found at:

<http://www.pac.dfo-mpo.gc.ca/consultation/fisheries-peche/smon/ihpc-cpip/index-eng.htm>

The IHPC membership list can also be found on the DFO website at:

<http://www.pac.dfo-mpo.gc.ca/consultation/smon/ihpc-cpip/membs-eng.html>

INTEGRATED HARVEST PLANNING COMMITTEE NORTH COAST SUBCOMMITTEE MEMBERS

RECREATIONAL (THREE) MEMBERS

Urs Thomas.....info@goldenspruce.ca
Jason Harris..... jharris@triton-env.com
John McCulloch.....john.mcculloch@langara.com

ALTERNATES

Ken Franzen.....kenfranzen@hotmail.com
Vacant.....N/A

COMMERCIAL (FOUR) MEMBERS

Rick Haugan - Area Arichardjhaugan@gmail.com
Mabel Mazurek - Area C.....nafc@citytel.net
Lawrence Paulson - Area F.....lpaulson@citytel.net
VacantN/A

ALTERNATES

Joy Thorkelson - Area C.....ufawupr@citytel.net
Chris Acheson - Area Fpacpro@telus.net

MARINE CONSERVATION CAUCUS (TWO) MEMBERS

Greg Knox gregk@skeenawild.org

Aaron Hill hillfish@telus.net

FIRST NATIONS (FOUR) MEMBERS

Harry Nyce - Nisga'a Lisims Government eagle1@nisgaa.net

Mark Spoljaric - Council of the Haida Nation mark.spoljaric@haidanation.com

ALTERNATES

Vacant N/A

VACANT N/A PROVINCE (EX-OFFICIO)

Troy Larden Troy.Larden@gov.bc.ca

APPENDIX 6: UPDATES TO THE COMMERCIAL SALMON ALLOCATION FRAMEWORK

TABLE OF CONTENTS

APPENDIX 6: UPDATES TO THE COMMERCIAL SALMON ALLOCATION FRAMEWORK.....	385
1 Introduction and Purpose.....	386
2 Background.....	386
3 Principles and Guidelines for Calculating Salmon Shares.....	387
4 CSAF Demonstration Fishery Proposals for Flexible Harvest Arrangements	394
4.1 NEW for 2023.....	396
4.1.1 New – Coast Tsimshian Area 4 Demonstration Sockeye Fishery (Lax Kw’alaams First Nation) 396	
4.2 Area 6 Pink (Gitga’at First Nation)	397
4.3 Coast Tsimshian Area 4 Demonstration Sockeye Fishery (Metlakatla First Nation).398	
4.4 Coast Tsimshian Area 3 Demonstration Pink Fishery (Metlakatla and Lax Kw’alaams First Nations).....	399
4.5 Trout Bay Chum (Kitasoo First Nation).....	400
4.6 McLoughlin Bay Chum (Heiltsuk First Nation)	400
4.7 Bella Coola Chum and Chinook (Nuxalk Nation).....	401
4.8 Nass River Sockeye (Nisga’a Lisims Government)	402
4.9 Nass River Sockeye (Gitanyow Fisheries Authority).....	403
4.10 Skeena Sockeye (North Coast Skeena First Nation Stewardship Society (NCSFNSS)) 403	
4.11 Skeena Sockeye (Lake Babine Nation).....	404
4.12 Skeena Sockeye (Gitksan Watershed Authorities).....	405
4.13 Area 3 Pink (North Coast Skeena First Nation Stewardship Society (NCSFNSS))	406
4.14 Haida Gwaii Coho (Council of the Haida Nation (CHN)).....	407
4.15 Central Coast Coho (Area F).....	408
4.16 Bulkley River Coho (Wet’suwet’sen First Nation).....	409
4.17 Central Coast Chum (Heiltsuk First Nation).....	409

I INTRODUCTION AND PURPOSE

The purpose of this appendix is to outline progress related to updates to the Commercial Salmon Allocation Framework (CSAF), including:

- Document progress on key work plan items for the season agreed to by the Salmon Coordinating Committee, Commercial Salmon Advisory Board and DFO;
- Describe principles and guidelines for sharing arrangements, building on guidelines approved in the 2015/2016 IFMP;
- Outline CSAF demonstration fishery proposals assessed through the Departments' Evaluation Framework. These may be implemented subject to a final fishing plan being approved in the area which addresses any outstanding elements highlighted and sufficient returns for commercial fishing.

2 BACKGROUND

In September 2013, as part of the Pacific Salmon Treaty Mitigation program, Fisheries and Oceans Canada started a process to obtain advice on updating the CSAF to address deficiencies raised by commercial harvesters and First Nations. The Department engaged the existing advisory processes, principally the First Nations Salmon Coordinating Committee (SCC) and the Commercial Salmon Advisory Board (CSAB), and also sought the views of other First Nations and commercial interests on possible changes to the framework. Discussions with the SCC and CSAB were completed at the end of January 2015. Updates approved are detailed in the final 2015/16 IFMP. Work to address key issues raised continue. Key items being discussed include:

- Supporting local area collaboration: to improve integration and collaboration among CSAF Demonstration, commercial marine, and First Nation fishers;
- Providing support to local proponents and DFO area staff in reviewing and developing existing and new CSAF demonstration fishery proposals; and
- Using the CSAF small group forum to explore timelines and information needs to support the 5 year review of the CSAF sharing arrangements among fleets. Any proposed changes will be included in next year's draft IFMP for feedback prior to being implemented.

The Department's broad interests in continuing to support this process are to improve the long term sustainability of Pacific wild salmon, help commercial fishery participants achieve greater economic benefit, and create more resilient commercial salmon fisheries. The Department's role has not been to propose changes to the CSAF; rather its focus has been to consider proposed changes to ensure that these were consistent with key Departmental objectives, policies, and programs.

A summary of previous work completed related to the initiative to update the CSAF is also available through the following link:

<http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html>.

Principles and guidelines approved through the 2015 IFMP and expanded on in 2017 are included in Section 3 below.

3 PRINCIPLES AND GUIDELINES FOR CALCULATING SALMON SHARES

Below are principles and guidelines intended to provide clarity on commercial sharing arrangements. They have been developed as part of the initiative to update the CSAF in collaboration with the CSAB and SCC.

Please note: these guidelines and principles may be reviewed and updated annually to ensure they remain relevant and clear. Proposed changes will be included in draft IFMPs for feedback prior to being approved.

APPROVED PRINCIPLES

For simplicity, the updates to the CSAF are organized into three categories: 1. Stabilizing commercial shares; 2. Flexibility to harvest the shares and integrated planning process; and 3. Additional elements for future discussion.

CATEGORY 1: STABILIZING COMMERCIAL SHARES

The following recommendations form the basis for the commercial allocation plan starting in 2015:

- I. Commercial salmon shares (specified as a % allocation of the allowable commercial harvest) will be assigned by species, fleet and fishery production area. Shares at the species, fleet and fishery production area are provided in Section 12.7 of the IFMP;

- II.** Shares will apply for a 5 year period with a provision for a review after year 4 to determine if adjustments should be made to Area A-H sharing arrangements in subsequent years. An earlier review could be considered if circumstances warrant by majority agreement of the commercial advisory board;
- III.** Sockeye equivalents will no longer be used to adjust shares on an annual basis;
- IV.** Licences transferred to First Nations communities for commercial purposes, from an individual relinquished commercial licence, will be based on an equal percentage allocation of the allowable commercial harvest for all licences (e.g. $1/X$ where X = total licences per fleet) in that commercial licence area (i.e. Areas A to H). Please note that licence shares may change over time due to changes in fleet size (e.g. licence retirements, stacking) or updates to the A-H sharing arrangements outlined in the commercial salmon allocation plan based on the periodic review.
- V.** A central, common tracking system developed to provide an open and transparent annual accounting of all commercial A to H licences/allocations and First Nation economic fishery allocations by each First Nations economic fishery.
- VI.** In addition to the 22 fishery production areas that existed pre-2015, three new areas have been added, as of 2015, to better define sharing arrangements for troll fisheries limited by the Pacific Salmon Treaty including the WCVI Aggregate Abundance Based Management (AABM) Chinook, Northern BC AABM Chinook and the AB-line Pink troll fisheries.
- VII.** Sharing arrangements in the commercial salmon allocation plan are not fixed entitlements. Although best efforts will be made to achieve fishery production area target allocations over the course of the season, no guarantees are offered that allocations will actually be achieved in any given year. The achievement of commercial allocations will depend upon the ability to fish selectively and the conservation needs of the resource. In the event that allocations are not achieved over the course of the season, no compensatory adjustments (i.e. overage/underage provisions) will be made to future allocations.
- VIII.** Fishing opportunities for all commercial fisheries, including First Nations commercial fisheries, targeting the same fishery management unit should be planned to provide reasonable opportunities to harvest shares. No fishery should be allowed such that its operation puts another fleet out of the water (e.g. using a disproportionate amount of bi-catch to target share or using insufficient effort such that it takes an unreasonable amount of time to achieve weekly target). Post season

reviews will address whether fisheries adjustments may be required in future years to address situations where allocations are not achieved.

- IX.** In the event of extenuating circumstances (e.g. when fisheries are opened until further notice after escapement objectives are met in a terminal fishery), commercial sharing arrangements may be set aside and commercial opportunities will focus on harvesting surplus salmon. These situations will be discussed at local processes where possible to coordinate fishing plans.

Further considerations on Stabilizing Commercial Shares

In addition to the three additional production areas which were approved starting in 2015, the SCC recommended adding an additional fishery production area for a total of 26. This 26th fishery production area would result by dividing the Fraser River Chum from the southern inside Chum production area. This additional production area was not approved, however may be considered in the future pending additional discussion.

It is expected that annual post-season reviews will be conducted to consider how well the approved allocation arrangements have been implemented in commercial fisheries that season.

CATEGORY 2: FLEXIBILITY TO HARVEST SHARES AND INTEGRATED PLANNING PROCESS

Both the CSAB and the SCC are seeking greater flexibility to harvest the shares that are assigned at the fishery production area level and/or are associated with voluntarily relinquished commercial licences transferred to First Nations.

The following principles and operational guidelines form the basis for the incremental testing of flexibilities to harvest shares which started in 2016 informed through the collaborative advisory process (CSAF small group, which includes participants of from the SCC, CSAB and DFO) and a Departmental evaluation framework (these are described in more detail under “further considerations on flexibilities” below).

- a) Greater flexibility, such as fishing location and methods, should be provided to harvest the shares; however, ‘one size does not fit all’ and each gear type through its area harvest committee or First Nations economic fishery should determine the best approach to harvest their shares;
- b) First Nations that have Area A-H licences may continue to fish those licences in the current A-H fisheries or they may choose to transfer the harvest share associated with those licences to a First Nation economic fishery. Under the SCC proposal, any First

Nations economic fishery would have to be managed in coordination with other fisheries and would require approval from the Department (including proposed fishing method, location and time);

- c) A revised collaborative process will be required to coordinate the collective interests of the A-H fisheries and First Nations economic fisheries in order to produce integrated fishing plans. This could also include more local harvest planning processes as required;
- d) In-season transfers of shares among and between A-H and First Nation economic fisheries will be considered. These arrangements will be subject to operational guidelines for pre-season and in-season transfers (see the current Guidelines and any proposals for Temporary Commercial Salmon Share Transfers, Section [12.7.1](#));
- e) Transfers between fisheries, including marine and inland areas, must account for similar stocks/species, as well as, any management adjustments that may need to be taken into consideration for transfers to inland areas;
- f) Bycatch and stocks of concern (i.e. non-targeted species that limit target species access) will not be formally allocated at this time. Available impacts must be shared between all commercial fisheries, including First Nation economic fisheries, in the development of operational plans to allow every fishery reasonable access to its target species. Operational plans should be discussed annually through a collaborative process among all commercial fishery participants, including First Nations economic interests. The use of bycatch will require more discussion to further clarify how bycatch is best used under different scenarios;
- g) There will be a requirement to have accurate, timely and accessible fisheries data, such that there is sufficient information for all Pacific salmon fisheries to be managed sustainably and to meet other reporting obligations and objectives; and
- h) Common standards and approach will be used for evaluating and approving flexibilities to harvest shares whether these are Area A-H or First Nations economic fisheries. Operational issues about how to operationalize harvest flexibilities in different areas has underscored the need for greater clarity and transparency in applying any of the proposed changes.
- i) Assessment fisheries should take into consideration existing sharing arrangements between A to H and First Nations commercial fisheries; opportunities for assessment fisheries should be proportionate with existing shares or as agreed to by the relevant parties.

Further Considerations on Flexibility to Harvest Shares:

The SCC proposal envisaged that any First Nations that have Area A-H licence(s) may continue to fish those licence(s) in A-H fisheries or choose to transfer the harvest share associated with that licence to a First Nation economic fishery. This could result in First Nation economic fisheries in marine or inland areas based on shares converted from A-H fisheries. The relevant First Nations economic fishery (including any proposed fishing methods, times and locations) would need approval from the Department. Any First Nations fishery would have to be managed in coordination with other commercial fisheries (including A-H), on the same species and would have to meet Department requirements for stock assessment, catch monitoring, compliance and enforcement.

Similarly, the CSAB suggested that fleets in the A-H fisheries should decide how to best harvest their shares through harvest committee deliberations and thus endorsed the view that “one size does not fit all” when it came to how fleets may choose to harvest their shares.

The Department will adopt an incremental approach to implementation of harvesting flexibilities starting in 2016, informed through a collaborative advisory process and a common evaluation framework to review proposals submitted.

Collaborative Process

An inclusive commercial advisory process including commercial representatives from the A – H fisheries and First Nations economic fisheries will be required for the Department supporting implementation of any proposed flexibilities. Since 2015, a small working group comprised of CSAB, SCC and DFO representatives has been effective at exploring opportunities for collaboration and improving understanding of various perspectives, while communicating with each host organization to ensure consistency and accuracy of feedback included. The purpose of this CSAF small working group is as a forum to discuss and make recommendations for the Department’s consideration on implementation of the revised allocation framework, the operational details associated with proposed flexibilities and how to prioritize testing of potential harvesting flexibilities including: reviewing and assessing proposals pre-season and considering the results of pilots against evaluation criteria post-season. The Department will continue to work with the existing CSAB and SCC to determine next steps, other priority items for discussion, relevant for this forum and support the use of the CSAF small group process for collaborative discussions.

Local Fishing Area Discussions:

Discussions on commercial harvest plans including which group fishes first, sequencing of opportunities, amounts of fishing time and other fishing plan parameters should be discussed among fishery participants at planning processes suitable to the scale of the fishery (e.g. local area) and included within the IFMP as required. The Department will continue to consider advice and recommendations on proposed fishing plans from the local First Nations, Area Harvest Committees, and other groups to promote integrated fishery planning.

Local management committees are encouraged to promote effective communication, consultation and support increased collaboration and integration of commercial fisheries. Structure and protocol for any local committees should promote effective management through open, transparent and collaborative process to develop and implement commercial fishing plans. Existing processes will be used whenever possible/practical to support pre-season planning, in-season management and post-season review. Operational plans should be guided by the principles and guidelines outlined in this document and, where possible, identify clear decision guidelines that address the potential fishery configurations and effort associated with a range of potential commercial harvest scenarios.

Pre-agreed methods for calculating in-season harvest amounts associated with commercial allocations for all groups should be identified in local area fishing plans and/or the IFMP where appropriate and communicated pre-season so all commercial participants have clarity on sharing arrangements. Methods should account for all commercial allocations including A to H fleets, FN demonstration, economic opportunities and harvest agreement fisheries.

Approaches for in-season communication (e.g. integrated conference calls, Fisheries Notices, etc.) of fishing opportunities, sharing arrangements and catch to date should be provided for discussion with First Nations and stakeholders.

Evaluation Framework

In 2016, DFO in collaboration with the SCC and CSAB developed an Evaluation Framework (E.F.) supported by all parties. The E.F. outlines the objectives and criteria that are used to assess CSAF proposals for flexible harvest arrangements for all commercial/economic fisheries. The E.F. may be reviewed and updated annually based on post-season discussions.

CATEGORY 3: ADDITIONAL ELEMENTS FOR DISCUSSION:

In addition to commercial allocation arrangements within Section 12.5 of the IFMP and those listed above in Category 2: *Flexibility to Harvest Shares*, there are a number of additional elements in the SCC and CSAB proposals where differences remain. These elements may have

policy implications and require additional discussion, collaboration and analysis by commercial harvesters, First Nations and the Department.

Details are included within the original proposals received by both the SCC and CSAB in 2015 which can be reviewed at:

<http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html>

Further considerations on additional elements:

In 2023, DFO will be considering limited opportunities to pilot *Type B* dual fishing in Indigenous CSAF fisheries, to support FSC harvest. *Type B* dual fishing enables retention of non-target bycatch for FSC purposes that the First Nation would otherwise be able to harvest under their FSC licenses, during a directed CSAF fishery. DFO is engaging several First Nations with CSAF demonstration arrangements who have expressed an interest in piloting this approach. For more information on dual fishing, please see Section 10.3.4 Dual Fishing.

The following areas have been highlighted by the SCC and CSAB where there was no agreement concerning the proposed changes:

The CSAB has indicated concerns with the guidelines for the conversion of an existing marine A-H commercial licence (not including licences held in DFO inventory) into a First Nation economic fishery allocation. Guidelines the CSAB would like to be considered prior to approval of conversions include timing (e.g. pre-season vs. in-season), notification, and transfer/tracking requirements. Please see the transfer guidelines in Section [12.7.1](#) for more details.

In addition, there are some proposed changes that are principally matters best handled between DFO and the relevant group. These matters will require further discussion with the Department.

The SCC has proposed a separate management body/process to manage First Nations salmon shares including a proposed body (a 'First Nations' licensing board') to administer use of shares associated with relinquished commercial salmon licences from the DFO inventory or licences otherwise set aside for First Nations use. The Department has not initiated development of a separate board; however DFO would be interested in hearing any principles for the distribution of licences which the SCC may suggest for consideration.

The CSAB had indicated interest in reviewing commercial licencing policy, however initial discussions highlighted the diversity of views and priorities on potential areas of work within the CSAB.

4 CSAF DEMONSTRATION FISHERY PROPOSALS FOR FLEXIBLE HARVEST ARRANGEMENTS

As part of implementing changes to the CSAF, the Department adopted an incremental approach to providing increased flexibility to harvest salmon shares starting in 2016. Each proposal is assessed by the same Evaluation Framework which defines the principles and operational guidelines required by DFO to ensure appropriate implementation of proposed harvesting flexibilities. The Department’s Evaluation Framework was developed to assess proposals with input from the SCC and CSAB. There continues to be agreement from DFO, the SCC and CSAB to continue using the Evaluation Framework with no updates to the principles, objectives and criteria currently in use.

Below is a table outlining demonstration fishery proposals that were reviewed using the Department’s Evaluation Framework. For details on proposals or fishing plans for CSAF demonstrations which were included in the final IFMP and implemented in previous years, please contact the local resource manager in the area or Lindsay Begemann (Lindsay.Begemann@dfo-mpo.gc.ca).

Approved CSAF demonstration fisheries listed below will be implemented contingent on any remaining considerations being resolved with a fishing plan approved in the local area and sufficient returns for commercial harvest. The Department will be discussing operational details with First Nations and stakeholders in each demonstration fishery proposal area to develop fishing plans. Should operational considerations not be resolved or sufficient abundance not materialize, the demonstration fishery will not occur in the coming season.

Any demonstration fishery that does proceed in 2023 will be reviewed as part of the post-season review process. Below is a table which outlines the section and related demonstration fishery project included within this appendix.

Year Approved	Salmon Coordinating Committee	Commercial Salmon Advisory Board
	<u>Northern B.C.</u>	<u>Northern B.C.</u>
2016	Central Coast hatchery Chum (Heiltsuk/Kitasoo)	Central Coast Coho (Area F)
2016	Nass River Sockeye (Nisga'a Lisims Government)	
2016	Nass River Sockeye (Gitanyow Fisheries Authority)	

APPENDIX 6: UPDATES TO THE COMMERCIAL SALMON ALLOCATION FRAMEWORK

Year Approved	Salmon Coordinating Committee	Commercial Salmon Advisory Board
2016	Skeena Sockeye (NCSFNSS)	
2016	Skeena Sockeye (Lake Babine Nation)	
2016	Skeena Sockeye (Gitksan Watershed Authorities)	
2017	Central Coast Chum (Nuxalk)	
2017	Haida Gwaii Coho (CHN)	
2018	Area 3 Pink (NCSFNSS)	
2018	Coho bycatch within existing Pink ESSR (Office of the Wet'suwet'en)	
2018	Central Coast Chinook (Nuxalk)	
2019	Skeena Sockeye (Metlakatla First Nation)	
2020	Central Coast Chum and Pink (Heiltsuk First Nation)	
2020	Skeena Sockeye (Lax Kw'alaams First Nation/Metlakatla First Nation)	
2020	Area 3 Pink (Metlakatla First Nation /Lax Kw'alaams First Nation)	
2021	Area 6 Pink (Gitga'at First Nation)	
2023	Skeena Sockeye (Lax Kw'alaams Band)	
	<u>Southern B.C.</u>	<u>Southern B.C.</u>
2016	Cowichan Chum (Cowichan Tribes)	
2017	Goldstream Chum (Saanich Tribes)	Qualicum/Puntledge (Chum Area D)
2017		Area 12 – 9 Encounter study (Area D)
2017		Mainland/Inlet Pink and Chum (Area H)
2018	Bute Inlet Chum (Homalco First Nation)	Bute Inlet Chum (Area H)
2018		Bute Inlet Chum (Area D)

Year Approved	Salmon Coordinating Committee	Commercial Salmon Advisory Board
2019	Terminal Chum (K'omoks First Nation)	Mainland Inlet Pink & Chum Fishery: Area 12 Broughton Archipelago (Area H)
2019	Nanaimo Terminal Chum (Snuneymuxw First Nation)	
2020		Fraser Chum ITQ (Area E)
2022		Inside Chinook Fishery (Area G)
2023	Local Marine Pink (A-Tlegay Fisheries Society)	Quinsam Pink (Area B)
2023		Quinsam Pink (Area H)

First Nations requests for access to salmon allocations associated with licences in the Departmental licence inventory will be reviewed internally by the Department and outcomes will be confirmed First Nations proponents. Demonstration fisheries that do not receive requested allocations will not proceed.

Full versions of the original proposals or final fishing plans are available upon request to Lindsay Begemann (Lindsay.Begemann@dfo-mpo.gc.ca) or the local fishery manager. To view the list of South Coast CSAF demonstration fisheries, please see Appendix 6 of the Southern BC IFMP.

4.1 NEW FOR 2023

4.1.1 NEW – COAST TSIMSHIAN AREA 4 DEMONSTRATION SOCKEYE FISHERY (LAX KW’ALAAMS FIRST NATION)

	Area 4 Sockeye
Included in Final IFMP	2023
Status (Implemented/Developing)	New CSAF Proposal for 2023
Allocation*	Equal share of the Skeena Sockeye allocation (Lax Kw’alaams to receive 1/6 of the Skeena Sockeye allocation for Coast Tsimshian Nations. Metlakatla will receive 1/6. NCSFNSS will receive 4/6 for the four member Nations).
Location	Area 4-12 and 4-15

Size	TBD after allocations are determined.
Catch Monitoring (Key Elements)	At-sea patrols; hail in/out; mandatory fisher logs; landing sites; 100% dockside validation; monitoring plan will be implemented by Coast Tsimshian technical staff.
Communication	Coast Tsimshian technical staff will be responsible for all communications with DFO and participating fishers.
Additional Comments	Beginning in 2022, additional mitigation measures will be implemented in this fishery to increase protection for stocks of conservation concern. These measures include: Implementation of a season end date in early-August to avoid later timed wild stocks; Implementation of August gillnet selective fishing practices for the whole season to reduce bycatch mortalities (Steelhead, Coho, Chum) and support fisheries monitoring with option for enhanced at-sea observer coverage.
Further Information	Karlana Lord, A/DFO Resource Manager (Karlana.Lord@dfo-mpo.gc.ca)

4.2 AREA 6 PINK (GITGA'AT FIRST NATION)

	Area 6 Pink
Included in Final IFMP	2021
Status (Implemented/Developing)	2021: Insufficient returns 2022: Insufficient returns
Allocation*	16.76%
Location	Portions of sub-areas 6-5, 6-6, 6-10, 6-28 where Area A commercial fisheries are permitted for Pink salmon.
Size	1-2 purse seine vessels, with at least one operated by a Gitga'at member. Anticipated to be 1 or 2 vessels per opening.
Catch Monitoring (Key Elements)	One individual on each vessel will be responsible of recording all catches and reporting to the Gitga'at fishery manager; mandatory fisher logs; landing sites; same level of dockside validation as Area A.

Communication	Gitga’at will be responsible for all pre-season, in-season and post-season communications with DFO and participating individuals through pre-season planning meetings, in-season weekly conference calls and any related post-season review meetings.
Further Information	Karlana Lord, A/DFO Resource Manager (Karlana.Lord@dfo-mpo.gc.ca)

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.3 COAST TSIMSHIAN AREA 4 DEMONSTRATION SOCKEYE FISHERY (METLAKATLA FIRST NATION).

	Area 4 Sockeye
Included in Final IFMP	2020
Status (Implemented/Developing)	2020: Implemented 2021: Insufficient returns 2022: Implemented
Allocation*	Equal share of the Skeena Sockeye allocation (Metlakatla to receive 1/6 of the Skeena Sockeye allocation for Coast Tsimshian Nations. Metlakatla will receive 1/6. NCSFNSS will receive 4/6 for the four member Nations).
Location	Area 4 and a fresh water area within the Skeena River mainstem.
Size	TBD after allocations are determined.
Catch Monitoring (Key Elements)	At-sea patrols; hail in/out; mandatory fisher logs; landing sites; 100% dockside validation; monitoring plan will be implemented by Coast Tsimshian technical staff.
Communication	Coast Tsimshian technical staff will be responsible for all communications with DFO and participating fishers.
Additional Comments	Beginning in 2022, additional mitigation measures will be implemented in this fishery to increase protection for stocks of conservation concern. These measures include: Implementation of a season end date in early-August to avoid later timed wild stocks; Implementation of August gillnet

	<p>selective fishing practices for the whole season to reduce bycatch mortalities (Steelhead, Coho, Chum) and support fisheries monitoring with option for enhanced at-sea observer coverage.</p> <p>For 2023, the proponents requested a separation of the fishery; Metlakatla First Nation will be adhering to their original demonstration fishery plans of 2019, and the Lax Kw’alaams Band proposal is included above.</p>
Further Information	Karlana Lord, A/DFO Resource Manager (Karlana.Lord@dfo-mpo.gc.ca)

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.4 COAST TSIMSHIAN AREA 3 DEMONSTRATION PINK FISHERY (METLAKATLA AND LAX KW’ALAAMS FIRST NATIONS)

	Area 3 Pink
Included in Final IFMP	2020
Status (Implemented/Developing)	<p>2020: Implemented</p> <p>2021: Implemented</p> <p>2022: Not Implemented</p>
Allocation*	Equal share of the Northern Pink allocation (Lax Kw’alaams and Metlakatla to receive a combined 1/3 of the 13.41% and NCSFNSS will receive 2/3 for the four member Nations).
Location	Area 3
Size	The number of vessels for each fishing week will be determined after the allocations are calculated in order to provide a meaningful financial opportunity for selected fishers.
Catch Monitoring (Key Elements)	At-sea patrols; hail in/out; mandatory fisher logs; landing sites; 100% dockside validation.
Communication	Coast Tsimshian technical staff will be responsible for all communications with DFO and participating fishers.

Further Information	Karlana Lord, A/DFO Resource Manager (Karlana.Lord@dfo-mpo.gc.ca)
----------------------------	---

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.5 TROUT BAY CHUM (KITASOO FIRST NATION)

	Trout Bay Chum (Kitasoo First Nation)
Included in Final IFMP	2016
Status (Implemented/ Developing)	2016: insufficient returns 2017: insufficient returns 2018: insufficient returns 2019: insufficient returns 2020: not implemented 2021: not implemented 2022: not implemented
Allocation*	15.71% of Chum
Location	7-5
Size	1 seine or 2- 6 gillnet vessels. Final number based on the number of fish to be harvested.
Catch Monitoring (Key Elements)	At-sea patrols by a member of the Kitasoo Co-mgt program and/or DFO; mandatory landing site (Trout Bay dock); 100% dock side enumeration
Communication	Kitasoo Fisheries Program will be responsible for all pre-season, in-season and post-season communications with DFO and participating FNs.
Further Information	Justinas Savickas – DFO Fisheries Manager

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.6 MCLOUGHLIN BAY CHUM (HEILTSUK FIRST NATION)

	McLoughlin Bay Chum (Heiltsuk First Nation)
Included in Final IFMP	2016
Status (Implemented/ Developing)	2016: implemented 2017: insufficient returns 2018: insufficient returns 2019: insufficient returns

	2020: not implemented 2021: not implemented 2022: not implemented
Allocation*	15.71% of Chum
Location	7-17
Size	1 – 2 seines or 3 - 8 gillnet vessels. Final number based on the number of fish to be harvested.
Catch Monitoring (Key Elements)	At-sea patrols by a member of the Heiltsuk Co-mgt program and/or DFO; mandatory landing site (McLoughlin Bay – Heiltsuk fish plant); 100% dock side enumeration
Communication	Heiltsuk Fisheries Program will be responsible for all pre-season, in-season and post-season communications with DFO and participating FNs.
Further Information	Justinas Savickas – DFO Fisheries Manager

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.7 BELLA COOLA CHUM AND CHINOOK (NUXALK NATION)

	Bella Coola: Terminal Chum and Chinook (Nuxalk Nation)
Included in Final IFMP	2017
Status (Implemented/ Developing)	2017: Implemented for Chum 2018: Implemented for Chum (addition of Chinook in proposal) 2019: Implemented for Chinook 2020: Not implemented 2021: Implemented for Chinook 2022: Implemented for Chinook
Allocation*	15.71% of Chum and 14.04% of Chinook.
Location	8-10, Portions of 8-11 and 8-12 and 8-15
Size	17 Vessels. Final number based on the number of fish to be harvested.
Catch Monitoring (Key Elements)	Single designated mandatory landing site; monitor will be the Nuxalk Coastal Guardian Watchmen; Level of coverage – 50% on water; 100% dock side enumeration
Communication	A representative/manager of the Nuxalk Stewardship Office will be assigned as the demonstration fishery manager and will be responsible for the coordination of the Nuxalk fishery

Additional Comments	Beginning in 2022, the Bella Coola Chum fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.
Further Information	Justinas Savickas – DFO Fisheries Manager

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.8 NASS RIVER SOCKEYE (NISGA’A LISIMS GOVERNMENT)

	Nass River Sockeye (Nisga’a Lisims Government)
Included in Final IFMP	2016
Status (Implemented/ Developing)	2016: Insufficient returns 2017: Insufficient returns 2018: Insufficient returns 2019: Not implemented 2020: Not implemented 2021: Not implemented 2022: Not implemented
Allocation*	8.68% of the combined Area A and C commercial TAC.
Location	3
Size	Within existing Nisga’a Treaty fishery**, with gear types including marine gillnets, river gillnets, and fish wheels
Catch Monitoring (Key Elements)	100% catch monitoring and validation at either a marine packer or the Nisga’a Processing Plant in Gitlakdamiks; all Nisga’a fisheries are sampled for marks; all non-target salmon caught (released and kept) accounted for in all Nisga’a salmon fisheries
Communication	NFWD managers will participate in weekly conference calls with DFO throughout the Sockeye fishing season and will continue to provide in-season and post-season Nass escapement and run size information needed to manage Nass Area Sockeye and other salmon species like in other
Further Information	Karlana Lord, A/DFO Resource Manager (Karlana.Lord@dfo-mpo.gc.ca)

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

**Please see Section 10.4 of the Northern IFMP for further details on the Nisga’a Treaty fisheries

4.9 NASS RIVER SOCKEYE (GITANYOW FISHERIES AUTHORITY)

	Nass River Sockeye (Gitanyow Fisheries Authority)
Included in Final IFMP	2016
Status (Implemented/Developing)	2016: Insufficient returns 2017: Insufficient returns 2018: Insufficient returns 2019: Implemented 2020: Not implemented 2021: Implemented 2022: Implemented
Allocation*	6.30% of the combined Area A and C commercial TAC.
Location	3
Size	To be finalized prior to the fishery and based on available allocation
Catch Monitoring (Key Elements)	Combination of fishing site and landing site monitoring will take place in-season. To be confirmed with DFO area staff.
Communication	GFA representatives will participate in the Local Harvest Planning Committee (LHPC) to discuss and coordinate fishing plans with other Nass Nations, CSAB and DFO. GFA will also participate at in-season weekly conference calls and any post-season review.
Additional Comments	A 2022 proposal to develop abundance based trigger to allow retention of Coho bycatch in this fishery is under discussion.
Further Information	Karlana Lord, A/DFO Resource Manager (Karlana.Lord@dfo-mpo.gc.ca)

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.10 SKEENA SOCKEYE (NORTH COAST SKEENA FIRST NATION STEWARDSHIP SOCIETY (NCSFNSS))

	Skeena Sockeye (NCSFNSS)
Included in Final IFMP	2016
Status (Implemented/Developing)	2016: Implemented 2017: Insufficient returns 2018: Implemented 2019: Insufficient returns

	2020: Implemented 2021: Insufficient returns 2022: Implemented
Allocation*	3.995% of the allowable commercial harvest of Skeena Sockeye which has been recently based on actual weekly commercial catches of Sockeye in Area 4. This percentage is based on sharing of the 1/3 share of the 14.99% of Skeena Sockeye allocation associated with the 88 Area C and 19 Area A licences in the DFO Inventory between the Metlakatla First Nation and NCSFNSS proposals.
Location	Area 4-12 and 4-15
Size	1-3 Vessels. Final number based on the number of fish to be harvested and participating First Nations.
Catch Monitoring (Key Elements)	At-sea patrols; mandatory fisher logs; landing sites; 100% dockside validation
Communication	NCSFNSS will work with other Skeena First Nations, DFO and CSAB through the Local Harvest Planning Committee (LHPC) to discuss and coordinate fishing plans.
Additional Comments	A 2022 proposal to implement a CTAC approach to calculating allocation for this fishery is being reviewed over the 2022 fishing season. Beginning in 2022, additional mitigation measures will be implemented in this fishery to increase protection for stocks of conservation concern. These measures include: Implementation of a season end date in early-August to avoid later timed wild stocks; Implementation of August gillnet selective fishing practices for the whole season to reduce bycatch mortalities (Steelhead, Coho, Chum) and support fisheries monitoring with option for enhanced at-sea observer coverage.
Further Information	Karlena Lord, A/DFO Resource Manager (Karlena.Lord@dfo-mpo.gc.ca)

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.11 SKEENA SOCKEYE (LAKE BABINE NATION)

	Skeena Sockeye (Lake Babine Nation)
Included in Final IFMP	This fishery has been implemented since 90's as pilot sales fisheries (see Skeena River Sockeye Inland Demonstration

	Fishery Management Plan for more information). Since 2016, this fishery has been implemented through updates to CSAF.
Status (Implemented/Developing)	2016: Implemented 2017: Insufficient returns 2018: Implemented 2019: Insufficient returns 2020: Implemented 2021: Not implemented 2022: Implemented
Allocation*	4.99% of the allowable commercial harvest of Skeena Sockeye which as been recently based on actual weekly commercial catches of Sockeye in Area 4 and the weekly allocation per licence for the Area 4 Seine ITQ fishery. This percentage is based on 1/3 share of the 14.99% of Skeena Sockeye allocation associated with the 88 Area C and 19 Area A licences in the DFO Inventory.
Location	Babine River Counting Fence
Size	To be finalized prior to the fishery and based on available allocation.
Catch Monitoring (Key Elements)	Combination of fishing site catch monitoring and dockside validation will take place in-season.
Communication	Lake Babine Nation (LBN) representatives will participate in the Local Area Committee (LAC) to discuss and coordinate fishing plans with other Skeena Demonstration fishery proponents, CSAB, and DFO.
Further Information	Karlana Lord, A/DFO Resource Manager (Karlana.Lord@dfompo.gc.ca)

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.12 SKEENA SOCKEYE (GITKSAN WATERSHED AUTHORITIES)

	Skeena Sockeye (Gitksan Watershed Authorities)
Included in Final IFMP	This fishery has been implemented since 90's as pilot sales fisheries (see <i>Skeena River Sockeye Inland Demonstration Fishery Management Plan</i> for more information). Since 2016, this fishery has been implemented through updates to CSAF.
Status (Implemented/Developing)	2016: Implemented 2017: Insufficient returns 2018: Implemented

	<p>2019: Insufficient returns</p> <p>2020: Implemented</p> <p>2021: Not implemented</p> <p>2022: Implemented</p>
Allocation*	<p>4.99% of the allowable commercial harvest of Skeena Sockeye which has been recently based on actual weekly commercial catches of Sockeye in Area 4 and the weekly allocation per licence for the Area 4 Seine ITQ fishery. This percentage is based on 1/3 share of the 14.99% of Skeena Sockeye allocation associated with the 88 Area C and 19 Area A licences in the DFO Inventory.</p>
Location	<p>Mainstem Skeena River and Babine River</p>
Size	<p>To be finalized prior to the fishery and based on available allocation.</p>
Catch Monitoring (Key Elements)	<p>Combination of fishing site catch monitoring and dockside validation will take place in-season.</p>
Communication	<p>Gitksan Watershed Authorities (GWA) representatives will participate in the Local Area Committee (LAC) to discuss and coordinate fishing plans with other Skeena Demonstration fishery proponents, CSAB, and DFO.</p>
Additional Comments	<p>A 2022 proposal to implement a CTAC approach to calculating allocation for this fishery is being reviewed over the 2022 fishing season.</p>
Further Information	<p>Karlena Lord, A/DFO Resource Manager (Karlena.Lord@dfompo.gc.ca)</p>

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.13 AREA 3 PINK (NORTH COAST SKEENA FIRST NATION STEWARDSHIP SOCIETY (NCSFNSS))

	<p>Area 3 Pink (NCSFNSS)</p>
Included in Final IFMP	<p>2018</p>
Status (Implemented/ Developing)	<p>2018: Not Implemented</p> <p>2019: Implemented</p> <p>2020: Not Implemented</p> <p>2021: Implemented</p>

	2022: Not Implemented
Allocation*	Equal share of the Northern Pink allocation (NCSFNSS will receive 2/3 for the four member Nations and Lax Kw'alaams and Metlakatla to receive a combined 1/3 of the 13.41%).
Location	Sub-areas in Areas 3 where commercial fisheries are permitted for Pink salmon
Size	1-2 Vessels. Final number based on the number of fish to be harvested and participating First Nations.
Catch Monitoring (Key Elements)	At-sea patrols; mandatory fisher logs; landing sites; 100% dockside validation
Communication	NCSFNSS will work with other Skeena First Nations, DFO and CSAB through the Local Harvest Planning Committee (LHPC) to discuss and coordinate fishing plans.
Further Information	Karlana Lord, A/DFO Resource Manager (Karlana.Lord@dfo-mpo.gc.ca)

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.14 HAIDA GWAI COHO (COUNCIL OF THE HAIDA NATION (CHN))

	Haida Gwaii Coho Troll (CHN)
Included in Final IFMP	2017
Status (Implemented/ Developing)	2017: Implemented (not fished) 2018: Available for Implementation (did not fish) 2019: Not Implemented 2020: Not Implemented 2021: Not Implemented 2022: Not Implemented
Allocation*	3.13% of North Coast commercial Coho catch based on the respective gear shares in the North Coast Coho production area
Location	In Area 1 (North Coast of Haida Gwaii) DFO fishing management areas 1-3, 1-5 and a portion of 101-7 east of Klashwun Point (Shag Rock) to the eastern boundary of Rose Spit. In Area 2W (West Coast Haida Gwaii) DFO fishing management areas 2-63, 2-64 & 2-68 (West Skidegate Inlet and Cartwright Sound).
Size	Vessels will be limited to boats 17 feet to 26 feet long. Limit on the total number of vessels not anticipated. Expect participation of 20-30 total vessels.
Catch Monitoring (Key Elements)	At-sea patrols and validation of all offloads at designated landing sites; 100% dockside validation

Communication	A Haida Fisheries demonstration fishery manager will be identified and will be responsible for the coordination of the Haida fishery and will be the primary contact for all communication with DFO and fishers.
Further Information	Patrick Fairweather – DFO Fisheries Manager

*The Haida share depends on the allocation of the 21 Area F licences with no Chinook quota in the DFO Inventory.

4.15 CENTRAL COAST COHO (AREA F)

	Central Coast Coho (Area F)
Included in Final IFMP	2016
Status (Implemented/ Developing)	2016: Implemented 2017: Implemented 2018: Implemented 2019: Implemented 2020: Not implemented 2021: Not implemented 2022: Not implemented
Allocation*	Limited effort, risk based fishery.
Location	Area 6, 7, 8
Size	As in previous years, approval for 4, 3 and 2 vessels in Areas 6, 7, and 8 respectively in consideration of increased potential to encounter stocks of concern in areas further south.
Catch Monitoring (Key Elements)	Limited number of catch validation/landing sites; 100% monitoring; logbook or e-log entry for each day of fishing
Communication	Communication in-season would be via the local harvest committee reps established pre-season.
Additional Comments	Beginning in 2022, this fishery will be closed to protect stocks of conservation concern. The closure is expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. See Appendix 10 for a complete list of longer term fishery closures.
Further Information	Patrick Fairweather – DFO Fisheries Manager

4.16 BULKLEY RIVER COHO (WET’SUWET’SEN FIRST NATION)

	Bulkley River Coho (Wet’suwet’en First Nation)
Included in Final IFMP	2018
Status (Implemented/ Developing)	2018: Insufficient returns 2019: Not implemented 2020: Not implemented 2021: Not implemented 2022: Not implemented
Allocation*	~1000-2000 pieces. Coho are not managed to a TAC in Area A&C fisheries, but are retained as bycatch when abundance permits. The Bulkley River Coho demo will follow similar guidelines.
Location	4
Size	Within existing Wet’suwet’en Moricetown Canyon Pink ESSR fishery, with gear types including beach seine and dip net.
Catch Monitoring (Key Elements)	100% catch validation at designated landing sites; all non-target salmon caught (released and kept) accounted for by fishing site.
Communication	Wet’suwet’en managers will provide weekly in-season updates on numbers of each species caught, sold, retained, and released by fishing site.
Additional Comments	A 2022 proposal to develop abundance based trigger to inform implementation of this fishery is under discussion.
Further Information	Karlana Lord, A/DFO Resource Manager (Karlana.Lord@dfo-mpo.gc.ca)

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

4.17 CENTRAL COAST CHUM (HEILTSUK FIRST NATION)

	Central Coast Chum (Heiltsuk First Nation)
Included in Final IFMP	2020
Status (Implemented/ Developing)	2020: Not Implemented 2021: Not Implemented 2022: Not Implemented
Allocation*	15.71% of Central Coast Chum

Location	Seaforth Channel, Spiller Channel, Return Channel, Roscoe Inlet, Lama Passage and Johnson Channel in Area 7
Size	TBD
Catch Monitoring (Key Elements)	At sea patrols, a single designated mandatory landing site, and mandatory fisher logs
Communication	Heiltsuk fisheries program representative will participate in pre-season meetings, in- season weekly calls and any post- season review meetings related to the operation of the Heiltsuk demonstration fisheries.
Additional Comments	
Further Information	Justinas Savickas – DFO Fisheries Manager

*Shares change annually based the respective gear shares for the production Area and licences held in DFO Inventory for use by First Nations. Shares are based on 88 Area C and 19 Area A licences held in the DFO Inventory.

APPENDIX 7: NASS CHUM DRAFT REBUILDING PLAN

CURRENT MANAGEMENT ACTIONS

The objective of the Area 3 Chum rebuilding plan is to: “protect Area 3 wild Chum and at the same time provide opportunities to retain enhanced US Chum in places and times where they are most abundant”.

The Canadian Area 3 fishery is currently managed to significantly reduce exploitation rates on Area 3 Canadian Chum stocks from historical levels, as a rebuilding measure. The harvest reductions have been achieved, with current Canadian exploitation rates averaging below 10% which is down from the average of 28% from 1982 to 1999 (Figure 13-27). The Area 3 rebuilding plan for the immediate future is to keep the Canadian average exploitation rates below 10%.

Management measures that reduce Area 3 Pink and Sockeye fishery impacts on Area 3 wild Chum include, but are not limited to:

Non retention of Chum for most net fisheries with exceptions in the early season in areas where the otolith analysis confirmed US hatchery Chum are a very high proportion of the harvest.

Closed areas where Chum are relatively abundant compared to the target species

Brailing and sorting will be in place for the seine fishery.

Gill nets have a 137 mm (5.39 in) maximum mesh restriction. This restriction is in place so that Sockeye is targeted selectively and larger non-target species such as Chum and Chinook are impacted to a lesser degree.

BACKGROUND

General background information on Nass Chum was provided in Peacock and Spilsted (2010). The Fishery Operational Guidelines associated with the Nisga'a Treaty set minimum and target escapement goals for Chum and other species that are the limit and target reference points used to implement the Nisga'a Treaty. DFO uses the Management Escapement Goals (MEG) as both the limit and target reference points.

Details of the 2021 management approach for Chum and all fisheries in Area 3 are included in DFO fisheries management post-season reports. Limited Chum retention fisheries were provided that intercepted US hatchery Chum returns in Pink directed commercial fisheries.

Otolith samples have been collected in the past to refine our knowledge of the times and areas where the US hatchery stocks were most abundant relative to wild stocks. Thermal marks from US hatcheries were found on 67-93% of the Chum sampled from Chum retention fisheries from 2012-2018. In 2023 DFO will continue to work with partners to review the efficacy of management measures used to date to limit impacts on Area 3 Chum.

STOCK STATUS TO 2017

The Nisga'a Joint Technical Committee and recent DFO assessments indicate recent aggregate status in the amber zone for Portland Inlet and the Portland Canal-Observatory Inlet CUs and data deficiencies for the Lower Nass CU. Chum stocks are not rebuilding even though exploitation rates have been reduced since 2000. This may be partly the result of reduced productivity over the same period.

The management intent is to keep the Area 3 Chum Exploitation Rates low through a period of "normal" productivity to evaluate the productive potential.

ASSESSMENT OF FISHERY IMPACTS

LGL Limited provided Area 3 Chum exploitation rate time series for US and Canadian fisheries up to 2017 (Figure 13-27). Although for a period of time the total ER hovered between 40-70%, since 1998 it has decreased to an average of 22%, with the Canadian ER below 10% since 2006. The current ER is well below the level that would be expected to provide for rapid stock increases under "normal" productivity conditions. Unfortunately, a consistent stock rebuilding pattern has not been observed, potentially due to low productivity and/or marine conditions.

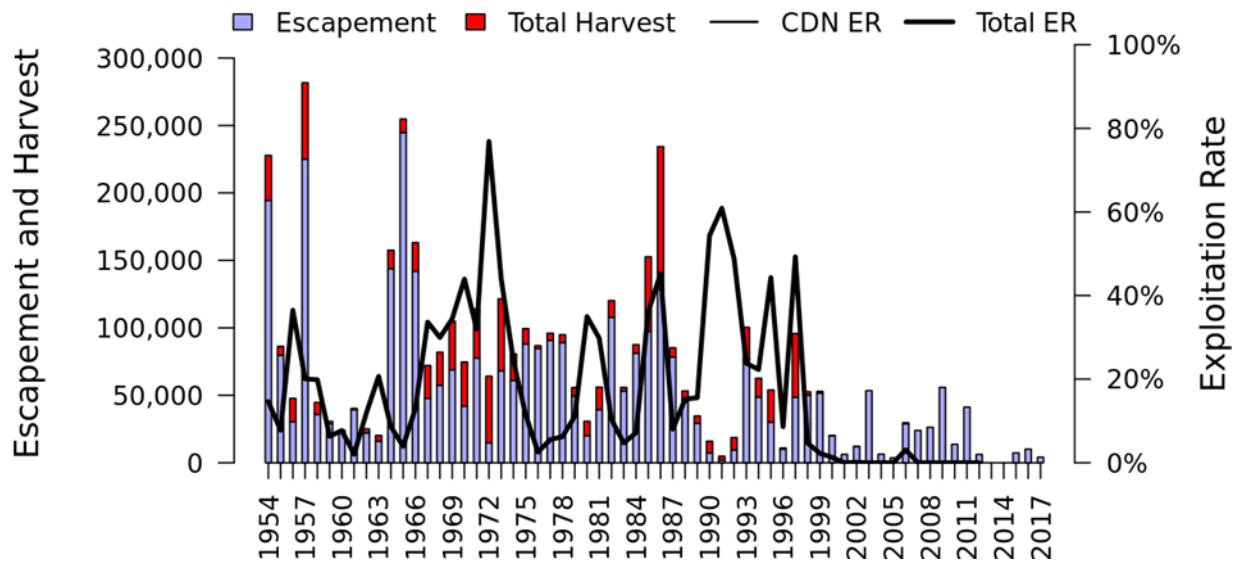


Figure 13-27: Area3 Chum Exploitation Rates (US and Canada)

NASS CHUM REBUILDING PLAN ACTIVITIES

Key Activities	Status
Complete reconstructed time series of escapement, catch and run size for Nass Chum.	Completed as described in English et al 2019 and updated by DFO and the PSF. Updates provided regularly at http://shiny/lglsidney.com/ncc-salmon/
Develop Chum harvest rate assessment models for Nass Chum.	Nisga’a Joint Technical Committee has over the past 10 years developed methods to estimate Nass Chum escapement and catch. This technical background formed the basis for, and the technical committee participated in, the assessment model development revised and described in English 2013, and English et al 2012.
Analyze stock recruit metrics and indicated benchmarks and status interpretations.	Completed initial assessments by the Nisga’a Joint Technical Committee (for Nass area and CU’s) and by DFO (by Stat area and CU) in September annually.

APPENDIX 7: NASS CHUM DRAFT REBUILDING PLAN

Key Activities	Status
<p>Complete annual Northern Boundary Sockeye Reconstruction. Required to generate the weekly harvest rate estimates for Nass Sockeye model. The weekly Sockeye HR's are used in the Nass Chum HR assessment model.</p>	<p>Completed annually in January by the Pacific Salmon Commission's Northern Boundary Technical Committee.</p>
<p>Review 2022 Nass Chum escapement enumeration plans.</p>	<p>Enumerations plans reviewed each year through the Nisga'a Joint Technical committee. In addition, Nisga'a has submitted a northern fund proposal to refine and standardize Nass Chum escapement estimates.</p>
<p>Collect otoliths and DNA from Area 3 fisheries to determine US hatchery contributions in both retention and non-retention areas</p>	<p>Since 2011 otoliths have been collected and analyzed. DNA will be collected in 2022 if funding is available.</p>
<p>Evaluate enhancement and habitat restoration projects that would aid in Area 3 Chum rebuilding.</p>	<p>Kincolith side channel restoration work initiated in 2013 and planned for 2014 and 2015. Kitsault restoration activities that should be considered are presented in Gaboury and Bocking 2007. Monitoring of the progress and contribution of these restoration activities is an important component of any rebuilding plan.</p>
<p>Continue to work through the Pacific Salmon Commission's Northern Panel to discuss Chum management plans in the northern boundary area.</p>	<p>PSC Northern Panel meetings are scheduled for January and February each year.</p>
<p>Review and update Nass Chum harvest rate models, both Sockeye and Pink effort based. Include a sensitivity analysis of the model Area 3 Chum run timing assumptions.</p>	<p>Technical work scheduled for spring Nisga'a Joint Technical Committee annually.</p>
<p>The appropriateness of the ER objective should be reviewed each year taking into account the latest stock assessment information.</p>	<p>Review Nass Chum assessments, status and the rebuilding plan with FN technical committees and with the Nisga'a JFMC, the IHPC and other interested parties.</p>

APPENDIX 7: NASS CHUM DRAFT REBUILDING PLAN

Key Activities	Status
Develop IFMP Nass Chum fishing plan in cooperation with FN technical committees, the Nisga'a JFMC, the IHPC and other interested parties.	Nisga'a and IHPC meetings scheduled through to the spring to discuss Chum fishing plans that meet the goals for the rebuilding plan.

REFERENCES

English, K.K., T. Mochizuki and D, Robichaud. 2012. Review of North and Central Coast Salmon Indicator Streams and Estimating Escapement, Catch and Run Size for each Salmon Conservation Unit. Report for Pacific Salmon Foundation and Fisheries and Oceans, Canada. 78 p.

English, K.K. 2013. Extended Time-series of Catch and Escapement Estimates for Skeena Sockeye, Pink, Chum, Coho and Chinook Salmon Conservation Units. Report for Pacific Salmon Foundation. 19 p.

Gaboury, Marc and Robert Bocking. 2007. Assessment of Enhancement Opportunities for Wild Chum Stocks in Canadian Statistical Area 3. Prepared by LGL Limited, for the Pacific Salmon Commission Northern Fund.

Peacock. D. and B. Spilsted. 2010. Nass River Chum (*Oncorhynchus keta*) stock status. Canadian Science Advisory Secretariat Draft Report 2010. 58p. Available from authors.

APPENDIX 8: SKEENA CHUM DRAFT REBUILDING PLAN

CURRENT MANAGEMENT ACTIONS

The objective of the Skeena Chum rebuilding plan is to: “rebuild Skeena Chum and improve Skeena Chum stock status”

The Canadian Area 4 fishery is currently managed to significantly reduce Skeena Chum Canadian exploitation rates from historical levels, as a measure to rebuild Skeena Chum stocks. The harvest reductions have been achieved, with recent Canadian exploitation rates averaging well below 10%. The rebuilding plan for the immediate future is to keep the Canadian average exploitation rates below 10%.

Management measures that reduce Area 4 Sockeye and Pink fishery impacts on Skeena wild Chum include, but are not limited to:

Non retention of Chum in all Area 4 commercial fisheries.

Brailing and sorting will be in place for the seine fishery.

Gill nets have a 137 mm (5.39 in) maximum mesh restriction. This restriction is in place so that Sockeye is targeted selectively and larger non-target species such as Chum and Chinook are impacted to a lesser degree.

BACKGROUND

Background information on Skeena Chum is provided in Peacock and Spilsted (2010). A recent paper by Price et al (2013) evaluates the historical abundance of Skeena Chum.

STATUS

Skeena Chum assessments have been completed by Korman and English (2013). The key conclusions are that Skeena Chum are severely depressed, and are not rebuilding even though recent exploitation rates are well below the optimal equilibrium harvest rate (U_{msy}) values, likely due to reduced productivity in the last decade. DFO supports this assessment and has implemented sustained harvest reductions as a rebuilding plan.

FISHERY IMPACTS

LGL Limited provided Area 4 Chum exploitation rate time series for US and Canadian fisheries up to 2010 (Figure 13-28). The recent 4 year cycle average Canadian ER is below 2% and the last decade average is below 3%. This provides for total ER averaging below 14% over the last decade, down from the 42% average from 1982 to 1999. The current ER is well below the level that would be expected to provide for rapid stock increases if “normal” productivity returns (given the U_{msy} estimate of 0.44). Keep in mind there is concern that the Stock-Recruit (S-R) metrics are biased by long history of high ER, limiting S-R data range in the more recent time series. This will tend to over-estimate U_{msy} .

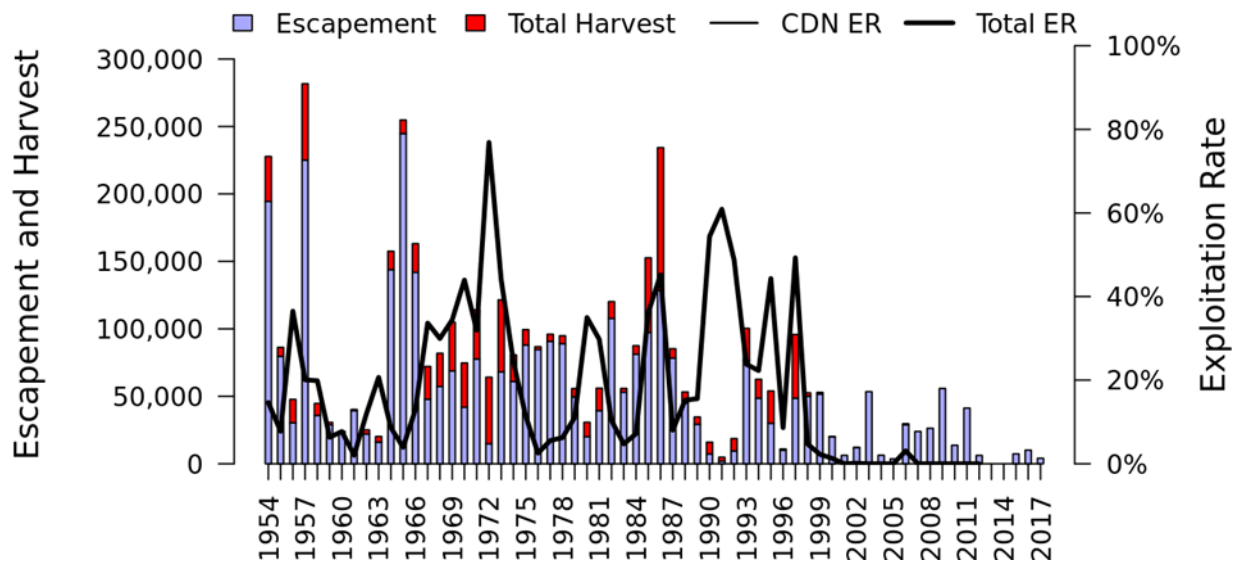


Figure 13-28: Area 4 Chum Exploitation Rates US and Canada

SKEENA CHUM REBUILDING PLAN ACTIVITIES

Key Activities	Status
Complete reconstructed time series of escapement, catch and run size for Skeena Chum.	Completed as described in English et al 2012, updated English 2013 and updated annually (unpublished DFO).
Develop Chum harvest rate assessment models for Skeena Chum.	First versions completed as described in English 2013 and English et al 2012.
Analyze stock recruit metrics and indicated benchmarks and status interpretations.	Completed assessments by Korman and English (2013).

APPENDIX 8: SKEENA CHUM DRAFT REBUILDING PLAN

Key Activities	Status
Continue to review potential enhancement and habitat measures to aid rebuilding.	A northern fund project “Kleanza Creek spawning weir” accepted through the first round of reviews.
Complete annual Northern Boundary Sockeye Reconstruction. The reconstruction is required to generate the weekly harvest rate estimates for Skeena Sockeye model. The weekly Sockeye HR's are used in the Skeena Chum HR assessment model.	Completed annually, Northern Boundary Technical Committee.
Evaluate Ecstall Chum spawner enumeration methods.	Two reports published.
Review and update Skeena Chum harvest rate model, and evaluate utility of using the Pink effort/HR model applied to Chum as a comparison.	Completed annually.
Review Skeena Chum assessments and status with FN technical committees and through the IHPC and other interested parties.	Chum update at post-season review, and discussions take place at the technical committees, and IHPC meetings.
Review Skeena Chum escapement enumeration plans.	Enumerations plans developed annually by DFO and participating First Nations.

REFERENCES

- English, K.K., T. Mochizuki and D, Robichaud. 2012. Review of North and Central Coast Salmon Indicator Streams and Estimating Escapement, Catch and Run Size for each Salmon Conservation Unit. Report for Pacific Salmon Foundation and Fisheries and Oceans, Canada. 78 p.
- English, K.K. 2013. Extended Time-series of Catch and Escapement Estimates for Skeena Sockeye, Pink, Chum, Coho and Chinook Salmon Conservation Units. Report for Pacific Salmon Foundation. 19 p.
- Korman, J, and K. English. 2013. Benchmark Analysis for Pacific Salmon Conservation Units in the Skeena Watershed. Submitted to the Pacific Salmon Foundation.
- Peacock. D. and B. Spilsted. 2010. Skeena River Chum (*Oncorhynchus keta*) stock status. Canadian Science Advisory Secretariat Draft Report 2010/059.
- Price, M.H.H., Gayeski, N., and J. A. Stanford. 2013. Abundance of Skeena River Chum salmon during the early rise of commercial fishing. Transactions of the American Fisheries Society 142:4, 989-1004.

APPENDIX 9: 2023 SALMON OUTLOOK

PURPOSE

The purpose of this document is to provide an ‘Outlook’ of expected abundance of salmon in 2023 to inform the harvest planning process.

The Outlook provides either an expected abundance for those stocks with statistical forecasts or a categorical abundance expectation based expert opinion.

OUTLOOK FORMAT

The Outlook document contains:

- CU groupings with stock management units (SMUs) to better inform decision-making consistent with *Fishery Act* and IFMP requirements.
- SMUs with statistical forecasts, which are consolidated and reported in the Outlook Document.
- SMUs without statistical forecasts, have a standardized interpretation of SMU status in relation to outlook categories;
- Information on SMU biological benchmarks and management references (where defined) for additional context.

BACKGROUND

STOCK MANAGEMENT UNITS

For the 2023 Outlook, ‘Stock Management Units’ (SMUs) are used to describe stock aggregates that inform development of Integrated Fisheries Management Plans (IFMPs) for salmon. This is required for implementation of the fisheries-related revisions to the *Fishery Act*.

For salmon, the working definition of a ‘stock management unit’ (SMU) is a ‘group of one or more conservation units (CUs) that are managed together with the objective of achieving a joint status’, meaning harvest control rules would apply to the aggregate, at least in a coarse sense. Use of SMUs does not preclude considerations related to conserving CU-level diversity, but rather is a practical aggregation of CUs for harvest planning and reporting purposes. That is, it is the scale at which harvest management plans, or better, management and assessment procedures, are developed in Integrated Fisheries Management Plans (IFMPs). In many cases, elements of the Precautionary Approach are implemented at finer scales of organization within a SMU.

BIOLOGICAL AND MANAGEMENT REFERENCES

The purpose of a stock forecast or outlook is to provide information to harvest managers to potentially adjust harvest plans according to the expected stock abundance. Ideally in that regard, the status of the stock management unit (or sub-unit) is assessed against specified limits and targets and pre-defined harvest strategies (or harvest control rules) are in place that define the actions required to meet targets and avoid limits.

Therefore, where biological benchmarks and/or limit reference points are defined for CUs or SMUs, respectively, they are noted in the Outlook/Forecast tables below. Similarly, if management targets are in place they are identified. Lack of these references is a gap and work is on-going to develop methods and complete the analyses to define these references. The summary below describes how these biological and management references are applied and interpreted.

WSP LOWER BIOLOGICAL BENCHMARKS AND LIMIT REFERENCE POINTS (LRPS)

For implementation of the Wild Salmon Policy, the status of salmon Conservation Units (CU) is assessed against 'biological benchmarks'. The lower biological benchmark allows for substantial buffer between it and the level of abundance at which the stock would be considered at risk of extinction and is generally estimated as S_{GEN} . The upper biological benchmark delineates the 'amber' from 'green' WSP status zone and is generally estimated as $.80 S_{MSY}$. For more data-limited systems (i.e. where it is not possible to numerically estimate stock-recruit parameters), proxies for lower and upper biological benchmarks may be applied. For example, the lower and upper biological benchmarks are estimated as .25 and .60 percentiles of the long-term observed spawning abundance.

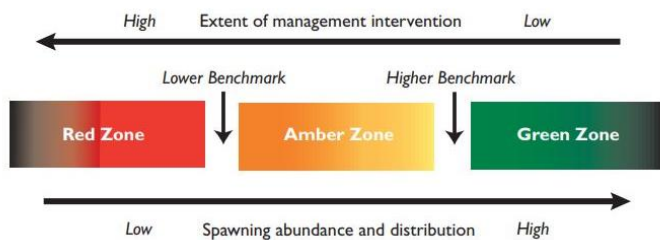


Figure 13-29: Benchmarks and biological status zones for CU assessments

Under DFO's Precautionary Approach (PA), the stock management unit (SMU) limit reference point (LRP) is a biologically-defined reference that delineates the 'critical zone' from the 'cautious zone' for harvest management. It represents the status below which serious harm is

occurring to the stock. There may also be resultant impacts to the ecosystem, associated species and a long-term loss of harvest opportunities.

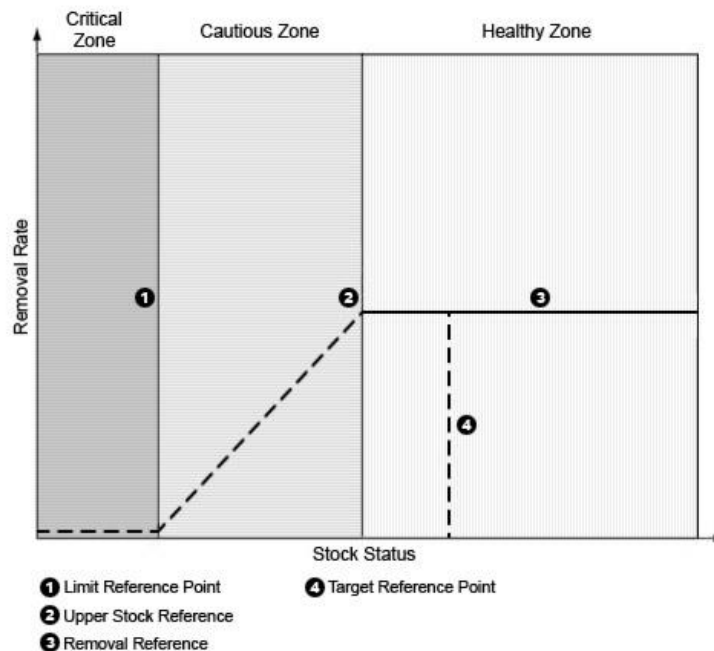


Figure 13-30. Schematic of a generalized harvest strategy under DFO's PA.

Given the intent is similar between the WSP and DFO's PA, it is practical to equate the SMU LRPs with lower biological benchmarks at the CU level. However, the WSP recognizes that serious harm to species occurs when CUs are depleted or lost. Therefore, to be consistent with the WSP, LRPs at the SMU scale should consider CU-scale biodiversity. Methodological approaches for defining LRPs are being developed to ensure CU-level biodiversity is taken into account and for both data-rich and data-limited assessment systems.

MANAGEMENT TARGETS AND OPERATIONAL CONTROL POINTS

While management targets or operational control points are often informed by biological benchmarks and stock-recruit reference points, they also take into account other objectives such as maximizing sustainable harvest, avoiding over-fishing, maintaining stable access and opportunity, allocation objectives such as how catch is distributed among harvesters, etc. As such, they are tightly linked to the harvest strategy and fishery management measures.

In some cases, the management target may be a simple trigger such as when a 'surplus-to-escapement-target' harvest control rule is in place. In other cases, there may be multiple management targets (or operational control points) used to adjust the harvest control rule at different levels of abundance.

Note that an SMU can be below its management target (and therefore subject to some level of harvest restriction as per the harvest control strategy), but well above levels that represent a serious conservation concern (i.e. the LRP or LBB). In other situations, an SMU may be well above its target but subject to harvest restrictions because the stock rears or co-migrates in mixed-stock fishing areas with other SMUs (or CUs) that are near or below their LRP (or LBB).

STOCK OUTLOOKS

CATEGORICAL STOCK OUTLOOKS

For the ‘Preliminary Outlook’ and for those SMUs for which statistical forecasts are not produced, either because the SMU is not intensively managed and/or is more data limited, categorical ‘outlooks’ are assigned. These outlooks are based on expert opinion qualified with information from monitoring programs. For each stock grouping an outlook of expected spawning abundance is assigned based on a scale of 1 to 4.

For CUs or SMUs with references in place (i.e. either lower (LBB) and upper biological benchmarks (UBB) and/or lower reference points (LRP) and upper stock references (USR) and Target Reference Point (TRP), these references are used to assign Outlook category. For more data-limited CUs or SMUs (i.e. those without defined stock or management references), expected spawning abundance is compared to average or median abundance based on available information.

SMUs for which insufficient data are available to determine an Outlook are noted as ‘Data Deficient’.

Outlook Category	CUs or SMUs with references		Data Limited CUs or SMUs	
	Wild Salmon Policy (CU Level)	Precautionary Approach (SMU Level)	Category Definition	Expected spawning abundance
1	Red Zone (i.e. below the LBB)	Critical Zone (i.e. below the LRP)	Well below average	<25 th percentile
2	Amber Zone (i.e. below the LBB, below the UBB)	Cautious Zone (i.e. above the LRP below the USR)	Below Average	25 to 40 th percentile

APPENDIX 9: SALMON OUTLOOK

Outlook Category	CUs or SMUs with references		Data Limited CUs or SMUs	
	Wild Salmon Policy (CU Level)	Precautionary Approach (SMU Level)	Category Definition	Expected spawning abundance
3	Green Zone (i.e. above the UBB)	Healthy Zone (i.e. above the USR)	Near Average	40 to 60 th percentile
4	Green Zone (i.e. at or above the TRP)	Healthy Zone (at or above the TRP)	Abundant	>60 th percentile
Data Deficient			Insufficient information	Unknown

NORTH COAST AREA

HAIDA GWAI

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
HAIDA GWAI SOCKEYE	Aggregate includes 10 CUs	1990-present avg. spawners ~ 25000	None	Under development for several CUs	Outlook Category 3
HAIDA GWAI PINK – ODD	Aggregate includes 6 CUs (even and odd year)				Data Deficient
	Due to historically consistent low abundance, there is not a lot of data that is collected on Haida Gwaii odd-year Pinks				
HAIDA GWAI CHINOOK	Aggregate includes 2 CUs				Data Deficient
	An assessment program commenced on the Yakoun in 2021 and is not being reported yet.				
HAIDA GWAI COHO	Aggregate includes 3 CUs				Data Deficient

APPENDIX 9: SALMON OUTLOOK

	Limited assessments since 2002. Returns to enumeration sites such as Tlell and Deena have been generally good over the past decade, with weaker than average escapement observed at Tlell and the Deena in 2021.				
HAIDA GWAI CHUM	Aggregate includes 5 CUs				Outlook Category 1
	Poor productivity has been observed for the past decade. East Haida Gwaii, West Haida Gwaii, and North Haida Gwaii CUs are expected to continue to be well below average (1).				

SKEENA AND NASS RIVERS

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
NASS SOCKEYE	Aggregate includes 7 CUs	263,369 (Avg. ESC, 1982+)		250,000 (Escapement Target)	Model 1 (5-yr Avg): 390,000 (244,000 to 623,000)
	Improved return in 2021 and 2022 compared with (2020 which was the lowest return to the Nass since 1992) but below average compared with historical returns				Model 2 (Sibling): 455,000 (231,000 to 910,000) (Total return)
SKEENA SOCKEYE	Aggregate (wild and hatchery)	2,584,000 (Avg. Return 1973+)	Under review	Under review, esc target is 900,000, 400,000 lower operational control point	Model 1 (5-yr Avg): 1,794,376 (794,701 to 4,051,567)
	Skeena – Wild Aggregate includes 30 CUs	Variable	Under review	Included in Skeena aggregate, under review	Model 2 (Sibling): 3,207,029 (1,506,297 to 6,828,028)
	Rates of return have become more uncertain in recent years, with greater variability among the wild Skeena stock components compared with the Skeena aggregate. Overall we saw a strong aggregate return in 2022 which consisted mostly of enhanced sockeye originating from the Babine Lake Development Project spawning channels and managed systems. Low returns were observed for wild Babine sockeye populations and average returns for most other Skeena sockeye CUs. Similar to the 2022, abundant aggregate returns are again forecasted for 2023. Note that the 5-year old component of 2023 returns follows severe drought conditions that were experienced by brood year spawners in 2018. For some populations, returns may be affected by sockeye that did not make it to their spawning grounds due to low water and heavy predation, which was observed for some populations.				(Skeena aggregate, Total Return)
	Babine Lake - Enhanced		Under review	Spawning channel capacity = 470,000	Outlook Category 4
	Strong age-5 aggregate returns expected in 2023 based on higher than average age-4 returns in 2022. Average abundance forecast in 2022 for age-4 Sockeye based on average age-3 returns in 2022				
MAINLAND COASTAL SOCKEYE	Areas 3 to 6				Outlook Category 3 (data limited)
	Average to above average for surveyed systems. Many unsurveyed systems throughout area.				

APPENDIX 9: SALMON OUTLOOK

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
NASS PINK-ODD	Aggregate includes 5 CUs				Data Deficient
	A revised 1950-Present assessment suggest below average returns in recent years with improved escapements seen in some streams for the 2021 brood year. However, the 2023 Outlook category is considered to be data deficient as abundance related to brood years do not correlate.				
SKEENA PINK-ODD	Aggregate includes 3 CUs				Outlook Category 2
NASS CHINOOK		30,000 (TRTC 1994-2022)		15,000 (ESC target)	Model 1 (5-yr Avg: 21,000 (19,000-23,000) Model 2 (Sibling): 32,000 (19,000-54,000) Terminal RTC Outlook Category 3
	The 2023 return is uncertain after record low escapements in 2017 and low water levels in 2018 that may have affected the brood year. Preliminary forecast model average is for 27,000 (19,000-39,000) return to Canada (Nisga'a Fish & Wildlife). There is generally low productivity among stream-type stocks in the north-west				
SKEENA CHINOOK	Aggregate includes 12 CUs	61,000 POPAN best model estimate 70,000 Petersen estimate (GSI mark-recapture based on KLM estimates 1984-2022)			35,388 Outlook Category 2
	Kitsumkalum Indicator Stock	10,000 POPAN best model estimate 13,000 Petersen estimate (KLM mark-recapture 1984-2022)			

APPENDIX 9: SALMON OUTLOOK

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
	Below average returns are expected for both summer and spring timed Skeena Chinook. The 2023 return is uncertain after record low escapements in 2017, a higher return in 2018 and low return again in 2019. There is generally low productivity among stream-type stocks in the north-west. Escapement estimates were revised using POPAN models (Velez-Espino et al. 2016. N. Am. J. Fish. Manage. 36:183-206; Winther et al. 2021. Can. Manuscr. Rep. Fish. Aquat. Sci. 3217: ix + 131p.)				
NASS COHO	Aggregate includes 3 CUs				Outlook Category 4
SKEENA COHO	Aggregate includes 4 CUs				Outlook Category 3
SKEENA - NASS CHUM	Nass CU	13,632 (1950-Present)	none	Under Review. MEG is 72,000	Outlook Category 3-4
	Skeena CU Aggregate includes 2 CUs				Outlook Category 1
Well below average (1), data limited for both CUs.					

CENTRAL COAST

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
CENTRAL COAST SOCKEYE Excluding Rivers/Smith	Areas 7 and 8 45 CUs				Outlook Category 1 to 3
	Most systems in areas 7 and 8 are data deficient. Average returns relative to recent period (2000+) for systems that were surveyed in Area 8 (Koeye, Kadjudis, Namu are a 3). The Atnarko sockeye outlook category is a 1 as returns are well below historic and population is in recovery.				
RIVERS / SMITH SOCKEYE	Rivers – Aggregate includes 2 CUs (Wannock River and Owikeno Lake)	272,000 (Avg. ESC, 2000+)	Under development	None	Outlook Category 1
	Smith: Long Lake CU	62,000 (Avg. ESC, 2000+)			
	Docee Fence (Area 10/Smith Inlet/Long Lake) sockeye is currently under review .				
CENTRAL COAST PINK - ODD	Area 6			MEG - 1,447,000	Outlook Category 3
	Area 7			MEG – 444,720	Outlook Category 2
	Area 8			MEG – 1,520,400	Outlook Category 1
	Area 9			MEG – 342,450	Outlook Category 1
	Area 10			MEG – 65,600	Data deficient
	Area 6 returns are expected to be above average. Below average to average returns are expected in Areas 7 and 8. In 2021, Area 8 odd year 8 Pinks had one of the lowest returns since 1969.				
CENTRAL COAST CHINOOK	Atnarko Indicator Stock Bella Coola-Bentinck CU	15,500 including hatchery component 9,000 wild (Maximum likelihood model 1990-2022)		5009 (Atnarko wild) Escapement Target (SMSY)	9,308 Outlook Category 2
	These stocks are generally depressed and this pattern is expected to continue or worsen given generally low productivity among stocks in the north-west..				
	Areas 7 and 8 3 CUs –				Outlook Category 2 /

APPENDIX 9: SALMON OUTLOOK

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2023 FORECAST/ OUTLOOK
	2023 Bella Coola returns are expected to be below average based on returns in recent years. Other assessments are of poor quality.				Data Deficient
	Areas 9 and 10 – Aggregate includes 3 CUs				Data Deficient
	Assessments of Wannock River, Owikeno tributary stocks and Chuckwalla/Kilbella are of poor quality or are no longer conducted				
CENTRAL COAST COHO	Area 6 – Aggregate includes 3 CUs				Outlook Category 3
	Areas 7 to 10 – Aggregate includes 4 CUs				Outlook Category 3
	Area 6 2 CUs (CM-18: Hecate Lowlands, CM-20: Douglas-Gardner)				Outlook Category 3
	Area 7 1 CU (CM-19: Mussel-Kynoch)				Outlook Category 2
	Area 8 3 CUs (CM-15: Spiller-Fitz Hugh Burke, CM-16: Bella Coola - Dean, CM-17: Bella Coola River - Late)				Outlook Category 3
CENTRAL COAST CHUM	Area 9 2 CUs (CM-13: Rivers Inlet, CM-14: Wannock)				Data Deficient
	Area 10 1 CU (CM-12: Smith Inlet)				Data Deficient

APPENDIX 10: LONGER TERM COMMERCIAL CLOSURES OR MITIGATION

In 2021, as part of immediate conservation measures under the [Pacific Salmon Strategy Initiative \(PSSI\)](#), the Minister announced several new commercial fishery closures to protect stocks of conservation concern. These closures were implemented on an interim basis in 2021 and were reviewed for longer term closures beginning in 2022 after additional consultation with affected groups.

Beginning in 2022, the Department is continuing to take a more precautionary approach to managing fisheries that interact with stocks of conservation concern to help stabilize and support rebuilding of these depressed populations. The Department identified commercial fisheries where there is a high risk of interception of stocks of conservation concern in targeted fisheries and/or by-catch. For these fisheries, the Department has two approaches for managing the identified stocks of concern including:

- Longer term closure; or,
- No longer term closure and implementation of additional mitigation measures.

In 2023, the Department will continue to implement longer term closures for fisheries identified in Table 13-14. These closures are expected to remain in place until there is clear evidence of stock growth and abundance is above levels associated with the critical zone or Wild Salmon Policy red zone. Where feasible, Table 13-15 outlines additional mitigation measures that will be implemented in the identified fisheries in lieu of a longer term closure.

For any commercial fisheries that are closed, the allocations will remain with the original fleet and fish will be allowed to pass to spawning grounds. Opportunities for additional commercial harvest may be considered in locations where stocks of concern will not be encountered.

All other commercial fisheries not identified as longer term closures will remain closed unless conditions are met for an opening based on harvest decision rules and conservation criteria identified in this Integrated Fisheries Management Plan.

The impacts from the long-term closures will be mitigated by a commercial licence retirement program and a First Nations communal commercial licence alternation program, that are both expected to run from 2022-2025. As well, additional initiatives to support transformation of the fishery will help to mitigate impacts of reduced harvest opportunities.

Table 13-14: Longer Term Commercial Closures

Fishery	Area	Group
Skeena Chinook	4	Area C Gill net
Central Coast Chum	8	Area A Seine*
Central Coast Chum	8	Area C Gill net*
Central Coast Chum	8	Nuxalk Demo*
Central Coast Coho Demo	6-8	Area F Troll
Directed Mixed Stock Coho	1-3, 101-106, 142	Area F Troll
Rivers Inlet Sockeye	9	Area C Gill net
Smith Inlet Sockeye	10	Area C Gill net

*Closed until substantial mitigation measures can be developed

Table 13-15: Additional Mitigation Measures Beginning in 2022

Fishery	Area	Group	Additional Mitigation Measures
Nass Chinook	3	Nisga'a Treaty	Using existing Treaty defined processes and mitigative measures to address stocks of concern.
Nass Coho	3	Nisga'a Treaty	Using existing Treaty defined processes and mitigative measures to address stocks of concern.
Nass Sockeye	3	Nisga'a Treaty	Using existing Treaty defined processes and mitigative measures to address stocks of concern.
Nass Sockeye	3	Area C Gill net	Implement delayed fishing date (June 27), dependent of abundance, when in-season escapement estimates become more accurate and to avoid weak Meziadin Sockeye stocks and Northern Chinook Implement season end date in late July to avoid wild Area 3 Chum.
Skeena Sockeye	4	NCSFNSS Demo	Implement season end date in early-August to avoid later timed wild stocks. Implement August gill net selective fishing practices for the whole season to reduce bycatch mortalities (Steelhead, Coho, Chum) and support fisheries

APPENDIX 10: LONGER TERM COMMERCIAL CLOSURES OR MITIGATION

			monitoring with option for enhanced at-sea observer coverage.
Skeena Sockeye	4	Metlakatla/Lax Kw'alaams Demo	Implement season end date in early-August to avoid later timed wild stocks. Implement August gill net selective fishing practices for the whole season to reduce bycatch mortalities (Steelhead, Coho, Chum) and support fisheries monitoring with option for enhanced at-sea observer coverage.
Skeena Sockeye	4	Area A Seine	Implement season end date in early-August to avoid later timed wild stocks. Maintain ITQ approach in Area 4.
Skeena Sockeye	4	Area C Gill net	Implement season end date in early-August to avoid later timed wild stocks. Implement August gill net selective fishing practices for the whole season to reduce bycatch mortalities (Steelhead, Coho, Chum) and support fisheries monitoring with option for enhanced at-sea observer coverage.
Haida Gwaii Chum	2	Area C	Harvest only on identified surplus, more precautionary application of current management measures.
Haida Gwaii Pink	1 & 2	Area C	Harvest only on identified surplus, more precautionary application of current management measures.

APPENDIX 11: STOCK ASSESSMENT INFORMATION OF FISHING LEVELS FOR WEST COAST VANCOUVER ISLAND CHINOOK UNDER THE FISH STOCK PROVISIONS

This document was updated in May 2023 to reflect exploitation rates from the 2022 season. Edits were minor, and based on preliminary data from 2022 it is expected that 2023 fisheries will still meet the requirements of Section 70(5) under the Fish Stock Provision. Not included is any discussion of potential management action (i.e. court directed closures of the summer fishery) in south east Alaska which has the potential to significantly reduce fishery impacts on this SMU.

Issue

WCVI Chinook are a prescribed major fish stock subject to the Fish Stocks provisions (FSP) as of April 4, 2022. Because the stock is below its limit reference point (LRP), it is subject to section 6.2(1) of the FSP, which requires the establishment of a rebuilding plan in 24-months. However, during the development of the rebuilding plan, subs. 70(5) of the Fishery (General) Regulations applies, which requires that the level of fishing on the stock be consistent with rebuilding the stock. To meet this regulatory requirement, the following principles of the 2009 Precautionary Approach Policy for stocks in the critical zone apply:

- Conservation considerations prevail,
- Removals from all sources are at the lowest possible level,
- There is no tolerance for preventable decline; and
- Management actions must promote stock growth.

Recommendation

Maintain the current level of exploitation that is consistent with the requirements under 70(5) and has a low probability of causing further declines.

This option recommends continued conservation actions when stock productivity and abundance declined significantly. Actions were designed to stop fishery-related declines of WCVI wild Chinook while providing continued socio-economic and cultural benefits in mixed-stock fisheries that intercept the stock. For most years, these fishery reductions result in

exploitation rates below the estimated sustainable fishing limit (i.e. UMSY) for the stock aggregate, across all areas and age classes. In the few years where UMSY has been exceeded, most exploitation occurred in international (US) fisheries. Recent harvest levels do not appear to have impeded rebuilding of this stock management unit (SMU). While returns to some watersheds remain low, others have shown recent increases. Non-fishing factors currently limit stock productivity. Key limiting factors include, but are not limited to, ocean conditions, habitat loss and degradation amplified by climate change, changing demographics, and loss of wild genetic diversity through hatchery straying. A comprehensive assessment and rebuilding process underway will identify and prioritize factors limiting (or threatening) productivity and recommend additional rebuilding and mitigation strategies.

Background

The recent average annual total catch of WCVI Chinook is 180,000, supporting First Nation, recreational, and commercial fisheries from southeast Alaska to communities on the WCVI. The recent 10-year average total pre-fishery abundance is ~280,000, of which 80–90% are hatchery-origin. The spawning abundance of WCVI natural (or wild) origin Chinook averages ~25,000 fish spread across the SMU (Figure 13-31).

WCVI natural Chinook experienced significant declines in marine survival starting in the early 1990s, coincidental with an ocean regime shift, two strong El Niño events, and other factors being assessed in the current rebuilding planning process. The marine survival for the WCVI indicator stock, Robertson Creek Hatchery, is variable (Figure 13-32) with recent averages of ~3% from smolt to adult based on PSC Chinook Technical Committee cohort analyses (Chinook Technical Committee 2022). Marine survivals of natural smolts is much less, likely less than 1% based on recent smolt studies.

Overall, the status of WCVI wild Chinook remains low. There are 3 Conservation Units (CUs) within the SMU: Southwest Vancouver Island, Nootka and Kyoquot, and Northwest Vancouver Island. These CUs correspond with 3 'Designatable Units' (DUs): DU 24 (WCVI Ocean, Fall (South) population, DU 25 WCVI Ocean, Fall (Nootka and Kyoquot) population, and DU 26 WCVI Ocean, Fall (WVI + WQCI) population, that were assessed as threatened, threatened, and data deficient, respectively, by COSEWIC (2020). The most important threats COSEWIC identified were ecosystem modifications (i.e. loss and degradation of freshwater habitat primarily due to forestry impacts) and the loss of wild genetic diversity due to introgression with hatchery strays. Aquaculture impacts were also identified as a potential threat. Fishery impacts were not identified as an important threat and they did not drive the designation status.

Recent returns to two indicator areas with no significant hatchery enhancement—Kyuquot Sound in the north west Vancouver Island, and Clayoquot Sound in south west Vancouver

Island—show different outlooks. Chinook populations in Kyuquot Sound appear to be increasing while populations in Clayoquot Sound appear to be persisting at very low levels (Figure 13-33).

WCVI natural origin Chinook are data limited, with little ability to parameterize stock and recruit models from the fish data. As an alternative, DFO uses habitat-based extrapolations of productivity in natural systems (Parken et al. 2006), along with marine survival and exploitation rate estimates based on coded-wire-tag data from Robertson Creek Hatchery Chinook. Up until the oceanic regime shift in about 1989 (Hare and Mantua 2000), the productivity of WCVI Chinook was high, with exploitation rates as high as 80%. After the regime shift and the subsequent declines in the 1990s, DFO biologists estimated an approximate 50% decline in productivity. The resulting exploitation rate limit at Maximum Sustainable Yield is now estimated to be 43% (Holt et al. CSAS Research Document xx 2022). The recent 10-year average non-terminal Calendar Year Exploitation Rate, as determined by the Pacific Salmon Commission's Chinook Technical Committee (PSC 2022) is 35% with a 40:60 distribution of ocean (non-terminal) catch between Canada and US respectively.

Canada has been actively managing the exploitation rate (ER) on the WCVI natural (or wild) populations since 1995, when WCVI wild Chinook were first identified as a stock of concern. Actions included catch limits and time and area closures in fisheries where WCVI Chinook were prevalent. In 1996, non-retention of Chinook was implemented from northern BC down to the WCVI. Fishery reductions were introduced through the Pacific Salmon Treaty in 1999 and again in 2008 and 2019. Throughout this time, additional domestic restrictions in Canadian fisheries were applied. In 2000, a limit of 10% exploitation rate was implemented in key Canadian fisheries, including Canadian Northern BC AABM (northern troll and sport), Canadian Southern BC AABM (WCVI troll and offshore sport), and the WCVI portion of the Canadian Southern BC AABM and individual stock-based management ISBM. This included extensive fin-fish closures along the inshore WCVI. No action was taken in other areas of Canadian SBC ISBM or Canadian NBC ISBM, where WCVI Chinook were less prevalent.

The total recent ER on Clayoquot Sound stocks averages ~35%, including 10% in the above-mentioned Canadian fisheries, plus an additional 5% in other Canadian fisheries. The remainder are taken in US fisheries, mostly in southeast Alaskan waters. See Figure 13-33 where the red line is the 10% ER limit. Note that in recent years, management of marine fisheries to reduce impact on Fraser stocks of concern will have provided additional pass-through benefits to WCVI origin Chinook.

In Figure 13-34, we provide a visual assessment of sustainability of the current fishery management regime for WCVI Chinook. This assessment indicates that the fishery management for WCVI Chinook is currently sustainable and is taking spawning biomass into account. Age

specific exploitation rates are not included in the Figure 13-34 plot but are being assessed and addressed in the current rebuilding planning process.

Non-fishing factors likely limit the productivity of WCVI natural Chinook. Freshwater habitat degradation impacts amplified by climate change, marine risks especially during the first few months at sea, and low genetic diversity of WCVI Chinook are all key risk factors. The ongoing rebuilding planning process will improve our understanding of these key risk factors. DFO hatcheries have adopted improved rearing strategies to reduce straying and improve genetic diversity. For example, Conuma Hatchery initiated a pilot for mass marking hatchery releases, and there are pilots on removing hatchery spawners by local First Nations on the Sarita and Burman rivers. Additional actions are expected to be implemented under the pillar of Hatchery Modernization in the Pacific Salmon Strategy Initiative. DFO Science, along with WCVI First Nations and other partners, is expanding research into freshwater and marine factors limiting productivity. The initial rebuilding plan should be completed by the end of March 2024.

For further information on WCVI Chinook and rebuilding contact: Nicholas.brown@dfo-mpo.gc.ca or Wilf.Luedke@dfo-mpo.gc.ca or Pieter.vanwill@dfo-mpo.gc.ca

References

- COSEWIC. 2020. COSEWIC assessment and status report on the Chinook Salmon *Oncorhynchus tshawytscha*, Designatable Units in Southern British Columbia (Part Two – Designatable Units with High Levels of Artificial Releases in the Last 12 Years), in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxxv + 203 pp.
<https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/cosewic-assessments-status-reports/chinook-salmon-2020>.
- Hare, S. R., and Mantua, N. J. (2000). Empirical Evidence for North Pacific Regime Shifts in 1977 and 1989. *Prog. Oceanogr.* 47, 103–145. doi: 10.1016/s0079-6611(00)00033-1
- Holt, Carrie A., Kendra Holt, Luke Warkentin, Catarina Wor, Brendan Connors, Sue Grant, Ann-Marie Huang, 2022. Guidelines for Defining Limit Reference Points for Pacific Salmon Stock Management Units. CSAS Research Document 2022/nnn.
- Holt, Carrie A. and James Irvine. 2013. Distinguishing benchmarks of biological status from management reference points: A case study on Pacific salmon in Canada. *Environmental Conservation* 40 (4): 345–355
- Holt, Kendra, Carrie A. Holt, Luke Warkentin, Catarina Wor, Brooke Davis, Michael Arbeider, Jessy Bokvist, Sabrina Crowley, Sue Grant, Wilf Luedke, Diana McHugh, Candace Picco, Pieter Van Will. 2022. Case Study Applications of LRP Estimation Methods to Pacific Salmon Stock Management Units. CSAS Research Document 2022/nnn.
- Parken, C. K., R. E. McNicol, and J. R. Irvine. 2006. Habitat-based methods to estimate escapement goals for data limited Chinook salmon stocks in British Columbia, 2004. Fisheries and Oceans Canada, Research Document 2006/083, Nanaimo, British Columbia, Canada.

PSC 2023. 2022 Exploitation Rate Analysis. TCChinook (23)-05.

<https://www.psc.org/publications/technical-reports/technical-committee-reports/chinook/>

Figures

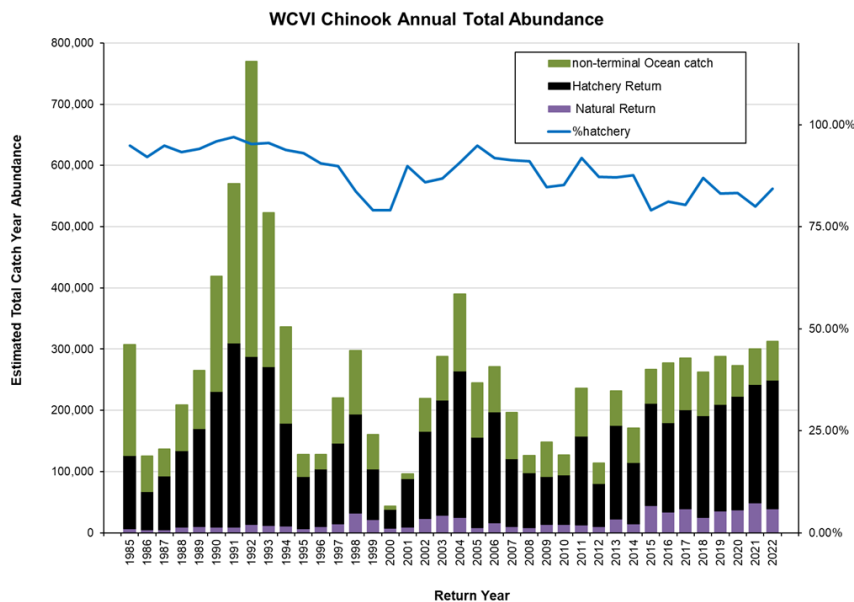


Figure 13-31. Total abundance of adult WCVI hatchery plus natural origin Chinook average ~280,000 in the recent 10 years. Natural origin Chinook returns after ocean or non-terminal harvest average ~25,000. About 80-90% of the total production is hatchery origin. Fisheries are non-selective and so catches include hatchery and natural production.

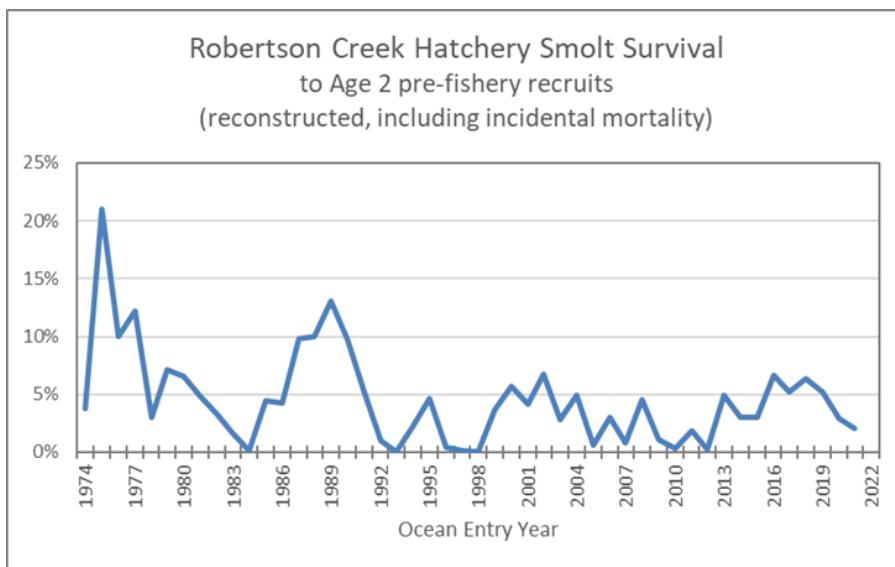


Figure 13-32: Smolt to age 2 adult survival rate for Robertson Creek Hatchery Chinook; which is the exploitation rate and survival rate indicator for the WCVI Stock Management Unit. The recent 10 year average is 3% survival. The smolt to adult survival of natural production from rivers along the WCVI is likely less than 1%.

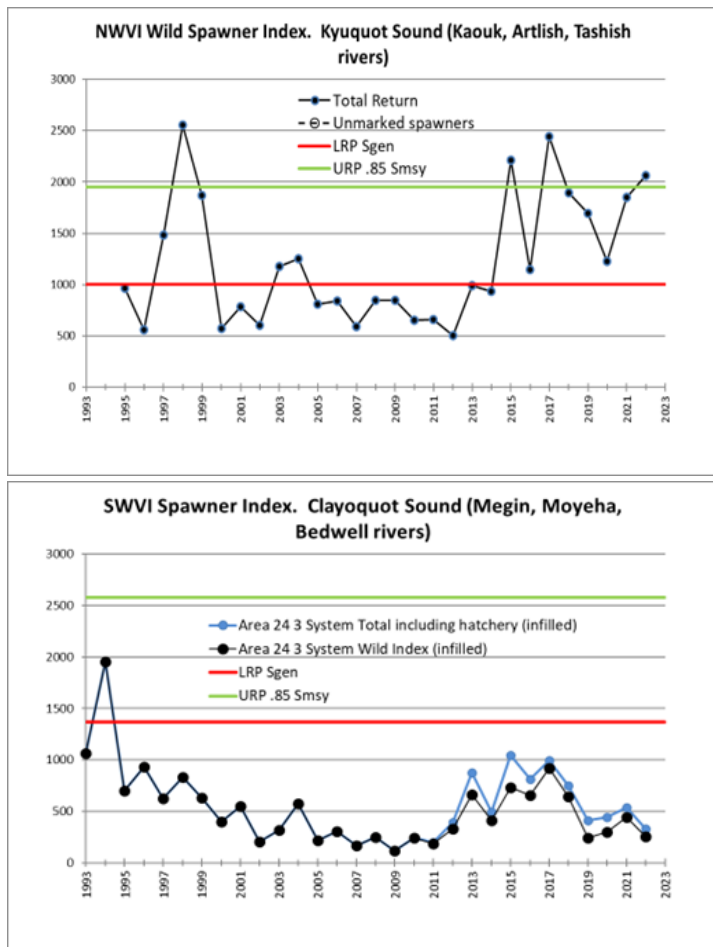


Figure 13-33 a) Chinook spawner numbers in 3 indicator rivers in Kyuquot Sound in north west Vancouver Island, and b) Chinook spawner numbers in 3 indicator rivers in Clayoquot Sound in south west Vancouver Island. 1993-2022. Total return means total spawners plus broodstock captures. LRP and URP are Upper and Lower biological benchmarks based on Sgen and Smsy respectively, as interim Lower and Upper Reference Points respectively (see Holt and Irvine 2013).

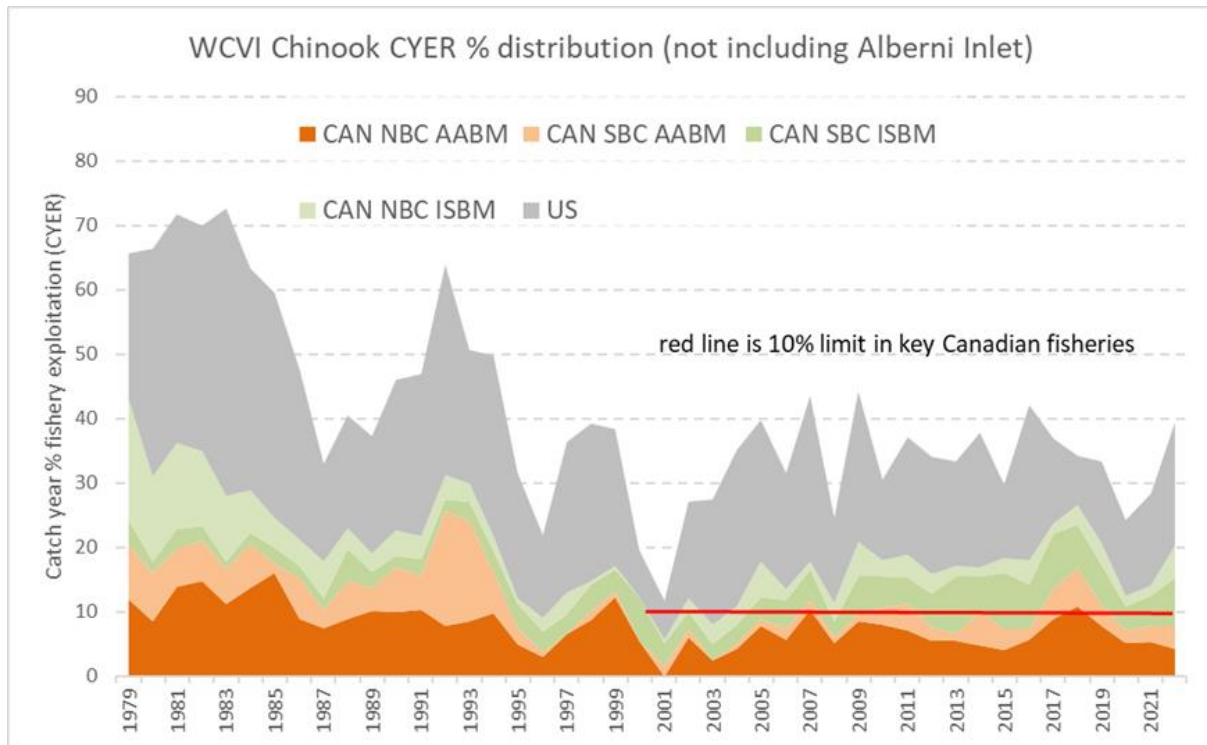


Figure 13-34: Catch Year Exploitation Rate (CYER) in non-terminal fisheries (not including Alberni Inlet) on WCVI Chinook natural origin Chinook salmon such as returns to Clayoquot Sound. The total exploitation rate is averaging about 35% in recent years, about half of which is taken in US fisheries. Note that AABM and ISBM are Pacific Salmon Treaty designations for fishery types; Aggregate Abundance Based Management and Individual Stock Based Management respectively.

The red line represents the DFO 10% limit on the NBC and SBC AABM fisheries and the portion of the SBC ISBM which is the WCVI sport fishery outside Area 23 (Barkley-Alberni).

CAN NBC AABM includes the Northern BC commercial troll and sport around Haida Gwaii; CAN SBC AABM includes WCVI commercial troll and offshore sport; CAN SBC ISBM includes all other fisheries in southern BC areas not including Alberni Inlet; CAN NBC ISBM includes all other fisheries in northern BC marine waters; US includes south east Alaskan Pacific Salmon Treaty fisheries including troll, sport, and net.

APPENDIX 12: TSIINEE TLA'ANDA/CHIINAAY TLLXANDA CODE OF CONDUCT OF RECREATIONAL FISHING ON HAIDA GWAI

Haida Gwaii is a place of natural beauty, abundance of life, and rich culture. For thousands of years, the Haida Nation has protected the lands, waters and resources of the Islands through traditional laws and values that ensure stewardship and sustainability of healthy ecosystems. To respect past, present and future generations, these values are applied to all of Haida Gwaii.

When fishing finfish and shellfish in the tidal waters of Haida Gwaii, remember:

Yahgudang – Yahguudang – Respect

Respect for each other and all living things. We take only what we need, we give thanks, and we acknowledge those who behave accordingly.

- Treat other people with respect and kindness both on and off the water.
- Carefully select practices, bait and equipment to allow for respectful handling and harvesting of all life.
- Understand and follow fishery closures, location closures, daily limits, and gear restrictions set out in fishing regulations.
- Every beach, stream and fishing hole in Haida Gwaii holds cultural, archaeological and ecological importance. Tread lightly and do not disturb sensitive intertidal zones, estuaries or terrestrial areas.
- Cultural and archaeological sites are extremely sensitive and must not be disturbed. For example, it is prohibited to enter caves. Access to ancient village sites require specific protocol be followed.

Gin 'laa hl isdaa.uu – 'Laá guu ga KanhlIn – Responsibility

To accept the responsibility passed on by our ancestors to manage and care for our sea and land.

- Leave no trace. Pack out all waste, and encourage others not to litter in rivers, oceans or on land.
- When you catch a fish that is bleeding and/or showing signs it will not survive release, and it is a retainable species and size, it is your responsibility to keep that fish as part of your limit.
- If you catch a protected rockfish as a restricted bycatch, or reach your rockfish limit, use a descending device to return it to depth and move to a different location before continuing to fish.
- Report suspected violations of fisheries, wildlife, or environmental protection laws to the appropriate bodies listed below.

Tliisdluu gudang kilangangs isdaa – Gina gii sdaahlas sGun isda – Only take what you need

Take only what you need to feed yourself, family and loved ones.

- The Haida Nation has practiced sustainable fishing as a way of life for thousands of years. The Haida Nation encourages anglers to direct their efforts towards fishing for food, and consider the ecological impacts of catch-and-release. Mortality caused by the release of fish can have an adverse impact on stocks and the surrounding ecosystem.
- Take every step to avoid unnecessary mortality or harm to fish and other living things. This involves being informed and equipped before starting to fish.⁹
- Haida Gwaii is home to rich fishing waters. The largest fish should not be a target, their survival is needed in our waters to ensure stocks remain healthy for generations to come.

Gin 'waadluwaan gud ahl kwaagiidang – Gina 'waadluxan gud ad kwaagid – Interconnectedness

Recognize the relationship between species and habitats. Take responsibility for short and long-term effects of human activity on the environment.

- Our coastal waters are highways for salmon born all along the Pacific North Coast. Fishing activities in Haida Gwaii impact stocks from other territories, which in turn may affect future fishing activities back in Haida Gwaii.
- Haida Gwaii is vulnerable to the spread of invasive species that threaten fish and their habitats. Always clean, drain and dry your boat and fishing equipment to prevent spread of invasive species before arriving to the islands.
- Haida Gwaii hosts important habitat for threatened northern resident killer whales, grey whales and humpback whales. If you see a tail, fin or spray, reduce boat speed and stay a minimum of 100m away from whales, porpoises and dolphins and 200m away from killer whales.
- Human-related activities can have devastating impacts to the habitats and behaviors of marine mammals, seabird colonies and other wildlife. Do not feed or disturb wildlife.

**Council of the Haida Nation
Haida Fisheries Program: 250-626-3302
Heritage and Natural
Resources: 250-626-6058**

**BC Ministry of Environment
and Climate Change Strategy
Report fisheries, wildlife and
pollution violations: 1-877-952-RAPP (7277)**

**Department of Fisheries and
Oceans Canada Report a
fisheries violation: 1-800-465-4336 DFO.ORR-
ONS.MPO@dfo-mpo.gc.ca**

Comments can be directed to mpp.ecdev@haidanation.com, 1.250.559.4468 ext 289

⁹ Resources: Department of Fisheries and Ocean's annual Sports Fishing Guide for BC Tidal Waters
BC Freshwater Fishing Regulations Synopsis