Fraser River Chinook, Coho, and Chum Background Information

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1. Fraser River Chinook Salmon

Fraser River Chinook encompass a diverse group of populations that exhibit a wide range of life histories and run timing. Chinook salmon enter the Fraser River from March through October. Spawning occurs throughout the Fraser from just above the tidal limit at Mission, BC to the upper tributaries of the Stuart Basin.

Chinook juveniles exhibit both stream and ocean history life types. Stream life history means the Chinook juveniles spend over one year in fresh water. Ocean life history means the Chinook juveniles go to sea after less than one year (usually 90 days) in fresh water.

Currently Fraser River Chinook are managed as five different Management Units:

- Spring 4_2 Chinook – 2 conservation units
- Spring 5_2 Chinook – 9 conservation units
- Summer 4_2 Chinook – 5 conservation units
- Summer 4_1 Chinook – 4 conservation units
- Fall 4_1 Chinook – 3 conservation units

A comparison of the Management groupings with Wild Salmon Policy Conservation Units, COSEWIC Designatable Units, and a list of spawning locations is shown in the table on page 3. More information about status of Fraser River Chinook can be found in the most recent South Coast Salmon Integrated Fishery Management Plan (https://www.pac.dfo-mpo.gc.ca/fm-gp/ifmp-eng.html)

1.1. Chinook Ages

In many documents, age and life history type are expressed as a group of numbers such as **4_2** (Gilbert-Rich format) or **1.2** (European format).

In the Gilbert-Rich (G-R) format the large number **4** represents the age of the fish on its *next birthday* or the number of winters from its deposition in the gravel as an egg to the time of sampling. The subscript number **2** represents the year in which the fish migrated to the ocean (i.e. it migrated as a one year-old in its second year of life). The subscript number can also be interpreted as the number of winters spent in freshwater from the egg stage.

An age 1.2 fish in the European format is the same as an age 4_2 fish in the G-R format. Here, the number **1** represents the total number of complete years the fish spent in freshwater (or the number of winters *since hatching* the fish spent in fresh water), and the number **2** represents the total number of complete years spent in the ocean (or the number of winters the fish spent in the ocean).

Years Spent In				
Freshwater	**Saltwater**	**U.S. (European)**	**Canadian (Gilbert-Rich)**	**Total Age**
>1 and <2*	>2	1.2	4_2	4
>1 and <2	>3	1.3	5_2	5
<1	>3	0.3	4_1	4
>1 and <2	>1	1.1	3_2	3

*****This means more than one year in freshwater but less than two years in freshwater. For example: egg goes into the gravel in October 2016, fish emerges the following spring (2017), stays in the freshwater for a year and heads to sea in April 2018.

2. Fraser River Coho Salmon

Coho Salmon populations spawn throughout the Fraser watershed. There are many spawning sites in Lower Fraser River, and Interior Fraser Coho return to the Upper Fraser and Thompson Rivers. Fraser Coho have a stream-type life history, meaning the juveniles spend over one year in fresh water. Most Coho return as three year olds, though approximately 10% return as 4-year-olds, having spent 2 years in fresh water.

Coho enter the Fraser River from late August to December. The peak migration period for Lower Fraser Coho is late August through late September, and the peak for Interior Fraser Coho is from early September to early October. Interior Fraser Coho populations have declined dramatically from peak abundances observed in the 1980s.

3. Fraser River Chum Salmon

The Fraser River boasts the largest Chum Salmon population in British Columbia. There are two Conservation Units (Lower Fraser and Fraser Canyon) that are managed as a single unit.

Fraser River Chum Salmon enter the Fraser River from September through November, with the peak of migration occurring in mid- to late October in recent years. The major spawning areas below Hope (Lower Fraser CU) include Harrison River/Weaver Creek/Chehalis River, Chilliwack/Vedder Rivers, and Stave River. Above Hope (Fraser Canyon CU) the major spawning areas include Hunter Creek, Kawkawa Creek, and Silverhope Creek. The annual escapement goal for all Fraser Chum is 800,000.

Enhancement of Fraser Chum occurs at DFO-operated facilities (Weaver spawning channels, Inch Creek, Chilliwack, and Chehalis hatcheries) as well as through community programs supported by DFO Community Advisors (Alouette River, Kanaka Creek, Nicomekl River, Serpentine River). Production has been relatively consistent over the last 10 years, with approximately 11 million fry released annually. Hatchery Chum in the Fraser watershed are not marked with coded-wire tags or adipose-fin clips.

Table 1. Comparison of names for Fraser Chinook Management Units, Conservation Units, and Designatable Units.

PSC Management Unit	Wild Salmon Policy Conservation Unit		COSEWIC Designatable Unit and Assessments from November 2018			Spawning Locations
Spring 4_2	CK-17	Lower Thompson SP 1.2	DU15	Assessment due early 2020	Lower Thompson Stream Spring	Bonaparte, Coldwater, Deadman, Louis Creek, Nicola, Spius
	CK-16	South Thompson-Bessette Creek SU 1.2	DU14	Endangered	South Thompson Stream Summer	Bessette Creek
Spring 5_2	CK-04	Lower Fraser River SP 1.3	DU3	Special Concern	BC Lower Fraser River Stream Spring	Birkenhead
	CK-08	Middle Fraser Canyon SP 1.3	DU7	Endangered	BC Middle Fraser River Stream	Nahatlatch River
	*CK-10	Middle Fraser River SP 1.3	*DU9	Threatened	BC Middle Fraser River Stream Spring	Cariboo River – Upper, Chilako, Chilcotin, U/L Chilcotin, Cottonwood, Horsefly, Narcosli, Naver, West Road
	*CK-12	Upper Fraser River SP 1.3	*DU11	Endangered	Upper Fraser Stream Spring	Many watersheds N.E. of Quesnel, including: Bowron, Dome, Goat, Homes, Kenneth, etc.
	CK-18	North Thompson SP 1.3	DU16	Endangered	BC North Thompson Stream Spring	Blue, Finn, Raft
Summer 5_2	CK-05	L. Fraser – Upper Pitt SU 1.3	DU4	Endangered	BC Lower Fraser River Stream Summer (Pitt)	Pitt River - Upper
	CK-06	Lower Fraser River SU 1.3	DU5	Threatened	BC Lower Fraser River Stream Summer	Big Silver, Chilliwack/Vedder, Cogburn, Douglas, Green, Lillooet, Sloquet, Weaver
	CK-09	Middle Fraser River – Portage FA 1.3	DU8	Endangered	BC Middle Fraser River Stream Fall	Portage
	*CK-11	Middle Fraser River SU 1.3	*DU10	Threatened	BC Middle Fraser River Stream Summer	Bridge, Cariboo, Chilko, Endako, Kazchek, Kuzkwa, Nechako, Quesnel, Seton, Stellako Stuart
	CK-14	South Thompson SU 1.3	DU13	Assessment due early 2020	BC South Thompson Stream Summer	Eagle, Salmon
	CK-19	North Thompson SU 1.3	DU17	Endangered	BC North Thompson Stream Summer	Barrier, Clearwater, Mahood, N. Thompson
Summer 4_1	CK-07	Maria Slough SU 0.3	DU6	Assessment due early 2020	BC Lower Fraser River Ocean Summer	Maria Slough
	CK-13	South Thompson SU 0.3	DU12	Not at Risk	BC South Thompson Ocean Summer	Adams, Little, S. Thompson, L. Thompson
	CK-15	Shuswap River SU 0.3				Shuswap Lower and Mid
Fall	CK-03	Lower Fraser River FA 0.3	DU2	Threatened	BC Lower Fraser River Ocean Fall	Harrison

*upstream of Big Bar landslide