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PACIFIC SALMON OUTLOOK

PACIFIC REGION

2024

Canada

2024 SALMON OUTLOOK - PACIFIC REGION

PURPOSE

The purpose of this document is to provide an 'Outlook' of expected abundance of salmon in 2024 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:

1. CU groupings with stock management units (SMUs) to better inform decision-making consistent with *Fishery Act* and IFMP requirements.
2. SMUs with statistical forecasts, which are consolidated and reported in the Outlook Document.
3. SMUs without statistical forecasts, have a standardized interpretation of SMU status in relation to outlook categories.
4. Information on SMU biological benchmarks and management references (where defined) for additional context.

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BACKGROUND

Stock Management Units

For the 2024 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.

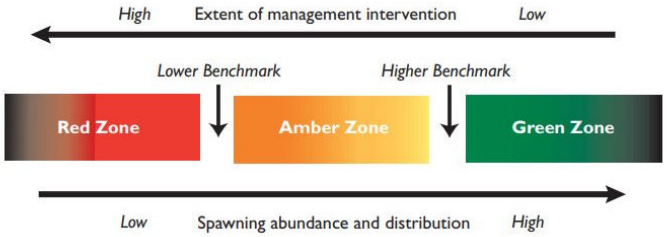

Figure 1. Benchmarks and biological status zones for CU assessments.

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.

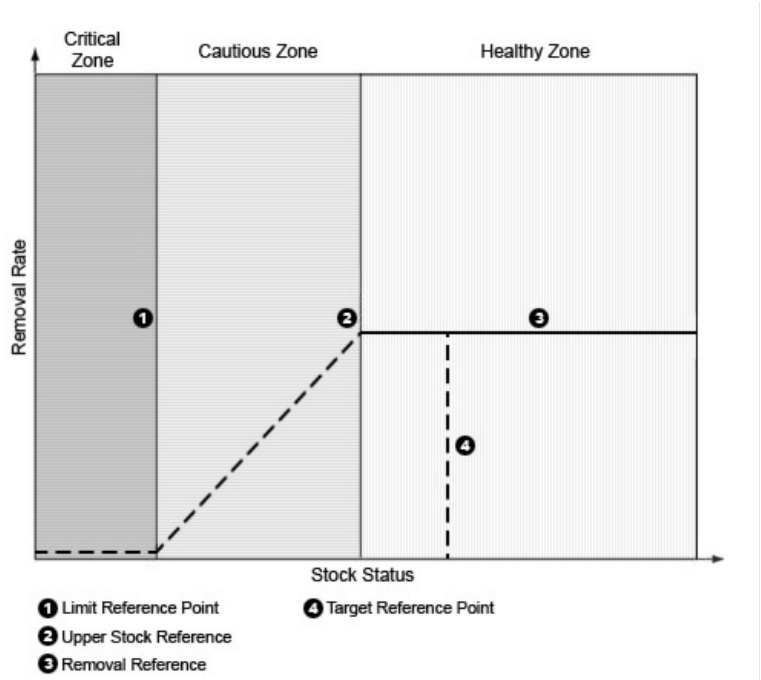

Figure 2. Schematic of a generalized harvest strategy under DFO's PA.

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 considered 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 consider 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 area 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	<25th 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 40th percentile
3	Green Zone (i.e. above the UBB)	Healthy Zone (i.e. above the USR)	Near Average	40 to 60th percentile
4	Green Zone (i.e. at or above the TRP)	Healthy Zone (at or above the TRP)	Abundant	>60th percentile
Data Deficient			Insufficient information	Unknown

YUKON RIVER AND TRANSBOUNDARY

YUKON RIVER

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast /Outlook
YUKON CHINOOK	Aggregate includes 9 CUs	**55,000** (ESC. AVG. 2005+)		**48,750** (42,500 – 55,000) Escapement Target (S_{MSY})	Total **23,000** Border passage estimate **13,000** Outlook Category 1
PORCUPINE CHINOOK	Porcupine Aggregate 3 CUs	Data Deficient (Mainstem as indicator)		N/A	
	The spawning escapement of Canadian-origin Yukon River mainstem Chinook salmon in 2023 was well below average at 14,752. The recent spawning escapement goal endorsed by the U.S./Canada Yukon River Panel for Mainstem Chinook was 42,500-55,000 Chinook salmon and has been met only 40% of the time over the last decade. In 2023 the YRP did not reach consensus on escapement targets. Canada utilized a more conservative target of 55,000 for FM objectives. Five and six year old fish dominate returns. Recent total production observed in Canadian-origin Yukon River Chinook salmon stocks is well below past years: averaging around 66,000 over the last ten years, compared to 150,000 in the 1980s and 1990s. Recent (last 4 years) forecast accuracy of escapement into Canada has been poor, likely due to on route mortality, at this time predict <30,000 assessment of Porcupine Chinook continues (limited data). Outlook Category 1				
PORCUPINE COHO	Porcupine CU	Data Deficient (US stocks as indicator)			**Data Deficient**
	Very little is known about Coho Salmon stock status within Canadian portions of the Yukon River drainage. Data from the U.S. portion of the drainage suggest runs to the drainage have been below average in three of the past five years, with a declining trend. No assessment programs are currently undertaken in Canada and the current stock status is unknown. It is known that coho salmon primarily return as 4-year-olds and overlap with the tail end of the fall chum run.				
YUKON CHUM	Mainstem – includes 6 CUs	**182,000** (ESC. AVG 2006+)		**87,000** (70,000 - 104,000) Escapement Target (S_{MSY})	**55,000** Outlook Category 1-2
	The spawning escapement of Canadian-origin Yukon River mainstem Chum salmon in 2023 was one of the lowest on record, at 22,179. The run is typically dominated by four year old fish. The current mainstem spawning escapement goal endorsed by the Yukon River Panel is 70,000 – 104,000 Chum salmon, which has been met every year in the past decade except the last 4 years 2020 through 2023, where escapement into Canada has reached historical low values. Outlook Category 1-2				
PORCUPINE CHUM	Porcupine	**46,000** (ESC. 1972 – 2020 AVG) **22,000** (ESC. 5-year AVG)		**35,500** (22,000 - 49,000) Escapement Target (S_{MSY})	**15,000** Outlook Category 1-2
	The spawning escapement of Fishing Branch River Chum salmon in 2023 was 11,528. While this is above last years historically low value of 2,695, 2023 was still well below the minimum escapement objective of 22,000. The current spawning escapement goal for the Porcupine River (as assessed at the Fishing Branch River) endorsed by the U.S./Canada Yukon River Panel is 22,000-49,000 Chum salmon. Runs over the last decade have been well				

	below expected, failing to meet the escapement goal in seven of the past ten years. Recent past 4 years have seen unprecedented low returns. Outlook Category 1-2	

TRANSBOUNDARY AREA

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast/ Outlook
ALSEK SOCKEYE	Alsek (Neskatathin / Blanchard)	**73,500** (ESC. 10-year Avg.)		**29,700** (esc. Goal range 24,000 – 33,500)	**137,000**
	Klukshu	**12,300** (TR, 10-year Avg.)		**9,700** (esc. Goal range 7,500 – 11,000)	**31,000**
	Based on brood year escapements below the MSY target range and stock-recruitment relations from historical records, a below average, but within the escapement goal range run is expected. This aggregate stock is dominated by lake and river type age 5 fish. Outlook Category was 2, in 2022 and 2023.				Outlook Category 3
ALSEK CHINOOK	Alsek	**5,000** (ESC. 10-year Avg.)		**4,700** (esc. Goal range 3,500 – 5,300)	**6,224**
	Klukshu	**1,100** (TR. 10-year Avg.)		**1,000** (esc. Goal range 800 – 1,200)	**1,556**
	Alsek CU (CK-67) includes 5 rivers (Alsek, Blanchard, Goat, Klukshu and Takhanne). Based on brood year escapements that were both above and below average but near the MSY target range and recent sibling survival data, an average run within the escapement goal range is expected. Alsek Chinook are stream type dominated by 5- and 6-year olds.				Outlook Category 3
ALSEK COHO	Alsek CU				Outlook Category 2
	Only a partial weir count is carried out. Brood year counts were slightly below average. Run is dominated by 4 year olds				
STIKINE SOCKEYE	Tahltan CU	**65,000:** **34,000** (wild) **32,000** (enhanced) (TR. 10-year Avg.)		**22,600** (11,000 to 25,000) Escapement Target (S_{MSY})	**44,000** Outlook Category 3
	Mainstem (Christina and Chutine CUs)	**38,000** (TR. 10-year Avg.)		**21,000** (13,000 to 33,000) Escapement Target (S_{MSY})	**40,000** Outlook Category 2
	Based on a combination of primary brood year smolt counts and sibling-based predictions, an average run is anticipated for 2024 and it is anticipated escapement objectives will be achieved. Recent poor marine survival may influence this. This is an aggregate stock of lake and river type 5 year olds.				
STIKINE CHINOOK	Aggregate includes 2 CUs	**15,400** (TR. 10-year Avg.)		**17,400** (14,000 - 28,000) Escapement Target (S_{MSY})	**13,400** Outlook Category 1
	2024 run is forecast to be well below the 10-year average of 17,400 and below the escapement goal range of 14,000 – 28,000. The anticipated run size does not provide for directed fisheries. Stikine Chinook are stream type dominated by 5- and 6-year olds.				

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast/ Outlook
STIKINE COHO	Lower Stikine CU				**Data Deficient**
	Reliable brood year escapement data are limited, and ancillary observations are sometimes contradictory.				
TAKU SOCKEYE	Aggregate includes 4 CUs	**155,000** (TR. 10-year Avg.)		**58,000** (Esc. Goal Range 40,000 - 75,000)	**200,000**Outlook Category 3
	Enhanced (Tatsamenie)	**9,100** (TR. 10-year Avg.)	n/a		**4,500**Outlook Category 3
	Enhanced (Trapper)	**500** (TR. 10-year Avg.)			**2,500** Outlook Category 3
	Based on stock-recruitment data, the 2024 run is expected to be near the 10 year average of 155,000 but well over the management objective of 58,000. This is an aggregate stock of lake and river type 5 year olds.				
TAKU CHINOOK	Aggregate includes 3 CUs	**15,300** (TR. 10-year Avg.)		**25,500** (19,000 - 36,000) Escapement Target (S_{MSY})	**17,300** (SE = 4,100 Outlook Category 2
	2024 is expected to be above the 10-year average of 16,000 and below the escapement goal range of 19,000-36,000. The anticipated run size does not provide for directed fisheries as it falls below the management objective of 25,500. Taku chinook are stream type dominated by 5 and 6 year olds.				
TAKU COHO	Aggregate includes 3 CUs	**98,300** (TR. 10-year Avg.)		**70,000** (50,000 - 90,000) Escapement Target (S_{MSY})	**123,000** Outlook Category 3
	Based on preliminary smolt abundance in 2023 combined with recent smolt-to-adult survival rates, an average run above the management target of 70,000 is expected for 2024. Run is dominated by 3 year olds.				
TRANSBOUNDARY CHUM	Taku Chum CU				**Data Deficient**

NORTH COAST AREA

HAIDA GWAII

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
HAIDA GWAII SOCKEYE	Aggregate includes 10 CUs	1990-present avg. spawners ~ 25000	None	Under development for several CUs	**Outlook Category 2**
	With the exception of the Copper River recent year escapements have been below average.				
HAIDA GWAII PINK – EVEN	Aggregate includes 6 CUs (even and odd year)				**Outlook Category 2-4**
	Average to above average returns are expected for North Haida Gwaii (Area 1). Below average to average returns for East and West Haida Gwaii CUs, (Areas 2E & 2W).				
HAIDA GWAII CHINOOK	Aggregate includes 2 CUs				**Data Deficient**
	A sonar assessment program commenced on the Yakoun in 2021 but estimates remain uncertain.				
HAIDA GWAII COHO	Aggregate includes 3 CUs				**Data Deficient**
	Limited assessments since 2002. Returns to the Tlell and Deena Rivers (2E) have been generally good over the past decade, with above average escapements at Tlell River in 2023.				
HAIDA GWAII 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	2024 Forecast\ Outlook
NASS SOCKEYE	**Aggregate incudes 7 CUs**	**273,912** (Avg. ESC, 1982+)		250,000 (Escapement Target)	**Model 1 (5-yr Avg):** 469,000 **Model 2 (Sibling):** 530,000
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): 1,836,859** (817,298 to 4,128,297) **Model 2 (Sibling): 1,541,491** (726,765 to 3,269,585) **(Skeena aggregate, Total Return)**
	Skeena – Wild Aggregate includes 30 CUs	Variable	Under review	Included in Skeena aggregate, under review	
	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 modest aggregate return in 2023, with low returns for wild Babine sockeye populations and average returns for other Skeena sockeye CUs. A poor return is forecasted for 2024. Overall, expecting a low return in 2024 unless age-4 Sockeye returns are stronger than expected. Lowage-4 returns expected in 2024 based on lower than average age-3 returns in 2023. Average abundance forecast in 2024 for age-5 Sockeye based on age-4 returns in 2023				
	Babine Lake - Enhanced		Under review	Spawning channel capacity = 470,000	
MAINLAND COASTAL SOCKEYE	Areas 3 to 6				**Outlook Category 2 / Data Deficient**
	Some populations are projected to be average in 2024 and others are data deficient				
NASS PINK-EVEN	Aggregate includes 5 CUs				**Outlook Category 3-4**
	Expected to be abundant (4) based on recent trends. The Upper Nass CU is data deficient, however above average brood year returns reported throughout its other CUs.				
SKEENA PINK-EVEN	Aggregate includes 3 CUs				**Outlook Category 3-4**
	Average to above average returns expected.				
NASS CHINOOK		30,000 (TRTC 1994-2022)		15,000 (ESC target)	**Outlook Category 2**
	A Nass forecast has not been produced at time of publication but the 2023 TRTC is approximately 18,000. There is generally low productivity among stream-type stocks in the north-west				
SKEENA CHINOOK	Aggregate includes 12 CUs	**70,000** (GSI mark-recapture expansion based on KLM Petersen			**37,369** Outlook Category 2

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
		estimates 1984-2022)			
	Kitsumkalum Indicator Stock	**5,700** (2023 Petersen estimate) **12,700** (1984-2022 Petersen estimate)			
	Below average returns are expected for both summer and spring timed Skeena Chinook. The 2024 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 (Lower Nass, Upper Nass and Portland Sound-Observatory Inlet)	**179,778** (Based on mark-recapture and habitat expansion model TRTC 1992-2022)		60,000 (ESC target)	**Outlook Category 4**
	An aggregate escapement estimate of the three CUs is currently achieved through a mark-recapture program in conjunction with a habitat expansion model. Total returns to Canada have been above average since 2021. The TRTC in 2023 was 281,967.				
SKEENA COHO	Aggregate includes 4 CUs				
	Skeena Estuary				**Data Deficient**
	Lower Skeena				**Outlook Category 3**
	Middle Skeena	**3,501** (Toboggan Creek Indicator 1987-2023)			**Outlook Category 3**
	Upper Skeena				**Data Deficient**
	No assessment programs occur in the Skeena Estuary CU. Visual aerial counts occur in select systems in the Lower Skeena CU and have been above average since 2021. The Toboggan Creek indicator program provides counts using an adult weir. Above average returns of **4,320 and 6,821 occurred in 2022 and 2023,** respectively. No consistent assessment programs occur in the Upper Skeena CU. Methods to estimate escapement by CU are currently under review and will be added when appropriate.				
SKEENA - NASS CHUM	Nass CU	**13,632 (**1950-Present)	none	Under Review. MEG is 72,000	**Outlook Category 2-3**
	Area 3 Chum are expected to be average to above average in 2024.Area 4 Skeena Chum escapement status is data deficient with some data suggestive of improvements to historically low productivity. 2020 Age 4 dominant brood year escapements were very poor throughout the North Coast.				
	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	2024 Forecast\ Outlook
CENTRAL COAST SOCKEYE Excluding Rivers/Smith	Areas 7 and 8 45 CUs				**Outlook Category 1-2/ Data Deficient**
	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 (Atnarko, Koeye, Kadjusdis, Namu). Atnarko sockeye 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**
	Low returns are expected in Areas 9 and 10. The Owikeno Lake productivity based on the Clear Streams Index continues to below average.				
	Smith: Long Lake CU	62,000 (Avg. ESC, 2000+)			**Outlook Category 1,**
	Docee Fence (Area 10/Smith Inlet/Long Lake) sockeye is currently under review . The 2023 return to Smith Inlet based on un-reviewed sonar information from the GNN was low.				
CENTRAL COAST PINK - EVEN	**Area 6** (*PKE-5/PKO-12*)			MEG - 1,447,000	**Outlook Category 3**
	Area 7 (*PKE-6/PKO-13*)			MEG – 444,720	**Outlook Category 3**
	Area 8 (*PKO-8*)			MEG – 1,520,400	**Outlook Category 2**
	Area 9 (*PKO-8*)			MEG – 342,450	**Data Deficient**
	Area 10 (*PKO-8*)			MEG – 65,600	**Data Deficient**
CENTRAL COAST CHINOOK	Atnarko Indicator Stock Bella Coola-Bentinck CU	**17,000** (Maximum likelihood model 1990-2022)		**5009 (Atnarko wild)** Escapement Target (S_{MSY})	**11,191** Outlook Category 2
	2024 Bella Coola returns are expected to be below average based on returns in recent years.. Other assessments are of poor quality				
	Areas 7 and 8 3 CUs – Dean River				**Outlook Category 2**
	Abundance continues to decline for this stock				
	Areas 9 and 10 – Aggregate includes 3 CUs				**Outlook Category 2 / Data Deficient**
	Wannock River Chinook returns are unknown. The spring-run stocks including the Owikeno tributary stocks and Chuckwalla/Kilbella stocks are expected to be below average based on recent trends; however, assessments are of poor quality..				
CENTRAL COAST COHO	Area 6 – Aggregate includes 3 CUs				**Outlook Category 3**

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
	Areas 7 to 10 – Aggregate includes 4 CUs				**Data Deficient**
	Assessment across the 7 CUs is not evenly distributed				
CENTRAL COAST CHUM	**Area 6** 2 CUs (*CM-18: Hecate Lowlands, CM-20: Douglas-Gardner*)				**Outlook Category 2**
	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 2**
	Area 9 2 CUs (*CM-13: Rivers Inlet, CM-14: Wannock)*				**Data Deficient**
	Area 10 1 CU (*CM-12: Smith Inlet)*				**Data Deficient**

SOUTH COAST AREA

WEST COAST VANCOUVER ISLAND

Stock Management Unit	Conservation Unit /Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
WCVI - BARKLEY SOCKEYE	**Somass Aggregate (GCL + SPL)**	**663,000** (Avg. Run Size 1977+)		**170,000** Run Size – lower operational control point	**500,000-700,000**
	Great Central Lake CU	322,000 (Avg. Run Size 1977+)	29,290 LBB		**Outlook Category 3**
	Sproat Lake CU	235,000 (Avg. Run Size 1977+)	41,350 LBB		**Outlook Category 3**
	The two main contributing brood years to the 2024 run are 2019 and 2020 and the two main contributing smolt years are 2021 and 2022. Brood abundances were below average in 2019 and 2020 particularly in Great Central Lake. Smolt abundances were low in both Great Central Lake and Sproat Lake in 2021, and are not yet available for 2022. Based on ocean indicators and returns to date, marine survival rates for the 2021 smolt year are high and are likely above average for 2022. Given the considerations above, expectations are for an average Somass Sockeye return in 2024.				
	Henderson Lake CU	34,000 (Avg. Run Size 1978+)	5000 LBB	9% max. harvest rate at run sizes <15,000	**15,000 - 25,000** Outlook Category 2
	For the 2024 return, the two main contributing brood years are 2019 and 2020 and the two main contributing smolt years are 2021 and 2022. Brood abundance was near average in 2019 but low in 2020. Based on ocean indicators, marine survival rates for the 2021 smolt years are high and have likely remained above average in 2022. Therefore, expectations are for a near-average Henderson sockeye return in 2024.				
WCVI - OTHER SOCKEYE	22 CUs are associated with this stock management unit.				**Data Deficient**
	Assessment data are not available to forecast others systems. Anecdotal information indicates some populations (e.g. Kennedy Lake) are greatly depressed, while others (e.g. Bedwell) are seeing moderate returns in recent years.				
WCVI PINK	3 CUs are associated with this stock management unit.				**Data Deficient**
	Since the collapse of WCVI pinks in the mid-1960s there has been negligible catch and only opportunistic assessment of returns during assessment of other species. The available data suggest WCVI pink salmon populations continue to persist at very low relative to historic levels with high variability.				
WCVI CHINOOK	Southwest Vancouver Island CU, *CK-31*			10 – 15% maximum exploitation rate in key 'pre-terminal' CDN fisheries	**Outlook Category 1**
	Nootka and Kyuquot CU,*CK-32*				

Stock Management Unit	Conservation Unit /Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
	Northwest Vancouver Island CU,*CK-33*				
	Escapements of WCVI Chinook natural populations remain low. There has been improvement in Kyuquot (NWVI wild indicators) in recent years. The Clayoquot area (SWVI wild indicators) which remains the biggest concern saw a drop in 2023 relative to the slight improvement over the previous two years. It is assumed survival rates of natural-origin Chinook are well below those of hatchery-origin Chinook and this discrepancy may be related to of the much smaller sizes of natural out-migrating smolts; productivity is therefore anticipated to remain low. WCVI wild Chinook remain a stock of concern.				
	Somass/Robertson (Hatchery)	68,000 (Avg terminal run 1995-2020)	n/a	7M eggs to Robertson Creek Hatchery and 14600 spawners to the Stamp River	**107,000** Outlook Category 4
	Conuma Hatchery	37,000 (Avg terminal run 1995-2020)	n/a	10,000 ESC target but varies to ensure escapement of eggs associated with an average 10,000 escapement.	**58,000** Outlook Category 4
	Nitinat Hatchery	25,000 (Avg terminal run 1995-2010)	n/a	10,000 ESC including brood stock	**35,000** Outlook Category 4
	WCVI Other Hatchery Supplemented (e.g. Burman R, Sarita R.)	Varies by individual river; see local plans for details.	Work is underway to develop lower bench marks (C. Holt lead).	Varies by individual river; see local plans for details.	**54,000** Outlook Category 3-4
	Returns of hatchery Chinook stocks to the WCVI, and particularly to Robertson Creek, were strong in 2023, consistent with the favourable ocean-entry conditions observed in 2020 and 2021. Conditions in the 2022 ocean-entry year appear like those observed in 2020: favourable but a definitive notch below the excellent conditions observed in 2021. Most Chinook returning to the WCVI in 2024 will have entered the ocean in 2021 or 2022; therefore, expectations are for another above average return in 2024.				**254,000**
WCVI COHO	3 CUs are associated with this stock management unit.				**Outlook Category 3**
	Information to forecast Coho returns is limited. Therefore, there is considerable uncertainty in this assessment. Data suggests average Coho marine survival relative to recent years. Preliminary escapement though Stamp Falls Fishway in 2023 is in line with the 2022 count, which was in 67th percentile of all returns since 2010 and well above the 2018 brood. The 2023 escapement to Carnation Creek wild indicator stock (56 adults and 24 jacks) was below the 12-year average but is a small improvement over the 2019 brood (36 adults and 45 jacks).For 2024, most of the return will originate from the 2021 brood year that went to sea in 2023. Final escapement estimates are still being processed, but preliminary observations suggest that Robertson Hatchery Coho jacks in 2023 were similar to 2022 Jacks and remain higher than the 2010-2021 average.				

Stock Management Unit	Conservation Unit /Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
	suggesting improvement in 2024 with average returns expected. Prior to 2021, most WCVI Coho spawning populations had seen declines in productivity.				
WCVI CHUM	Area 23 (Barkley) – Southwest Vancouver Island CU	**59,000** (Avg. Return, 1995+)		48,000 Run size – lower operational control point, 15% max harvest rate	**80,566** (37,000-81,000)
	Area 24 (Clayoquot) – Southwest Vancouver Island CU	**54,000** (Avg. Return, 1995+)		42,000 Run size – lower operational control point, 15% max harvest rate	**20,947** (2,000-28,000)
	Area 25 (Nootka) – Southwest Vancouver Island CU	**39,000** (Avg. Return, 1995+)		26,000 Run size – lower operational control point, 20% max harvest rate	**9,392** (5,000-13,000)
	Area 25 (Esperanza Inlet) – Southwest Vancouver Island Cu	**37,000** (Avg. Return, 1995+)		24,000 Run size – lower operational control point, 15% max harvest rate	**16,271** (13,000-33,000)
	Area 26 (Kyuquot) – Southwest Vancouver Island CU	**38,000** (Avg. Return, 1995+)		25,000 Run size – lower operational control point, 15% max harvest rate	**26,614** (26,000-40,000)
	Area 27 (Quatsino Sound) – Northwest Vancouver Island CU				**TBD**
	Area 25 (Conuma Hatchery) – Southwest Vancouver Island CU	**84,000** (Avg. Return, 1995+)			**82,659** (71,000-83,000)
	Nitinat Hatchery	**464,135** (Avg. Return, 1995+)	n/a	225,000 Run size – lower operational control point	**141,854** (119,000-326,000)
	Preliminary 2023 returns of WCVI Chum to most systems north of Nitinat were improved compared to recent years. However the preliminary Nitinat return is below average. Below average brood years 2019, 2020 and 2021 will contribute to the 2024 return as age 5, 4 and 3, respectively. The 2019-2021 sea entry years resulted in some improvements in survival to other salmon such as Sockeye, Coho and Pinks. These improvements will hopefully help to buffer the production coming from these weak Chum brood years. The recent status of wild WCVI Chum stocks is generally poor with some improvement in 2023. In addition, hatchery production has declined in recent years. 2024 Outlook Category 2				**Outlook Category 2**

EAST COAST VANCOUVER ISLAND/MAINLAND INLETS

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
ECVI / MAINLAND SOCKEYE	Nimpkish	60,000 median spawners			**Outlook Category 2**
	For the 2024 return, the two main contributing brood years are 2019 (60,418) and 2020 (24,749), which are average and below average respectively. Sockeye returning in 2024 will have entered the ocean in 2021 and 2022. We have seen evidence of improved marine survival for these ocean entry years for Pink and Coho Salmon returning to nearby systems. Nimpkish Sockeye typically return as 4 year old fish (57%), but the 5-year component can also be strong. Given the considerations above, we anticipate that escapement will be below average but improving in 2024				
	Area 16 (Sakinaw)	**119** (Avg. Return, 1995+)	2,440	4,470	**Outlook Category 1**
	Of the 169,190 smolts that left Sakinaw Lake in 2021 a total of 121 adult Sockeye returned in 2023. Marine survival continues to be extremely low; for the 2021 ocean entry year the smolt-to-adult survival was 0.07% for hatchery origin fish while too few natural-origin smolts were present in 2021 to generate an estimate. Returns from an experimental release of Sakinaw smolts at Big Qualicum were approximately 5x higher at 0.42% suggesting a localized survival bottleneck may exist. Smolt production in 2022 was below average at 68,036 with relatively few natural origin fish estimated at 2,280. If marine survival is near the 4-year average, a total of 69 adults are expected in 2024.				
	Other (Areas 11 to 13)	Heydon: 2,600 median spawners Quaste: 2,200 median spawners			**Outlook Category 2**
	Expectations for other populations such as Quatse, Heydon and Phillips are similar to Nimpkish.				
ECVI / MAINLAND PINK	Areas 11 to 13	Reconstructed Median Returns Southern Fjords (Even): 1.6 million Southern Fjords (Odd): 613K Nahwitti (Odd): 12K			**Outlook Category 2/3** (NEVI and Area 12 Mainland Inlets)
	Georgia Strait	Strait of Georgia (Odd): 536K Strait of Georgia (Even): 142K			**Outlook Category 3** (Southern portion of area on ECVI)
	Even Year: 2022 saw improved returns throughout the South Coast with generally improved returns to systems on Vancouver Island and in the Mainland Inlets. Returns were somewhat below the long-term average for the mainland, but most systems exceeded the recent (3 cycle) generational average. Expectations for 2024 are for a stabilization of abundance for Pink Salmon returning to ECVI and the mainland. Pink returns are highly variable, and confidence in the forecasted return in 2024 is low, but average returns to this region are expected in 2024				

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
	Odd Year: 2023 saw varied returns throughout South Coast, but generally abundance increased over the brood year. Returns to Northern Vancouver Island were below the historical adult abundance, although with clear signs of improvement since escapement hit its lowest point in 2016/2017. The mainland inlets in Area 12 saw continued poor escapement of Pink Salmon, but again with improvements over the brood year. Expectations north of Adam River are for continued improvements in 2025, with potential to approach the long-term average escapement. Particularly strong returns were observed in 2023 to major systems including Adam, Quinsam, Tsolum and Jervis Inlet while unenhanced returns to Big Qualicum continue to grow. Above average escapements to these systems and promising fry counts from the Quinsam River suggest that we will see average to above average escapements for systems south of Adam River in 2025.				
MAINLAND INLET CHINOOK	This aggregate includes 4 CUs				**Data Deficient**
	Includes Homathko and Klinaklini. DFO is working to expand our programs into the Mainland Inlets. Since 2021, a video counter was installed on Devereux Creek and estimates will be available for these years shortly. In 2022 and 2023, an intensive mark-recapture project was undertaken on the Southgate River in Bute Inlet. An estimated 5,175 (95% CI 1,462-8,818) adult Chinook Salmon returned to the Southgate River in 2022. In 2023 we estimate 832 (95% CI 469-1195), adult Chinook returned to the Southgate River. Stock Assessment also collected additional baseline samples from the Toba River (Toba Inlet). Efforts were again made to collect baseline samples in Jervis Inlet but were unsuccessful. Although still data deficient, efforts are underway to understand population abundance and trends in these areas.				
UPPER GEORGIA STRAIT CHINOOK	Quinsam River Fall Run	**7,072** (AVG. Terminal Run Index, 1979+)			**10,700** Outlook Category 3-4
	We saw below average escapement in 2023 for the Quinsam/Campbell River, but improved returns elsewhere. Although escapement estimates were lower than average, ancillary information suggests estimates are biased low, due to increased predator (bear) activity that targeted fresh carcasses before they could be recruited into the mark-recapture study. Average to above average returns for the brood years contributing to the return in 2024, continuing restrictions on early timed Fraser Chinook, and relatively stable marine survival in recent years suggests we will see average returns in 2023. Outlook category 3-4.				
MIDDLE GEORGIA STRAIT CHINOOK	Puntledge and Big Qualicum Rivers Fall Run Enhanced	**15,329** (AVG. Terminal Run Index, 1995+)	7,193		**23,933** Outlook Category 4
	The Puntledge River saw a below long term average return of 5,734 fall Chinook in 2023 while the Big Qualicum River had a record return at 18,425. Stable production levels and modest survivals for several hatchery indicators combined with above average returns of 3-year olds suggests average to above average returns are likely for 2024. 2023 Outlook Category 4.				

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
	Nanaimo and Puntledge Spring Summer Enhanced CK-83	**1,669** AVG. Terminal Run Index, 2004+)			**Nanaimo** Outlook Category 2 **Puntledge: 354** Outlook Category 1
	A combination of additional snorkel surveys and a DIDSON project in the Nanaimo River produced an estimate of 350 fish in 2023 which was down from 417 in 2022 and below the 4 year average of 600. Puntledge summer Chinook were below the 4-year average of 502 fish at 200. Most of the reduction can be attributed to reduced smolt releases in preceding years. Rebuilding efforts for these populations are continuing with recovery potential assessments underway. At these levels, rebuilding will take several generations even with improved survival. 2023 Outlook Category 2-3.				
LOWER GEORGIA STRAIT CHINOOK	Cowichan River Fall Run Unenhanced (<20% hatchery origin)	**7,110** (AVG. Terminal Run Index, 1982+)	3,413	**6500 (Cowichan)** Escapement Target (S_{MSY})	**29,134** Outlook Category 4
	Adult Chinook returns to the Cowichan River in 2023 exceeded the target escapement of 6,500 naturally spawning adults for the eighth consecutive year, recovering from a low of 540 natural spawners in 2009. Preliminary 2023 returns were above the 90th percentile, estimated at 21.0K adults and 11.4K Jacks. Wild production continues to drive escapement with the proportion of hatchery fish in the population estimated at less than 10% for adult age classes in 2023. The 2024 outlook is for average to above average returns. A similar rebuilding trend has not been observed in the Nanaimo River. although 2022 counts were encouraging, 2023 counts were near the 4 year average of 2.9K. Swim counts will be run through an AUC model prior to finalizing the estimate. Expectations for 2024 are for average returns. 2023 Outlook Category 4.				
JOHNSTONE STRAIT / MAINLAND INLET COHO	Area 12	2,700 AVG Terminal Run Index (1998+)			**Outlook Category 3**
	Area 12 Coho returns have improved substantially against the extremely poor escapement in 2016. Returns are now approaching the long-term average, which is very promising. Throughout the downturn in abundance, smolt production remained consistent but future periods of poor marine survival remain a significant risk. Our estimate of escapement at the Keogh in 2023 is 5,096 adults, which is approximately double the average for this system. Annual smolt production has remained above the long-term average since 2011. The return in 2023 stems from a modest smolt abundance of 75,174, indicating that marine survival has improved. Smolt abundance in 2023 was again strong at 92,907. We expect average to above average returns in 2024 due to the continued high smolt output and slightly improved marine survival conditions.				
	Area 13 - North				
	Hatchery indicators for this outlook unit are Quinsam and Big Qualicum. Adult returns to the Quinsam were above average. The wild Coho indicator at Black Creek saw approximately average adult (3,233) and higher jack (4,387)				

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
	returns than average. Smolt production in 2022 and 2023 was above average, suggesting somewhat poor marine survival is being buffered by high freshwater productivity. General observations to date suggest the 2023 forecast slightly under-estimated returns. Expectations for 2024 are for average escapement.				**Outlook Category 3**
STRAIT OF GEORGIA COHO	Quinsam				**Outlook Category 3**
	Big Qualicum	**4,612** (Avg. 1966-present)			
	Black Creek				
	Hatchery indicators for this Outlook Unit are the Quinsam and Big Qualicum rivers. Recreational Coho catches in the Strait of Georgia were the highest in 25 years yet escapements were similar to recent years. 2023 adult returns of 9,676 to the Big Qualicum were below the short and long term averages of 12-14K. Production levels are stable and 2024 returns are expected to be near average. Quinsam River adult returns in 2023 were slightly above the long term average i while jack returns were significantly above average. The wild indicator is Black Creek. This year's preliminary estimate of 3,233 adults is near the long-term average. Jack returns were significantly above the long term average with a preliminary estimate of 4,387. The preliminary marine survival estimate for the 2022 ocean entry cohort is slightly above the recent average. . .				
INNER SOUTH COAST CHUM - Non-Fraser	Johnstone Strait Area and Mainland Inlets (Areas 11 to 13)				**Outlook Category 1-2**
	Summer run Chum Salmon stocks in 2023 appear to have done poorly, but slightly improved relative to recent years. Small improvements in summer Chum abundance are likely in 2024, as marine survival appears to have improved but brood year abundance was generally poor across the South Coast. Fall run Chum returns in 2023 appear to be below average in most systems surveyed. Productivity of these stocks has declined over the last 5 years and has been attributed to poor marine conditions for salmon. There is some indication that survivals have slightly improved in the Southern range of the distribution of Inside Southern Chum down to Puget Sound. Returns in 2023 showed a strong age-3 component, which suggests that ocean conditions are beginning to improve. For the 2024 return, below average parental brood abundances in both 2020 and 2021 likely mean below average return of fall Chum, although with potential improvement stemming from improved marine survival. Recovery initiatives continue for the Nimpkish Chum Stock within this area with low thousands observed in fall 2022 and 2023. Expect continued variability in Chum returns on a north-south gradient favoring higher survival in southern systems.				
	Jervis/Narrows Inlet (Brittian, Deserted, Skwawka,	**44,638** (Avg. Return, 2004+)		85,000	**14,500** (Like Last Year) (24,800 normal)

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
	Tzoonie, Vancouver)				
	Mid-Vancouver Island (Puntledge, Big Qualicum, Little Qualicum)	**65,315** (Avg. Return, 1995+)		230,000	**23,800** (Like Last Year) (48,000 normal)
	Nanaimo River	**58,115** (Avg. Return, 2004+)		40,000	**23,800** (Like Last Year) (48,000 normal)
	Cowichan River	**162,252** (Avg. Return, 2006+)		160,000	**30,700** (Like Last Year) (133,600 normal)
	Goldstream River	**26,453** (Avg. Return, 2000+)		15,000	**2,400** (Like Last Year) (18,400 normal)
	2023 results continue to indicate well below target escapements for systems in mid to northern Georgia Strait and Jervis/Narrows Inlets. Returns to Nanaimo, Cowichan and Goldstream were particularly poor. Productivity for all stocks is still below long term averages. For 2024, mid-Island systems (Puntledge, Little Qualicum, Big Qualicum) are expected to remain well below target levels. Abundance of stocks in the southern Georgia Strait such as Cowichan, Nanaimo, and Goldstream is uncertain: expectations are for well below target returns if low survival persists or near target if survival returns to normal. Jervis/Narrows Inlet stocks are forecast to be below target abundance.				**Outlook Category 1-2**

LOWER AND INTERIOR FRASER AREA

FRASER SOCKEYE SALMON

Quantitative forecasts for Fraser Sockeye and Pink salmon are produced annually and biannually (odd years), respectively. The 2024 forecasts will be presented to the Fraser River Panel at the Pacific Salmon Treaty meeting in February. This document provides a precursory look at the upcoming 2024 Fraser River Sockeye forecast. The Pink salmon return in 2024 is expected to be negligible, as Fraser Pinks return on odd years only. The dominant age-of-maturity for most Fraser Sockeye stocks is four years, so Sockeye returning in 2024 as four-year-olds originate from the 2020 brood year, which was the lowest return to the Fraser on record. Five-year-olds returning in 2024 originate from the 2019 brood year. The Outlook is intended to provide a categorical assessment of brood year escapements relative to Wild Salmon Policy (WSP) benchmarks and historic escapements. Stocks that were affected by the Big Bar landslide in 2019 are denoted by a '*' next to the population/conservation unit name. Categorical Outlook status ranges from poor return (1) to good return (4). Definitions of the technical terms used in this document and descriptions of how each metric is calculated are provided in Appendix 1.

The forecast focuses on the expected total return to the Fraser River. However, the data that are used to determine Outlook status are brood EFS (effective female spawners) and brood ETS (effective total spawners); both of which are derivatives of spawning escapement. Long term mean EFS is calculated across the length of the time series, or the length of the time series on the cycle line for cyclic stocks. Recent mean EFS is calculated as the mean across the last 4 years, or the last 4 cycle line returns for cyclic stocks.

AVERAGE AGGREGATE RETURN (ALL CYCLES, ALL STOCKS): 7,090,036

Stock management Unit: EARLY STUART

Average aggregate return (all cycles): 258,200

<table>
<tr><th>Conservation Unit</th><th>Average Return (all cycles)</th><th>LRP / LBB</th><th>Management Target</th><th>WSP / COSEWIC Status</th><th>2024 Forecast\ Outlook</th></tr>
<tr><td rowspan="2">Early Stuart
(CU: Takla-Trembleur-EStu)
- Cyclical: Yes</td><td>124,217
(cycle-year average; 1952-2020)</td><td></td><td></td><td>WSP – RED
COSEWIC – END</td><td rowspan="2">200 (80-400)
Outlook Category 1</td></tr>
<tr><td colspan="4">Extremely poor returns are expected in 2024. The 2020 brood year effective total spawners (ETS; 30) and effective female spawners (EFS; 15) were extremely small, and well below all metrics, including the WSP lower benchmark for ETS (86,738), and the long-term and recent cycle line average EFS (17,280 and 6,231,respectively). This stock was heavily impacted by difficult migratory conditions in the Fraser River Canyon in 2020, and experienced a high degree of en-route mortality associated with the additional effort and delay in reaching their spawning grounds. In 2021 119,000 hatchery-produced fry were released in the natal area . These originated from Early Stuart adults captured in the Fraser River below Big Bar slide in 2020. Based on the range of observed Chilko Sockeye marine survival estimates as a proxy, and an assumed fry-smolt survival rate range of 10-30%, the expected return of Early Stuart adults in 2024 from the hatchery release is between 300 and 2000.</td></tr>
</table>

Stock management Unit: EARLY SUMMER

Average aggregate return (all cycles): 494,200

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
LOWER FRASER					
Upper Pitt River *(CU: Pitt-ES)* - Cyclical: No	66,656 (1952-2020)			WSP – Green COSEWIC – NAR	**16,000 (7,000-36,000)** Outlook Category 1
	Poor returns are expected in 2024 relative to the long-term average (66,253). Upper Pitt has a higher proportion of five-year-old recruits (~78%) relative to four-year-old recruits. The 2019 brood year ETS (1,248) was well below the WSP lower benchmark (10,627), and EFS (708) was below both the long-term and recent averages (12,982 and 5,204, respectively). The 2020 brood year ETS and EFS were 4,202 and 1,825, respectively, smaller than all the aforementioned metrics. Note: these comparisons include escapements to the Upper Pitt River spawning channel to be consistent with Grant et al (2020).				
Chilliwack *(CU: Chilliwack-ES)* - Cyclical: Yes*	28,861 (cycle-year average 2000-2020)			WSP – AM/GR COSEWIC – NAR	**34,000 (20,000-71,000)** Outlook Category 4
	While this stock exhibits cyclical returns, limited data preclude cycle-specific benchmarks (Grant et al 2020). The uncertainty in both the age structure and relevant benchmarks for comparison is reflected in the Outlook status. 2024 is on the dominant cycle line for Chilliwack, and an above-average return is expected. The 2020 brood year ETS was 31,677, which was well above the lower bench mark of 8,000. However, the 2020 EFS (19,308) was below the long term and recent averages for this cycle line (33,675 and 36,997 respectively).				
Nahatlatch River *(CU: Nahatlatch-ES)* - Cyclical: No				WSP – Amber COSEWIC – SC	**3,000 (500-12,000)** Outlook Category 2
	Reliable recruitment data are not available for this CU, thus no WSP benchmarks are available for comparison (see Appendix 1). A below-average return is expected in 2024, as the 2020 brood year EFS was 1,386, which is below the long term average (2,044), but above the recent average (1094).				
SOUTH THOMPSON					
Seymour River and Scotch Creek *(CU: Shuswap-ES)* Two populations represent this CU, but they share one set of benchmarks. - Cyclical: Yes & Yes	Seymour: 22,546 (1952-2020); Scotch: 6,840 (1980-2020; cycle-year average)			WSP – Amber COSEWIC – NAR	**Seymour: 2,000 (700-7,000)** **Scotch: 5,000 (1,000-18,000)** Outlook Category 1
	Poor returns are expected for this CU given that the Seymour River and Scotch Creek combined four-year old brood year ETS (2,085) was well below the WSP lower benchmark (39,741). Seymour River brood year EFS (387) was much smaller than the long-term average (3,524). EFS for Scotch Creek (592) was slightly above the long-term average (482) and recent average (460). [1] *These 2 sites are treated separately in annual forecasts, but they share one set of benchmarks as the dominant components of the Shuswap-ES CU under the WSP.*				

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
NORTH THOMPSON					
North Barriere (incl. Fennell Creek) *(CU: North Barriere-ES)* Cyclical: No	20,275 (1971-2020)			WSP – Amber COSEWIC – Threat.	**5,000 (1,000-23,000)** Outlook Category 2
	The 2024 return is expected to be well below the historic average (20,275). The 2020 brood year ETS (955) was slightly above the lower WSP benchmark of 640, while the brood year EFS (604) was similar to the average for recent years (652), and much lower than the long-term average (3,662).				
MID AND UPPER FRASER					
Gates *(CU: Anderson-Seton-ES)* - Cyclical: No	49,222 (1972-2020)			WSP – AM/GR COSEWIC – NAR	**27,000 (9,000-76,000)** Outlook Category 2
	Below-average returns are expected for this CU. The 2020 brood year ETS (5,911) was above the WSP lower benchmark (3,662), but below the upper benchmark (22,534). Brood year EFS (3,292) was below the long-term average (4,309) and very close to the recent average (3,259). Note that these comparisons included the Gates River spawning channel, but, as of January 2020, the channel has not been operational, which will influence interpretation of these trends moving forward (Grant et al. 2020).				
Nadina *(CU: Nadina-Francois-ES)* - Cyclical: No	86,151 (1977-2020)			WSP – AM/GR COSEWIC – NAR	**65,000 (18,000-216,000)** Outlook Category 2
	The 2024 return is expected to be well below the historic average of 86,151. Historically, the four-year-old component dominates the escapement (~80%), but five-year olds have contributed 50% or more in some years recently. The 2019 and 2020 ETS (22,198 and 29,128, respectively) were both slightly above the lower WSP benchmark of 21,694. EFS in 2019 and 2020 (8,351 and 15,909, respectively) were near the long term average (10,565), but below the recent average (21,152). This stock experienced substantial en-route loss and migration delays associated with the Big Bar landslide in 2019 and high Fraser River discharge in 2020. Note: These comparisons include the Nadina spawning channel escapement estimates to be consistent with Grant et al (2020).				
Bowron River *CU: Bowron-ES)* - Cyclical: No	33,677 (1952-2020)			WSP – RED COSEWIC – END	**1,000 (400-4,000)** Outlook Category 1
	The 2024 return is expected to be well below the historic average of 33,677. This stock can have a five-year-old component in some years. The 2020 brood year ETS (344) were well below the WSP lower benchmark of 5,249. The 2019 brood year ETS (20) was the lowest on record. EFS for 2019 (10) and 2020 (172) are well below the long term and recent averages (3,898 and 1,256, respectively). This stock was impacted by the Big Bar landslide in 2019 and high Fraser discharge in 2020**.** Hatchery enhancement was conducted for the 2020 brood year, and a small number (11,614) of fry were released in the spring of 2021.				
Taseko *(CU: Taseko-ES)* - Cyclical: No				WSP – RED COSEWIC – END	**70 (10-100)** Outlook Category 1
	Reliable return data are not available for this CU, thus no WSP benchmarks are available (see Appendix 1). Low returns are typically expected for this CU. The 2019 brood year escapement is unavailable due to operational program constraints, but escapement was likely well below average due to the impact				

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
	of the Big Bar landslide. In 2020, estimated ETS and EFS were 60 and 30, respectively. By comparison, long term and recent average EFS values were 1,179 and 39 respectively. Limited sample size precludes analysis of the age structure of Taseko Sockeye. Escapements to this CU were presumably heavily impacted by the Big Bar landslide in 2019 and high discharge in the Fraser River in 2020. A hatchery enhancement program has been initiated for Taseko, but brood collection was unsuccessful in 2019 and 2020.				

Stock management Unit: SUMMER RUN

Average aggregate return (all cycles): 3,733,000

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
Harrison River *(CU: Harrison (River-Type)-S)* - Cyclical: No	117,213 (1952-2021)			WSP – Green COSEWIC – NAR	**106,000 (17,000-663,000)** Outlook Category 2-3
	Above-average to average returns are expected for this CU, but this will strongly depend not only on survival, but also the maturation rate for the 2020 and 2021 broods. This stock has an different life history (river-type) and age structure (predominately three- and four-year olds) relative to other Fraser populations. 2020 ETS (75,113) was almost double the WSP lower benchmark (38,928), and 2021 ETS (55,499) was also above the lower benchmark. However, 2020 and 2021 ETS were still below the upper benchmark of 122,165. The long term and recent averages for EFS are 29,534 and 22,491 respectively; both the 2020 and 2021 brood year EFS exceed these values (51,062 and 40,628 respectively).				
Raft River *(CU: Kamloops-ES)* - Cyclical: No	29,145 (1948-2020)			WSP – Amber COSEWIC – SC	**17,000 (6,000-51,000)** Outlook Category 2
	The 2024 return is expected to be below the long-term average(29,145).. The ETS (4,959) was almost equal to the WSP lower benchmark of 4,958. Brood year EFS (2,722) was above the long-term average (4,175) and more than double the recent average (1,777). This stock can have a five-year-old component of up to 30% in some years, but it is variable and inconsistent, thus only four-year-olds were considered.				
Quesnel *(CU: Quesnel-S)* - Cyclical: Yes	13,085 (1952-2020; cycle year average)			WSP – RED/AM COSEWIC – END	**3,000 (300-26,000)** Outlook Category 1
	Poor returns are expected for this cyclical CU in 2024. The 2020 brood year ETS of 738 was only about 0.4% of the WSP lower benchmark of 172,260. EFS in the 2020 brood year (508) was well below the long term average (4,313) and slightly below the recent average (822) in this cycle line. Additional caution should be observed for this CU given that there was an unusually low proportion of 4-year olds returning for this cycle year (14%). This stock was impacted by the Big Bar landslide in 2019 and high Fraser River discharge in 2020, and experienced en-route mortality associated with the additional effort in reaching their spawning grounds. Note that these comparisons include escapements to the Horsefly River spawning channel to be consistent with Grant et al (2020).				
Stellako River *(CU: Francois-Fraser-S)* - Cyclical: No	426,691 (1952-2020)			WSP – AM/GR COSEWIC – SC	**65,000 (25,000-169,000)** Outlook Category 2
	Below-average returns are expected in 2024. The 2020 brood year ETS (43,798) was above the WSP lower benchmark (24,256), but below the upper benchmark (122,612). Brood year EFS (22,136) was only about half of the long-term (55,143) and recent (48,561) averages. This stock was impacted by the Big Bar landslide in 2019 and high Fraser discharge in 2020.				
Chilko *(CUs: Chilko-S and Chilko-ES)* - Cyclical: No	1,342,487 (1952-2020)			WSP – Green COSEWIC – NAR	**176,000 (51,000-564,000)** Outlook Category 1
	Below-average returns are expected in 2024 relative to the historical average (1,342,487). The 2020 brood year ETS of 51,455 was below both the lower (64,220) and upper (353,863) benchmarks. Brood EFS (27,054) was far below both the long-term (221,417) and recent (175,846) averages. The smolt out-migrating estimate in 2022 was 5.8 million, which is lower				

	than the historic average of 21.8 million. This stock was impacted by the Big Bar landslide in 2019 and high Fraser River discharge in 2020.				
Late Stuart *(CU: Takla-Trembleur-Stuart-S)* - Cyclical: Yes	164,036 (1952-2020; Cyc-year average)			WSP – RED/AM COSEWIC – END	**12,000 (2,000-80,000)** Outlook Category 1
	Poor returns are expected for this CU. The 2020 brood year ETS of 4,684 was only 5% of the WSP lower benchmark (103,286). Brood year EFS (2,487) was below both the long-term (25,090) and recent (24,202) averages for this cycle line. This stock was impacted by the Big Bar landslide in 2019 and high Fraser River discharge in 2020.				

Stock management Unit: LATE RUN

Average aggregate return (all cycles): 2,865,600

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
Cultus Lake *(CU: Cultus-L)* - Cyclical: No	31,971 (1952-2020)			WSP – RED COSEWIC – END	**100 (40-600)** Outlook Category 1
	Poor returns are expected for this CU. Brood year effective total spawners was only 55, extremely small relative to the WSP lower benchmark for ETS (15,454). Brood year EFS of 29 was also far below the long-term (809) and recent average (117). The smolt out-migrant estimate in 2021 was 8,049, below the average of 12,491 (2001-2019).				
Portage Creek *(CU: Seton-L)* - Cyclical: No	37,717 (1953-2020)			WSP – RED COSEWIC – END	**200 (30-1,000)** Outlook Category 1
	Very poor returns are expected for this CU. Brood year ETS of 20 was very small and far below the WSP lower benchmark of 2,193. Brood year EFS of 10 was a fraction of both the long-term (4,211) and recent average (5,777).				
South Thompson *(CU: Shuswap-L)* - Cyclical: Yes	16,799 (1952-2020; Cyc-year average)			WSP – AM/GR COSEWIC – NAR	**2,000 (100-42,000)** Outlook Category 1
	Poor returns are expected for this CU. Brood year ETS (24) was far below the cycle-specific WSP lower benchmark (429,435). Brood year EFS (12) was also well below the long-term (2,130) and slightly below the recent average EFS (32).				
Birkenhead River *(CU: Lillooet-Harrison-L)* - Cyclical: No	298,757 (1952-2020)			WSP – Amber COSEWIC – SC	**24,000 (7,000-87,000)** Outlook Category 1
	Low returns are expected for this CU. This stock has a considerable five-year-old component historically (~40%). The 2019 and 2020 brood year ETS were 2,975 and 3,328, respectively, both below the WSP lower benchmark of 15,685. The 2019 and 2020 brood year EFS (1,984 and 1,635, respectively) were also below both the long-term (39,250) and recent average EFS (5,188).				
Weaver Creek *(CU: Harrison (U/S)-L)* - Cyclical: No	299,103 (1966-2020)			WSP – RED COSEWIC – END	**2,000 (400-19,000)** Outlook Category 1
	Low returns are expected for this CU. The 2020 brood year ETS (64) was a fraction of the WSP lower benchmark (10,731). Brood year EFS (38) was also far below the long-term (20,105) and recent average EFS (5,995). These comparisons include escapement to the Weaver Creek spawning channel to be consistent with Grant et al (2020).				

Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
Big Silver Creek *(CU: Harrison (D/S)-L)* - Cyclical: No				WSP – AM/GR COSEWIC – SC	**200 (50-4,000)** Outlook Category 1
	Reliable return data are not available for this CU, thus no WSP benchmarks are available (see Appendix 1). Poor returns are expected for this stock, since the 2020 brood year EFS (73) was very small compared to the long-term (1,606) and recent average EFS (917).				
Widgeon Slough *(CU: Widgeon (River-Type))* - Cyclical: No				WSP – RED COSEWIC – Threat.	**80 (20-1,600)** Outlook Category 1
	Reliable return data are not available for this CU, thus no WSP benchmarks are available (see Appendix 1). Poor returns are expected in 2024. This population may have contribution from the 3-year-old component, but this is uncertain due to small population size and resultant small sample sizes for age analysis. The 2020 and 2021 escapement (EFS; 94 and 62) were smaller than the long-term average EFS (314), but similar with the recent average of 83.				

FRASER PINK

Conservation Unit	Average Return	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
Fraser Pink - EVEN (CU: Fraser River)	11,386,857 (1959-2021)				NA
	No returns are expected as it is an even year.				

FRASER CHINOOK

Stock Management Unit	Conservation Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
SPRING RUN 4₂ CHINOOK SALMON	**Aggregate SMU**	**10,275** (CTC ESC[1] 1975-2023)		**22,100** Escapement Target (S_{MSY})		**10,252** Outlook Category 2
	CK-17 Lower Thompson	**10,100** (ESC 1975-2023) **8,900** (Last Gen)	4000		WSP – Red COSEWIC – END.	
	CK-16 South Thompson-Bessette Creek	**115** (ESC 1975-2023) **15** (Last Gen)	1000		WSP – Red	
	The 2022 escapement estimates were near the long-term average and above the 2018 parental brood escapement, however remained well below the management target. The 2023 escapements were near the long-term average, however above the parental escapements of 2019. Expectations are for continued low abundance in 2024 due to below-average parental escapements in 2020, the November 2021 flooding impacts on eggs and parr, and uncertainty around marine survival and productivity. (2023 Outlook Category 2)					
SPRING RUN 5₂ CHINOOK SALMON	**Aggregate SMU**	**24,400** (CTC ESC Error! Bookmark not defined. 1975-2023)		**42,200** Escapement Target (S_{MSY})		**16,913** Outlook Category 2
	CK-04 Lower Fraser	**450** (ESC 1975-2023) **230** (Last Gen)	1,000		COSEWIC – Special Concern	
	CK-08 Middle Fraser- Fraser Canyon	**60** (ESC 1975-2023) **75** (Last Gen)	1,000		WSP – Data D. COSEWIC – END	
	CK-10 Middle Fraser	**7,800** (ESC 1975-2023) **4,050** (Last Gen)	5,300		WSP – Red COSEWIC – Threat.	
	CK-12 Upper Fraser	**17,600** (ESC 1975-2023) **10,600** (Last Gen	5,300		WSP – Red COSEWIC – END	
	CK-18 North Thompson	**700** (ESC 1975-2023) **400** (Last Gen)	1,000		WSP – Red	

[1] Average aggregate escapement is based on the set of systems used for analysis by the CTC which does not always include every system in each CU due to data standard requirements for consistent methodology and complete or near complete time series.

Stock Management Unit	Conservation Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
					COSEWIC – END	
	There continues to be considerable escapement variation among and within these conservation units. On average, the 2022 escapement estimates were near the long-term average and above the 2017 parental brood escapement, but still below the escapement target. The 2023 escapements exceeded the 2018 parental escapements, however remained below the long-term average. Expectations are for continued low abundance compared to the escapement target in 2024. In addition to the lowest average parental escapement on record in 2019 and uncertainty around marine survival and productivity, the 2019 Big Bar landslide resulted in high mortality which will affect the 5 year old component of the 2024 escapement for CK-10 and CK-12. Some stocks are more heavily impacted by Big Bar, causing much lower escapements. The variation among CUs is expected to continue in 2024 (2023 Outlook Category 1)					
SUMMER RUN 5_2 CHINOOK SALMON	**Aggregate SMU**	**19,700** (CTC ESC Error! Bookmark not defined. 1975-2023)		**23,600** Escapement Target (S_{MSY})		**19,447** Outlook Category 2
	CK-05 Lower Fraser – Upper Pitt	**235** (ESC 1975-2023) **45** (Last Gen)	1,000		WSP – Data D. COSEWIC – END	
	CK-06 Lower Fraser	**60** (ESC 1975-2023) **50** (Last Gen)	1,000		WSP – Data D. COSEWIC – Threat.	
	CK-09 Middle Fraser - Portage	**130** (ESC 1975-2023) **80** (Last Gen)	1,000		WSP – Red COSEWIC – END	
	CK-11 Middle Fraser	**14,900** (ESC 1975-2023) **11,100** (Last Gen)	5,800		WSP – Amber COSEWIC – Threat.	
	CK-14 South Thompson	**1,300** (ESC 1975-2023) **1,500** (Last Gen)	1,000		WSP – Amber COSEWIC – END	
	CK-19 North Thompson	**4,300** (ESC 1975-2023) **3,900** (Last Gen)	1,800		WSP – Red COSEWIC – END	
	There continues to be considerable escapement variation among and within these conservation units. On average, the 2022 escapement estimates were above the long-term average and the 2017 parental brood; and near the Smsy escapement target. Escapement estimates from 2023 were well above the 2018 parental escapements and near the long-term average but remained below the SMU escapement target. For the 2024 return, expectations are for continued low abundances due to i) one of the lowest parental escapements on record in 2019; ii) uncertainty around marine survival and productivity; and iii) high					

Stock Management Unit	Conservation Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
	mortality associated with the 2019 Big Bar landslide will affect the 5 year-old return of the Middle Fraser CU (CK-11), which makes up a large component of the SMU. (2023 Outlook Category 1)					
SUMMER RUN 4$_1$ CHINOOK SALMON		**79,400** (CTC ESC Error! Bookmark not defined. 1975-2023)		**120,300** Escapement Target (S_{MSY})		**246,044** Outlook Category 4
	CK-13 South Thompson	**55,600** (ESC 1975-2023) **225,600** (Last Gen)	23,600		WSP – Green COSEWIC – Not at Risk	
	CK-15 Shuswap River	**27,200** (ESC 1975-2023) **43,200** (Last Gen)	2,100		COSEWIC – Not at Risk	
	CK-07 Maria Slough	**270** (ESC 1975-2023) **40** (Last Gen)	1,000		WSP-Not assessed COSEWIC – END.	**Outlook Category 1**
	The 2022 escapement estimate for the aggregate exceeded both the long-term average and the parental brood escapement (with the exception of Maria Slough). Similar trends were observed in 2023 with escapement estimates for CK-13 and CK-15 above the long-term average and parental brood escapements, while CK-07 returns remained below the long-term average and 2019 parental brood escapement. Overall, the aggregate met the management target in 2023. The Lower Shuswap indicator is well above the PST management objective of 12,300 spawners, making 2023 the 7th consecutive year the target has been met. Expectations are for continued high abundance for CUs (except for Maria Slough) in 2024 given high parental escapements in 2020 and recent trends in abundance. (2023 Outlook Category 1 (Maria) / 4)					
FALL RUN 4$_1$ CHINOOK SALMON	**Aggregate**	**127,600** (ESC 1984-2023)				**Outlook Category 2**
	(P) Chilliwack Hatchery Exclusion	**36,900** (ESC 1984-2023) **56,600** (Last Gen)	n/a (hatchery stock)		Not assessed.	**71,375** Outlook Category 4
	CK-03 Lower Fraser River-fall timing (white) - Harrison	**90,700** (ESC 1984-2023) **76,900** (Last Gen)	**15,300**	**75,100** Escapement Target (S_{MSY})	WSP – Green COSEWIC – Threat.	**102,465** Outlook Category 2
	The 2022 Harrison escapement estimate was near the long-term average, above the 2018 parental brood escapement, and it is only the second time in the last 11 years that the PST escapement goal of 75,100 was met. The 2023					

Stock Management Unit	Conservation Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
	Harrison escapement estimate was above the parental brood escapement, long-term average, and escapement target. Expectations for 2024 are for moderate abundance based on brood year escapement and recent returns. Chilliwack hatchery production, marine survival, and fishery exploitation are expected to return sufficient abundance to achieve hatchery production objectives. (2023 Outlook Category 2 (Harrison) / 4 (Chilliwack))					

FRASER COHO

STOCK MANAGEMENT UNIT	Conservation Unit / Sub Unit	Average Return	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
Interior Fraser Coho	**Aggregate**	**38,000 (ESC 1998 – 2023)**		**~34,100 + 3 years of survival >3%**	COSEWIC - Threat	**85,813** (Prefisheries Abundance) Outlook Category 2
	Fraser Canyon	**3,500** (ESC 1998 – 2023) **4,900** (Last Gen)	**1,000**			
	Interior Fraser	**5,900** (ESC 1998 – 2023) **14,300** (Last Gen)	**1,800**			
	North Thompson	**13,800** (ESC 1998 – 2023) **24,700** (Last Gen)	**2,600**			
	Lower Thompson	**7,500** (ESC 1998 – 2023) **15,200** (Last Gen)	**1,400**			
	South Thompson	**7,300** (ESC 1998 – 2023) **10,400** (Last Gen)	**2,300**			
		The SMU status will remain cautious but above its interim LRP. To move into Moderate PST MU status, escapement must exceed the LRP and the PST MU survival target of 3% must be met in three successive years. The survival target has only been met once (in 2021) since 1999. The survival estimate for 2023 was below 3%, currently estimated at 2.2%. Outlook Category is a 2 due to recent escapements exceeding the interim limit reference point, but survival and total pre-fisheries abundance remains below the moderate MU management reference point and the SMU upper stock reference is yet to be defined.				
Lower Fraser Coho	**Aggregate – includes 3 CUs**	Not Available				**Data Deficient**
		Inch Creek hatchery smolt-adult survival is a proxy for changes in the relative abundance for the PST MU and SMU. The 2024 forecast for marine survival for this indicator is 8.3%, an increase (+13%) relative to the 7.2% survival rate observed in 2023. An Outlook Category cannot be				

		determined as there is no limit reference point or escapement time series.	

FRASER CHUM

Stock Management Unit	Conservation Unit	Average Return (all cycles)	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
Inner South Coast Chum - Fraser	Lower Fraser CU			There is a management goal of 800,000 wild spawners.		**Outlook Category 2**
		Fraser River Chum Salmon spawning escapement has failed to reach the management goal in six of the last seven years (2017-2021, 2023). The October 24, 2023 in-season terminal run estimate was 470,000 fish (80% probability interval of 326,000 to 677,000 Chum), and the 2023 spawning escapement estimate (including age data) will be available by April 2024. Returns in 2024 will be dominated by 4-year-old brood from the 2020 escapement of 610,000 spawners (contribution of 3-year-old fish is expected to be minimal due to extreme flooding during the 2021 spawning season. Spawning escapements have failed to outperform brood in five of the past seven years (2017-2021), with 2022 and 2023 returns outperforming brood. (2023 Outlook Category was 2)				

HOWE SOUND / BURRARD INLET

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
PINK	Part of the Southern Fjords odd and even CUs				**Data Deficient**
CHINOOK	Part of the South Coast – Southern Fjords CU				**Data Deficient**
Strait of Georgia Coho	Howe Sound – Burrard Inlet CU				**Data Deficient**
INNER SOUTH COAST CHUM – Non-Fraser	Howe Sound – Burrard Inlet CU				**Data Deficient**

BOUNDARY BAY

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	2024 Forecast\ Outlook
CHINOOK	CK-01 Boundary Bay	**213** (Little Campbell ESC 1980-2023)	1,000	2,100	**Outlook Category 1**
	In the last five years, escapements have been above the long-term average, but below the SMU target. Escapement in 2023 was close to the escapement goal with 934 spawners. Returns in 2024 are expected to follow the same trend given the second highest escapement on record for the 2020 parental brood year (1,088 adult spawners). CK-01 is currently undergoing review for listing under the *Species at Risk Act*.				
COHO	Boundary Bay CU				**Data Deficient**
INNER SOUTH COAST CHUM – Non-Fraser	Boundary Bay CU				**Data Deficient**

OKANAGAN

Stock Management Unit	Conservation Unit / Sub-Unit	Average Run / Avg. Spawners	LRP / LBB	Management Target	WSP / COSEWIC Status	2024 Forecast\ Outlook
OKANAGAN SOCKEYE	Osoyoos			58,730 adults at Wells Dam or 29,365 as peakcounts in the terminal index area		**Outlook Category 3**
	The current estimate for Ok Sox returning this year is 284,000. The average (2008-2023) is 266,000 (SD 40,000), so the estimate is for slightly above average returns. .					
OKANAGAN CHINOOK	Okanagan Summer	**35** (ESC 2006- 2023)	1,000	**4,600**	COSEWIC - END	**Outlook Category 1**
	The escapement estimate for 2022 was 23. The estimate for 2023 escapement is 90 using the PIT tag mark-recapture. Expectations for 2024 are for continued depressed abundance related to low parental escapements, low marine and freshwater survival, low productivity, and low hatchery production. (2023 Outlook Category was 1)					

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APPENDIX - SOCKEYE

When considering the term “target” used for defining outlook categories, we considered upper WSP benchmarks to be the target (not the lower benchmark).

- Outlook status 1: population/CU is below the lower WSP benchmark
- Outlook status 2: population/CU is above the lower benchmark, but less than 50% of the upper benchmark
- Outlook status 3: population/CU is between 50-75% of the upper benchmark
- Outlook status 4: population/CU is over 75% of the upper benchmark

Details on how each metric was calculated or obtained for comparison.

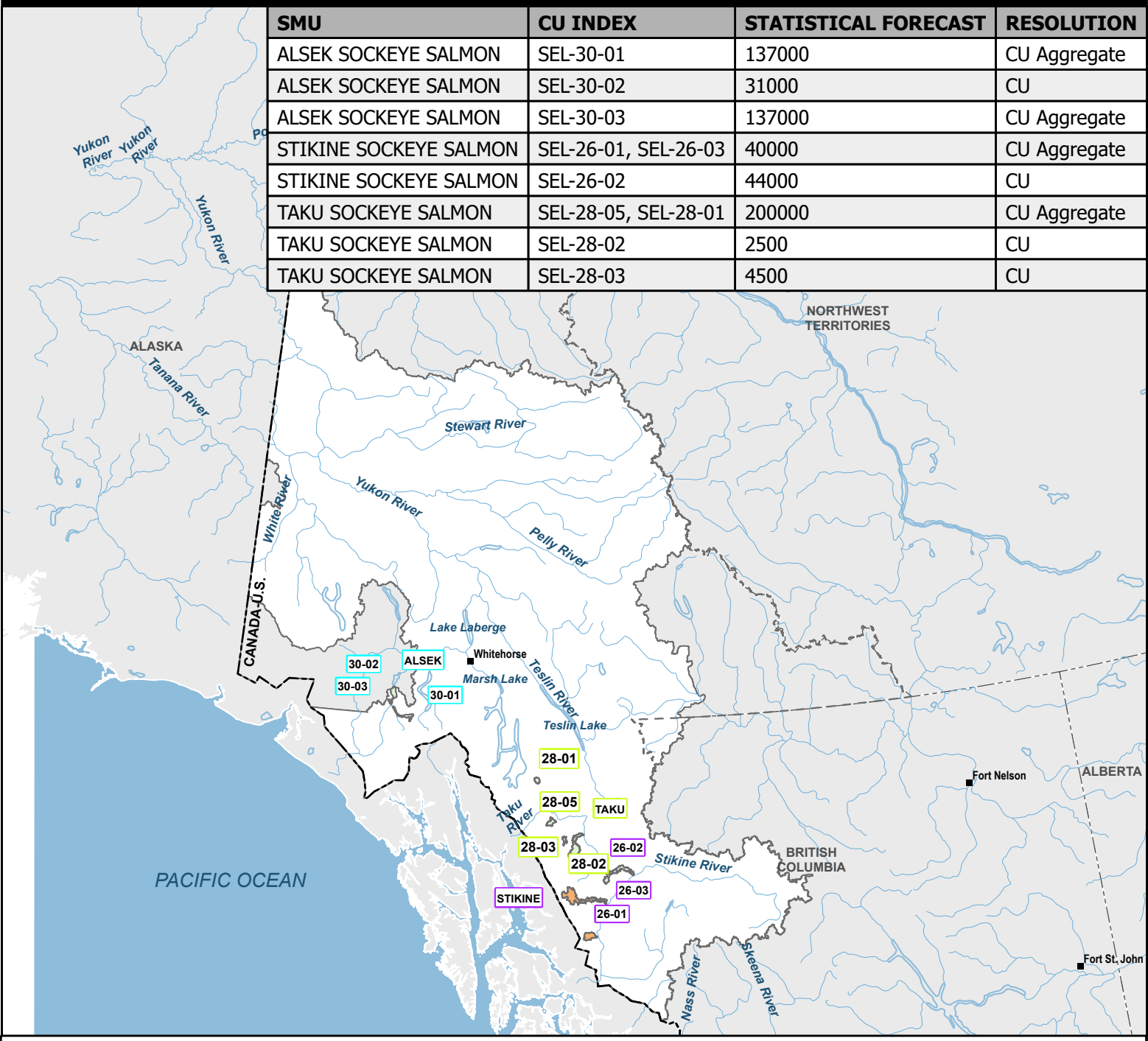
- Long-term average EFS was calculated from the start date identified in Grant et al (2020) up to and including the brood year of interest (for the 2022 outlook, that would be 2018). This obviously may not hold true for stocks with predominantly 3- or 5-year old cohorts, but it is not expected to change the outcome drastically.
  - For cyclical stocks, long-term average EFS was calculated based on the cycle line average EFS. For example, for Seymour River, the long-term average EFS is the average of the 2022 cycle line escapements from 1950-2018.
  - For non-cyclical stocks, long-term average EFS was calculated across all years in the time series. For example, Harrison River long term average EFS is the average of each year’s EFS from 1948-2018.
- Short term average EFS is calculated from the most recent 4 years of escapements. The purpose is to capture brood year relative to recent trends in escapement.
  - For cyclical stocks, this is the most recent 4 years in that cycle line (e.g., for the 2022 outlook, the average is calculated from 2018, 2014, 2010 and 2006 EFS).
  - For non-cyclical stocks, this is the most recent 4 years available up to the brood year of interest (e.g., for the 2022 outlook, it is calculated from 2015-2018, inclusive. Note the most recent year, in this case 2021, is not available at the time the Outlook is calculated).
- Most systems compare the average EFS of the 4 year old component (2018) to the long term average EFS and benchmarks. However, it is prudent to consider 3- and 5-year old components for some stocks. These stocks were identified visually using the PSC Age Composition Comparison App online (Brkic 2020). Note that for some cyclical stocks, this will have to be revisited in future years depending on the cycle line. For example, Mitchell and Horsefly Rivers (Quesnel-Summer) have much lower 4 year old contribution on the 2019 cycle line.
- Escapement benchmarks were manually compiled from Grant et al 2020. Note that this deals with CUs; while Scotch and Seymour are reported separately here, they are part of the same CU and so have the same 4-year median and benchmarks. These need to be updated annually for cyclical stocks as each cycle line has its own benchmarks.
- Effective total spawners (ETS) was calculated to compare to the Wild Salmon Policy (WSP) benchmarks as those are calculated in terms of ETS (apples to apples). Grant et al 2020 outlines

how ETS is calculated; briefly, ETS=(annual_male_escapement + annual_female_escapement)*annual_spawn_success, where spawn success is the spawn success of the females (based on egg retention in carcasses).

- Outlook status ranges from 1-4, with 1 being the poorest outlook/lowest return, and 4 being the highest. They are informed by the status definitions in FRAFS (2018) with slight modifications to this specific document. Note some populations/CUs may receive dual statuses to represent uncertainty in data and/or evidence for multiple status categories (including the potential for multiple age classes). Status designation is determined by comparing brood-year effective total spawners (ETS) to the WSP benchmarks for ETS. If no benchmarks are available, it is manually/qualitatively assigned by comparing brood-year effective female spawners (EFS) to long-term and recent average EFS. In a case where benchmark rule is not consistent with brood-year EFS relative to the historical data, the outlook status conforms to the former one.

2024 - Salmon Outlook - Pacific Region

SMU	CU INDEX	STATISTICAL FORECAST	RESOLUTION
ALSEK SOCKEYE SALMON	SEL-30-01	137000	CU Aggregate
ALSEK SOCKEYE SALMON	SEL-30-02	31000	CU
ALSEK SOCKEYE SALMON	SEL-30-03	137000	CU Aggregate
STIKINE SOCKEYE SALMON	SEL-26-01, SEL-26-03	40000	CU Aggregate
STIKINE SOCKEYE SALMON	SEL-26-02	44000	CU
TAKU SOCKEYE SALMON	SEL-28-05, SEL-28-01	200000	CU Aggregate
TAKU SOCKEYE SALMON	SEL-28-02	2500	CU
TAKU SOCKEYE SALMON	SEL-28-03	4500	CU



Sockeye Salmon - Yukon/Transboundary Area

Outlook Category

The purpose of the Outlook is to provide the expected abundance of salmon to inform the harvest planning process. The preliminary Outlook provides a categorical abundance expectation based expert opinion and the final outlook replaces 'categorical outlooks' with expected abundance for those stock units with statistical forecasts.

1 | 1-2 | 2 | 2-3 | 3 | 3-4 | 4 | 5

1. Poor status. This category is undesirable because of the risk of extirpation, and the loss of ecological benefits and salmon production. The presence of a SMU/CU in this category will initiate consideration of ways to protect the fish, increase their abundance, and reduce the potential risk of loss.
2. Marginal status. This category status implies caution in the management of the unit. While a unit in this category should be at a low risk of loss, there will be a degree of lost production. Higher management intervention.
3. Healthy status. Near average spawning abundance. Possible management intervention for social and economic considerations.
4. Abundant status. High spawning abundance and distribution. Low management intervention.
5. Data Deficient. SMUs for which insufficient data area available to determine an Outlook are noted as 'Data Deficient'.

Conservation Unit (CU) #

The index number is a code assigned to the CU that when prefixed by the species code becomes the CU index, e.g., Chinook: CK-1, Chum: CM-1, Coho: CO-1, River-Type Sockeye: SER-1, Lake-Type Sockeye: SEL-1, Even Year Pink: PKE-1, Odd Year Pink: PKO-1.

Stock Management Unit (SMU) SMU

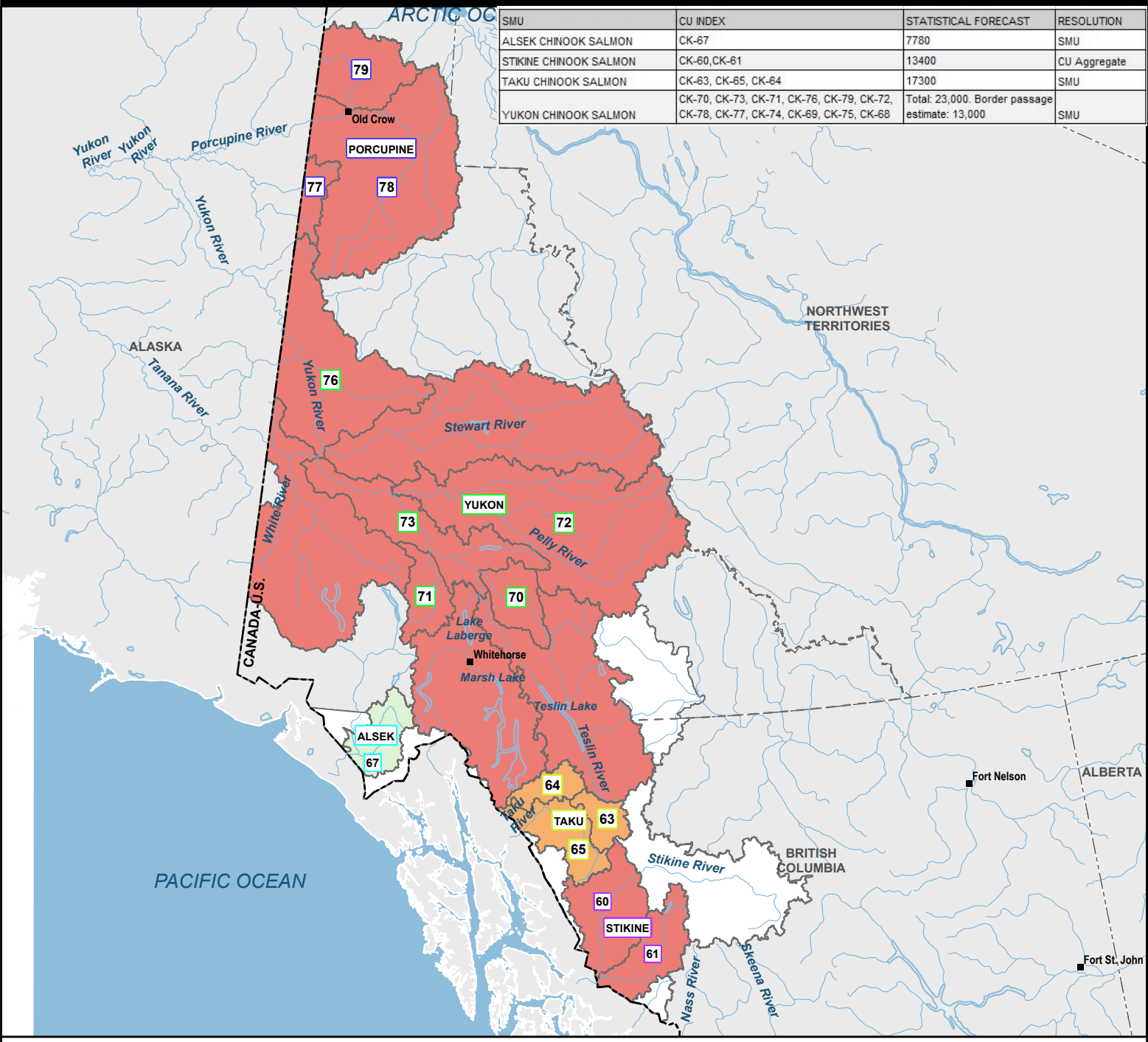
For salmon, the working definition of a 'stock management unit' is a 'group of one or more CUs that are managed together with the objective of achieving a joint status'.

For more information visit:
https://www.pac.dfo-mpo.gc.ca/pacific-smon-pacifique/science/research-recherche/smon-summ-somm-eng.html

Projection: NAD 1983 Yukon Albers
Production Date: 9/20/2024
Produced By: Chelsea Greenberg for Fisheries and Oceans Canada

2024 - Salmon Outlook - Pacific Region

SMU	CU INDEX	STATISTICAL FORECAST	RESOLUTION
ALSEK CHINOOK SALMON	CK-67	7780	SMU
STIKINE CHINOOK SALMON	CK-60,CK-61	13400	CU Aggregate
TAKU CHINOOK SALMON	CK-63, CK-65, CK-64	17300	SMU
YUKON CHINOOK SALMON	CK-70, CK-73, CK-71, CK-76, CK-79, CK-72, CK-78, CK-77, CK-74, CK-69, CK-75, CK-68	Total: 23,000. Border passage estimate: 13,000	SMU



Chinook Salmon - Yukon/Transboundary Area

Outlook Category

The purpose of the Outlook is to provide the expected abundance of salmon to inform the harvest planning process. The preliminary Outlook provides a categorical abundance expectation based expert opinion and the final outlook replaces 'categorical outlooks' with expected abundance for those stock units with statistical forecasts.

1 | 1-2 | 2 | 2-3 | 3 | 3-4 | 4 | 5

1. Poor status. This category is undesirable because of the risk of extirpation, and the loss of ecological benefits and salmon production. The presence of a SMU/CU in this category will initiate consideration of ways to protect the fish, increase their abundance, and reduce the potential risk of loss.
2. Marginal status. This category status implies caution in the management of the unit. While a unit in this category should be at a low risk of loss, there will be a degree of lost production. Higher management intervention.
3. Healthy status. Near average spawning abundance. Possible management intervention for social and economic considerations.
4. Abundant status. High spawning abundance and distribution. Low management intervention.
5. Data Deficient. SMUs for which insufficient data area available to determine an Outlook are noted as 'Data Deficient'.

Conservation Unit (CU) #

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Stock Management Unit (SMU) SMU

For salmon, the working definition of a 'stock management unit' is a 'group of one or more CUs that are managed together with the objective of achieving a joint status'.

For more information visit:
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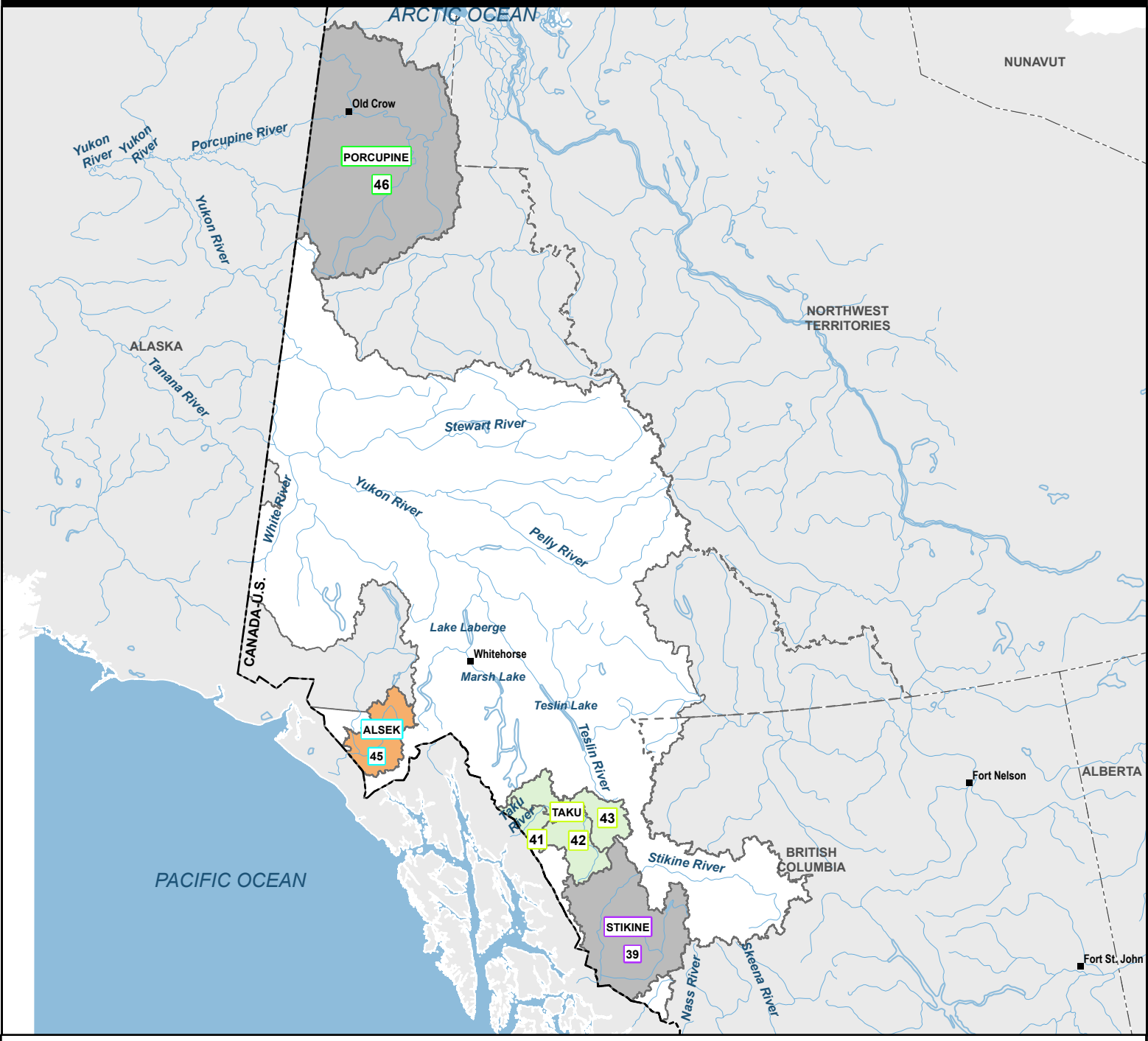
Projection: NAD 1983 Yukon Albers
Production Date: 9/20/2024
Produced By: Chelsea Greenberg for Fisheries and Oceans Canada

2024 - Salmon Outlook - Pacific Region



Coho Salmon - Yukon/Transboundary Area

Outlook Category

The purpose of the Outlook is to provide the expected abundance of salmon to inform the harvest planning process. The preliminary Outlook provides a categorical abundance expectation based expert opinion and the final outlook replaces 'categorical outlooks' with expected abundance for those stock units with statistical forecasts.

1 | 1-2 | 2 | 2-3 | 3 | 3-4 | 4 | 5

1. Poor status. This category is undesirable because of the risk of extirpation, and the loss of ecological benefits and salmon production. The presence of a SMU/CU in this category will initiate consideration of ways to protect the fish, increase their abundance, and reduce the potential risk of loss.
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3. Healthy status. Near average spawning abundance. Possible management intervention for social and economic considerations.
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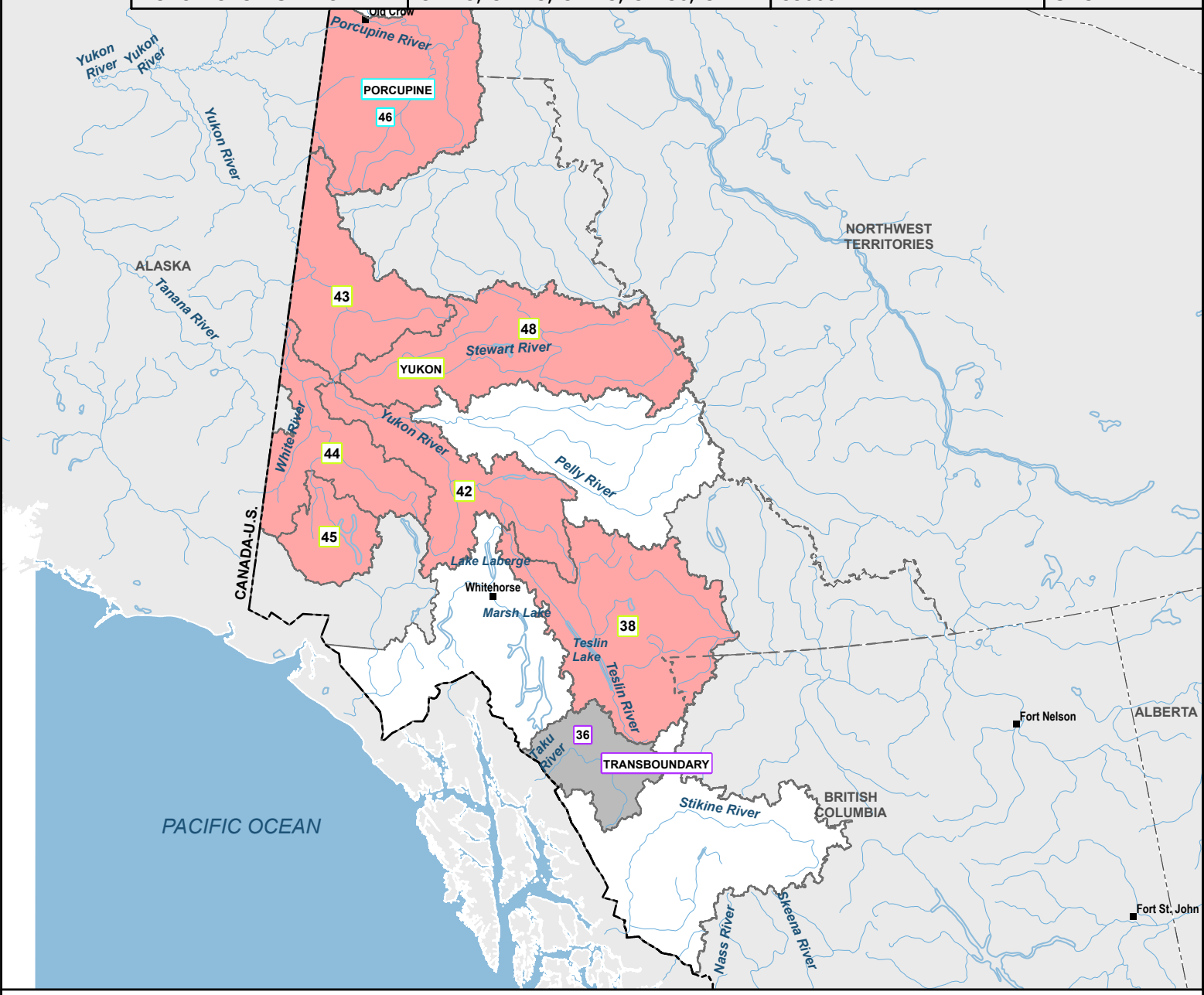
SMU	CU INDEX	STATISTICAL FORECAST	RESOLUTION
PORCUPINE CHUM SALMON	CM-46	15000	SMU
YUKON CHUM SALMON	CM-45, CM-43, CM-43, CM-38, CM-44	55000	SMU



Chum Salmon - Yukon/Transboundary Area

Outlook Category

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1 | 1-2 | 2 | 2-3 | 3 | 3-4 | 4 | 5

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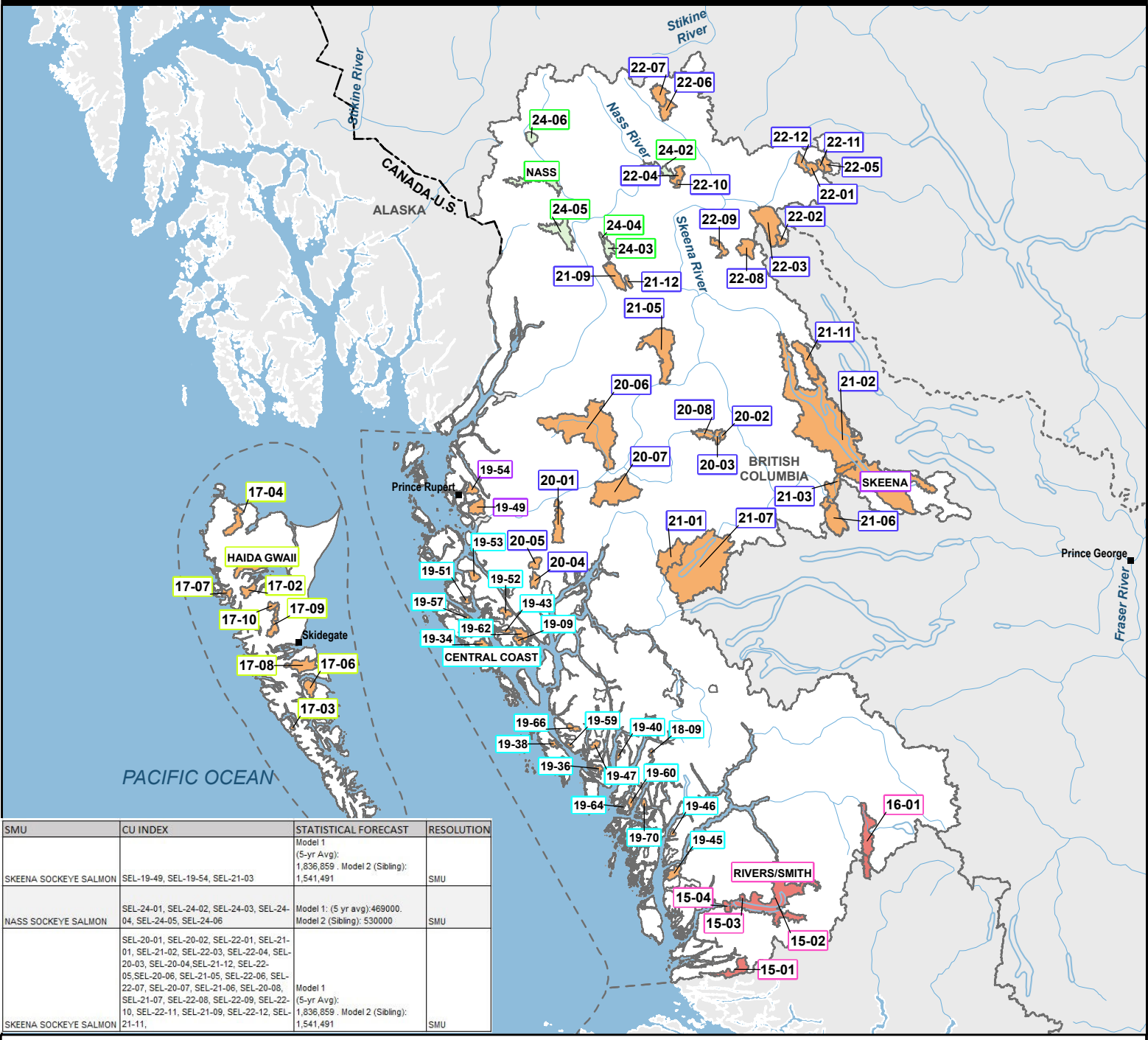
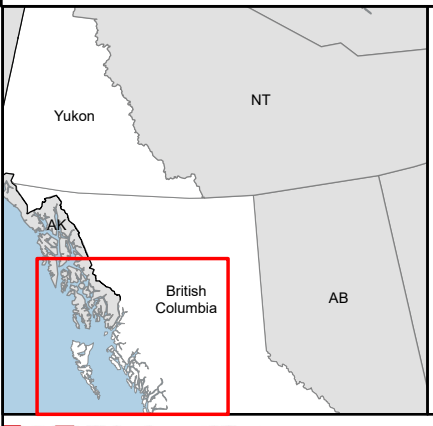
2024 - Salmon Outlook - Pacific Region



SMU	CU INDEX	STATISTICAL FORECAST	RESOLUTION
SKEENA SOCKEYE SALMON	SEL-19-49, SEL-19-54, SEL-21-03	Model 1 (5-yr Avg): 1,836,859 . Model 2 (Sibling): 1,541,491	SMU
NASS SOCKEYE SALMON	SEL-24-01, SEL-24-02, SEL-24-03, SEL-24-04, SEL-24-05, SEL-24-06	Model 1: (5 yr avg):469000. Model 2 (Sibling): 530000	SMU
SKEENA SOCKEYE SALMON	SEL-20-01, SEL-20-02, SEL-22-01, SEL-21-01, SEL-21-02, SEL-22-03, SEL-22-04, SEL-20-03, SEL-20-04,SEL-21-12, SEL-22-05,SEL-20-06, SEL-21-05, SEL-22-06, SEL-22-07, SEL-20-07, SEL-21-06, SEL-20-08, SEL-21-07, SEL-22-08, SEL-22-09, SEL-22-10, SEL-22-11, SEL-21-09, SEL-22-12, SEL-21-11,	Model 1 (5-yr Avg): 1,836,859 . Model 2 (Sibling): 1,541,491	SMU

Sockeye Salmon - North Coast/Central Coast Area



Outlook Category

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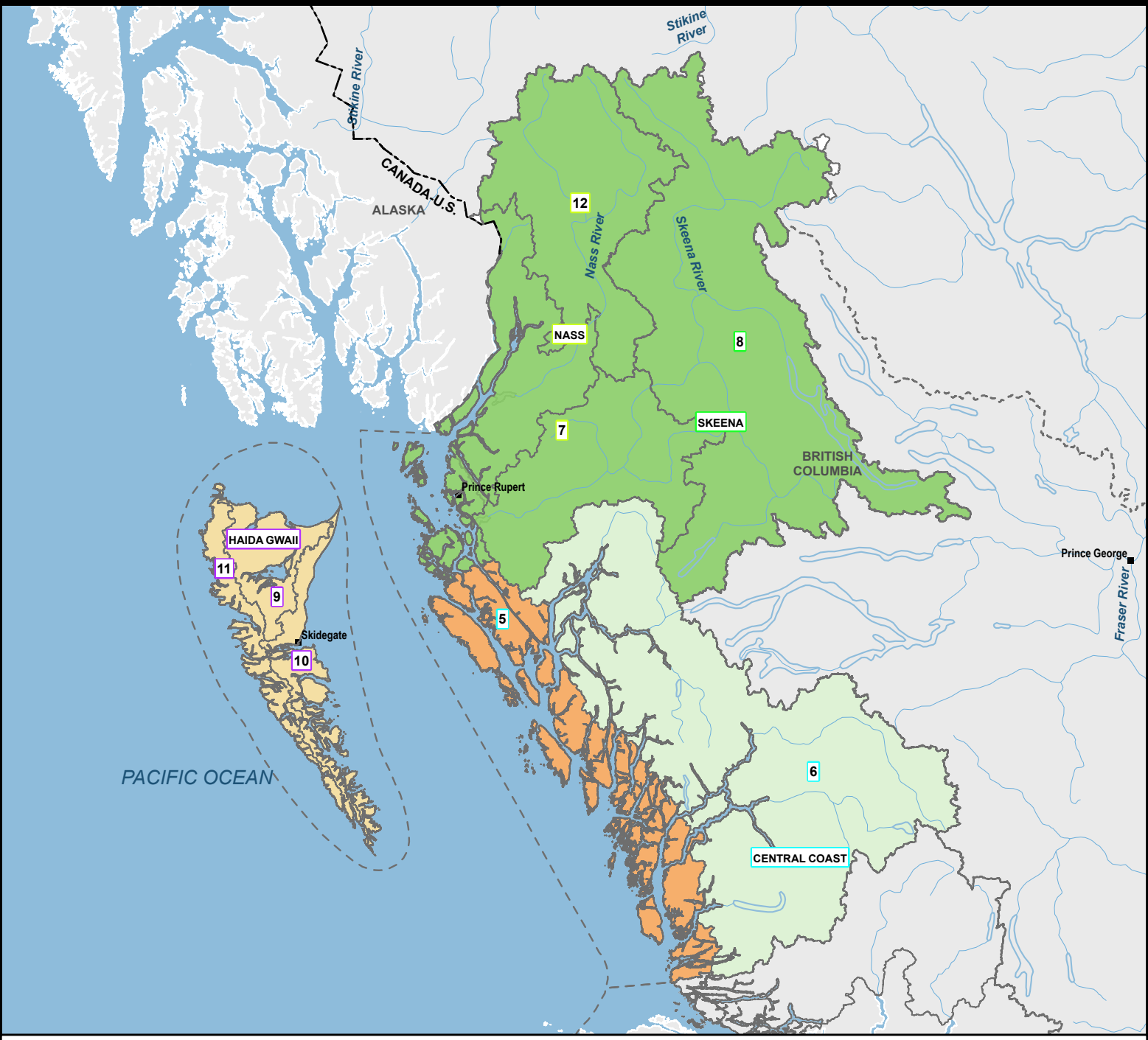
2024 - Salmon Outlook - Pacific Region



Even Year Pink Salmon - North Coast/Central Coast Area

Outlook Category

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1	1-2	2	2-3	3	3-4	4	5

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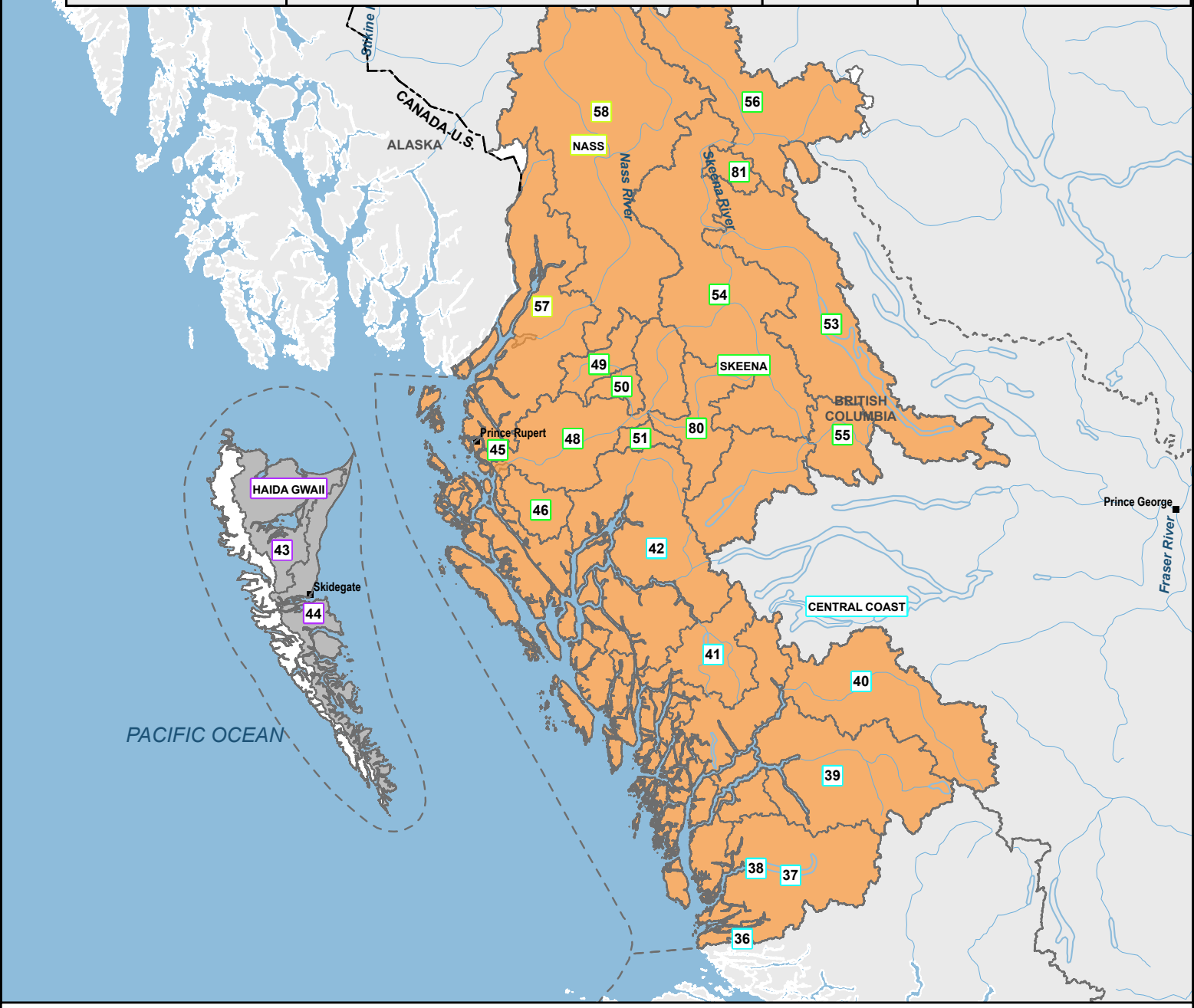
Projection: NAD 1983 BC Environment Albers
Production Date: 9/3/2024
Produced By: Chelsea Greenberg for Fisheries and Oceans Canada

2024 - Salmon Outlook - Pacific Region

SMU NAME	FULL CU INDEX	STATISTICAL FORECAST	STATISTICAL FORECAST RESOLUTION LEVEL
CENTRAL COAST CHINOOK SALMON	CK-39	11191	SMU
SKEENA CHINOOK SALMON	CK-46, CK-49, CK-50, CK-51, CK-48, CK-53, CK-54, CK-81, CK-45, CK-55, CK-56, CK-80	37369	SMU



Chinook Salmon - North Coast/Central Coast Area

Outlook Category

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Projection: NAD 1983 BC Environment Albers
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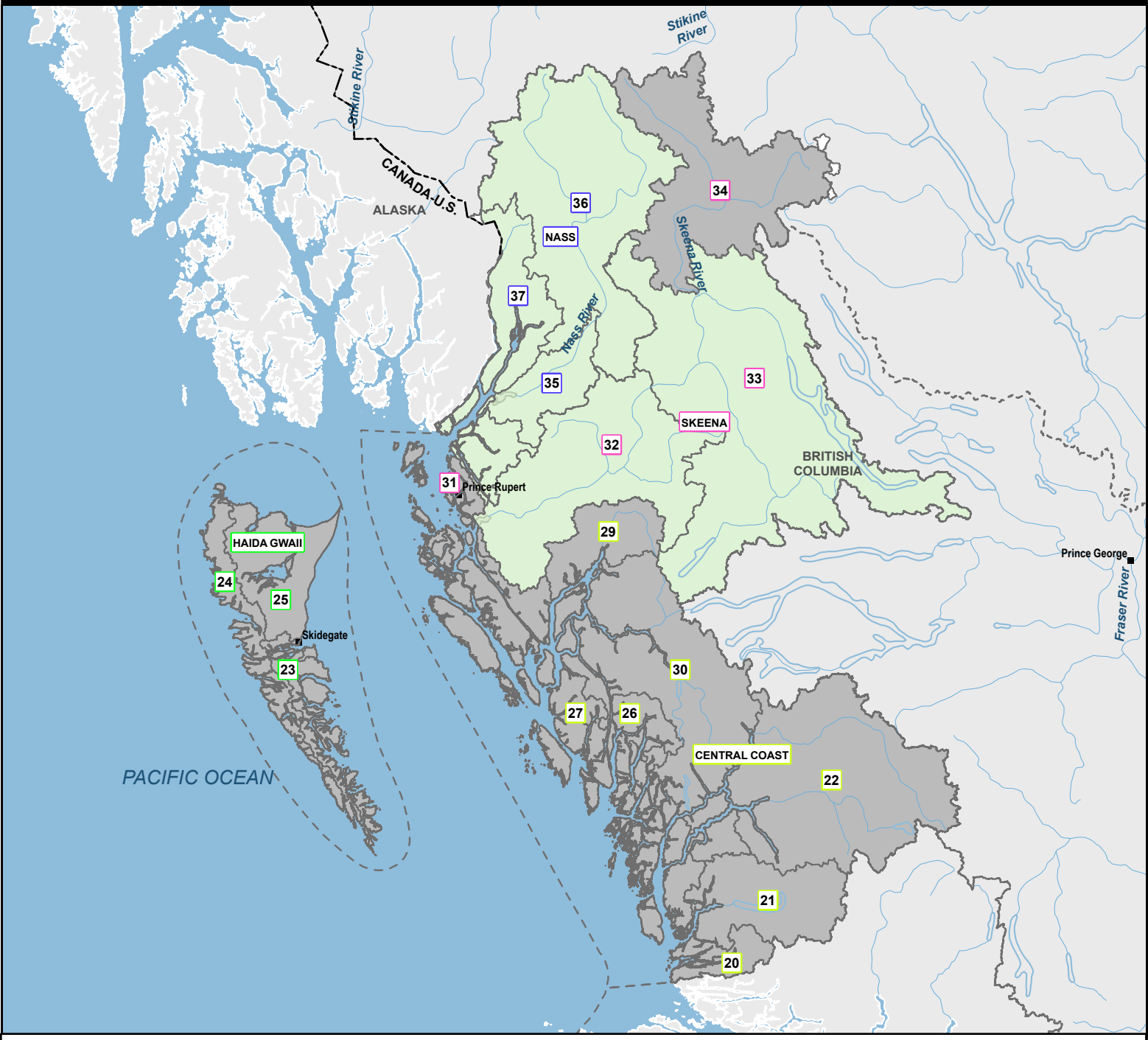
Produced By: Chelsea Greenberg for Fisheries and Oceans Canada

2024 - Salmon Outlook - Pacific Region



Coho Salmon - North Coast/Central Coast Area

Outlook Category

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Projection: NAD 1983 BC Environment Albers
Production Date: 9/10/2024
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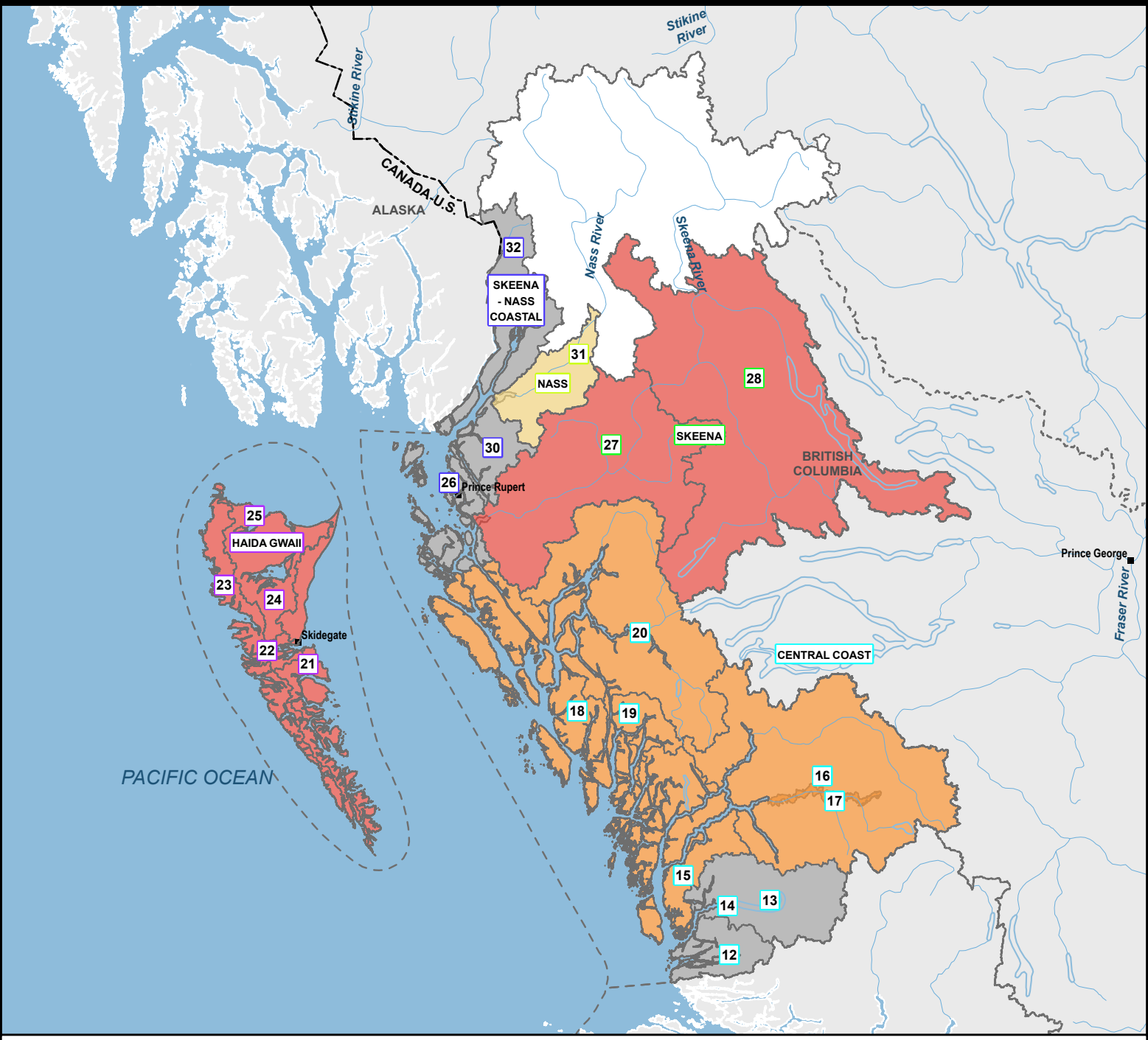
2024 - Salmon Outlook - Pacific Region



Chum Salmon - North Coast/Central Coast Area

Outlook Category

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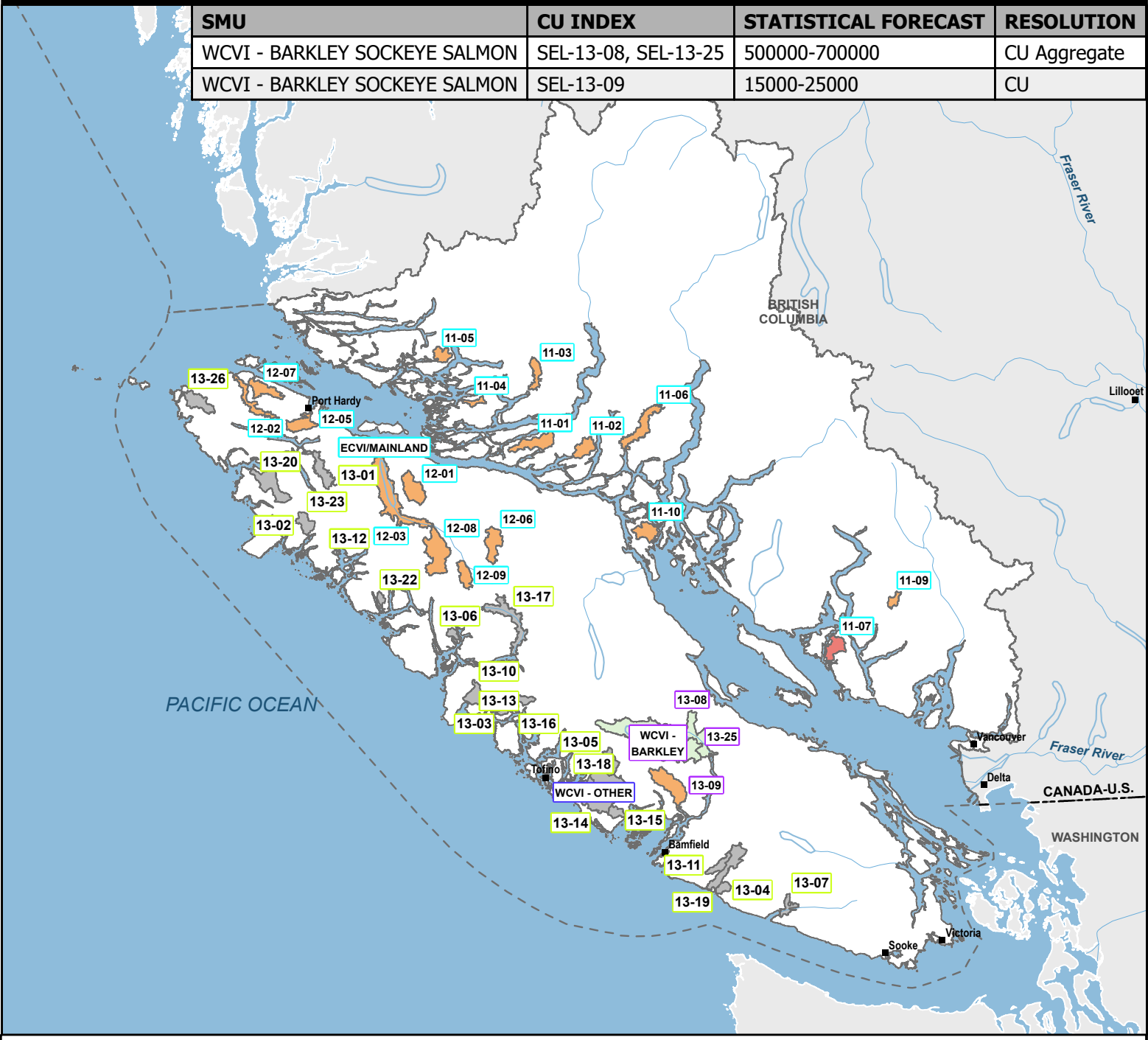
2024 - Salmon Outlook - Pacific Region

SMU	CU INDEX	STATISTICAL FORECAST	RESOLUTION
WCVI - BARKLEY SOCKEYE SALMON	SEL-13-08, SEL-13-25	500000-700000	CU Aggregate
WCVI - BARKLEY SOCKEYE SALMON	SEL-13-09	15000-25000	CU



Sockeye Salmon - South Coast Area

Outlook Category

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2024 - Salmon Outlook - Pacific Region

Even Year Pink Salmon - South Coast Area

Outlook Category

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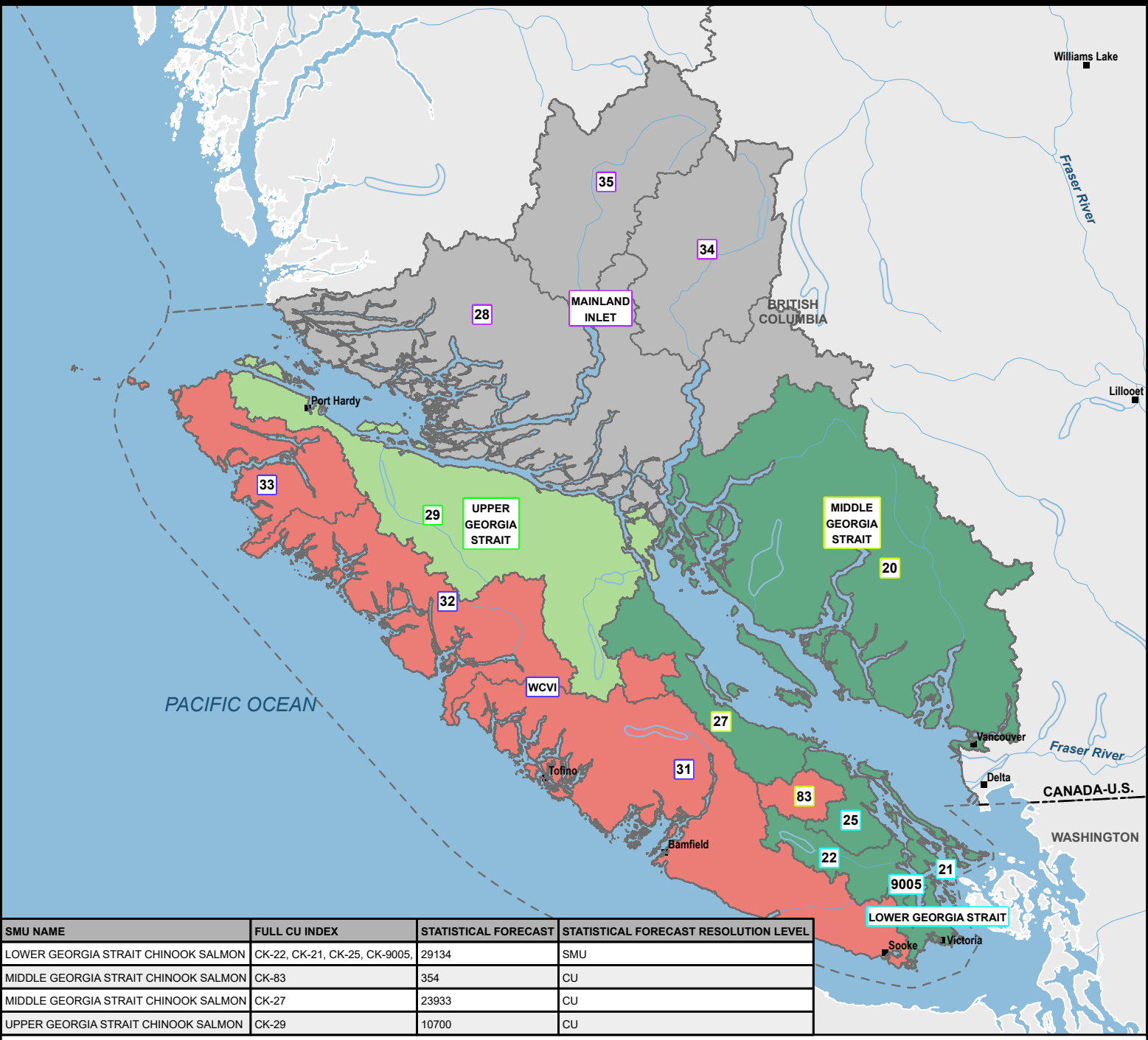
2024 - Salmon Outlook - Pacific Region



SMU NAME	FULL CU INDEX	STATISTICAL FORECAST	STATISTICAL FORECAST RESOLUTION LEVEL
LOWER GEORGIA STRAIT CHINOOK SALMON	CK-22, CK-21, CK-25, CK-9005,	29134	SMU
MIDDLE GEORGIA STRAIT CHINOOK SALMON	CK-83	354	CU
MIDDLE GEORGIA STRAIT CHINOOK SALMON	CK-27	23933	CU
UPPER GEORGIA STRAIT CHINOOK SALMON	CK-29	10700	CU

Chinook Salmon - South Coast Area

Outlook Category

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2024 - Salmon Outlook - Pacific Region

Coho Salmon - South Coast Area

Outlook Category

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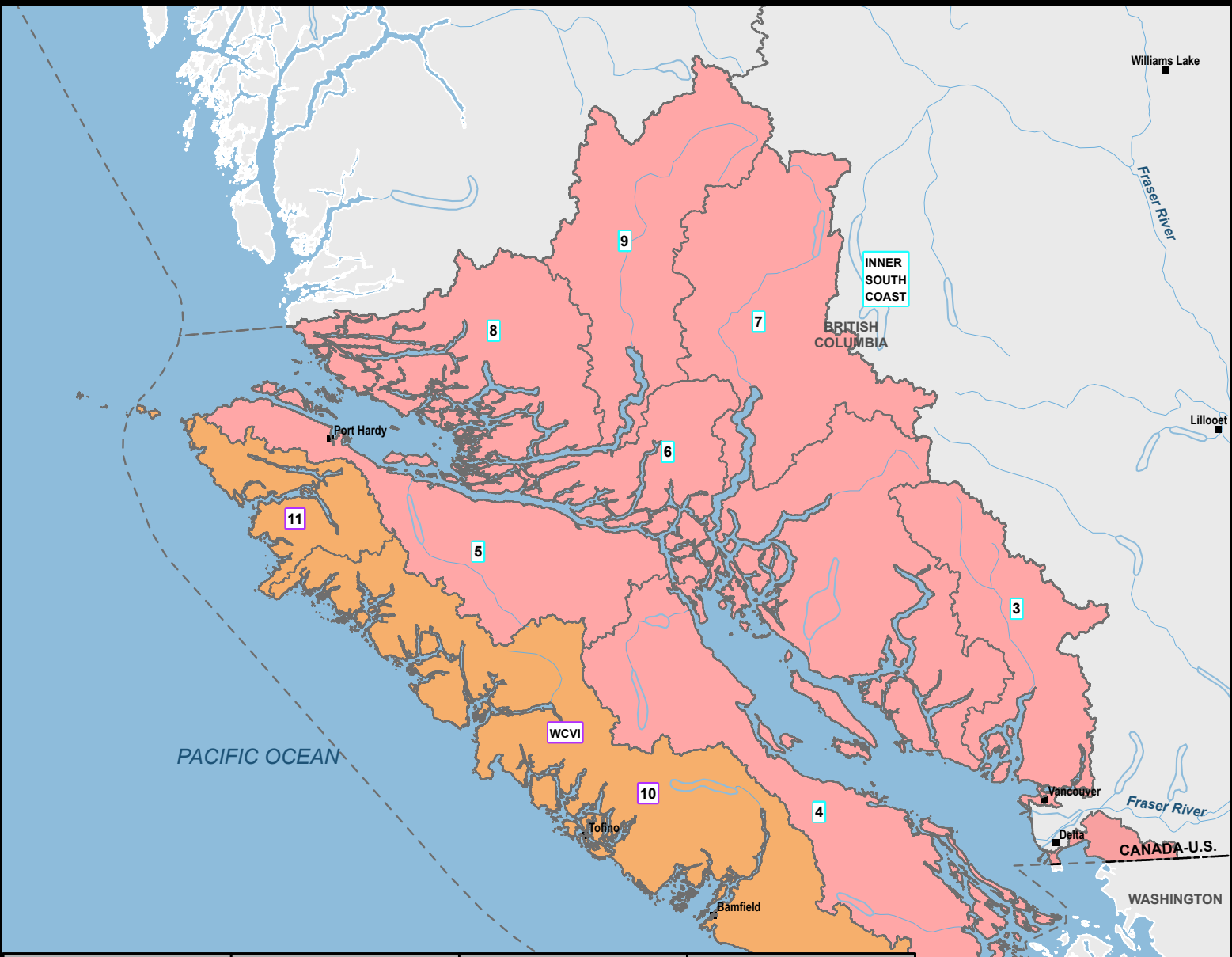
Production Date: 9/10/2024
Produced By: Chelsea Greenberg for Fisheries and Oceans Canada

2024 - Salmon Outlook - Pacific Region



SMU NAME	FULL CU INDEX	STATISTICAL FORECAST	STATISTICAL FORECAST RESOLUTION LEVEL
INNER SOUTH COAST CHUM SALMON	CM-7, CM-4, CM-3, CM-6, CM-5, CM-8, CM-9	95,200	SMU
WCVI CHUM SALMON	CM-10	NITINAT: 141,854, BARKLEY: 80,566, CLAYOQUOT: 20,947, CONUMA: 82,659, NOOTKA: 6,392, ESPERANZA: 16,271, KYUQUOT: 26,614	CU AGGREGATE

Chum Salmon - South Coast Area

Outlook Category

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1 | 1-2 | 2 | 2-3 | 3 | 3-4 | 4 | 5

1. Poor status. This category is undesirable because of the risk of extirpation, and the loss of ecological benefits and salmon production. The presence of a SMU/CU in this category will initiate consideration of ways to protect the fish, increase their abundance, and reduce the potential risk of loss.
2. Marginal status. This category status implies caution in the management of the unit. While a unit in this category should be at a low risk of loss, there will be a degree of lost production. Higher management intervention.
3. Healthy status. Near average spawning abundance. Possible management intervention for social and economic considerations.
4. Abundant status. High spawning abundance and distribution. Low management intervention.
5. Data Deficient. SMUs for which insufficient data area available to determine an Outlook are noted as 'Data Deficient'.

Conservation Unit (CU) #

The index number is a code assigned to the CU that when prefixed by the species code becomes the CU index, e.g., Chinook: CK-1, Chum: CM-1, Coho: CO-1, River-Type Sockeye: SER-1, Lake-Type Sockeye: SEL-1, Even Year Pink: PKE-1, Odd Year Pink: PKO-1.

Stock Management Unit (SMU) SMU

For salmon, the working definition of a 'stock management unit' is a 'group of one or more CUs that are managed together with the objective of achieving a joint status'.

For more information visit:
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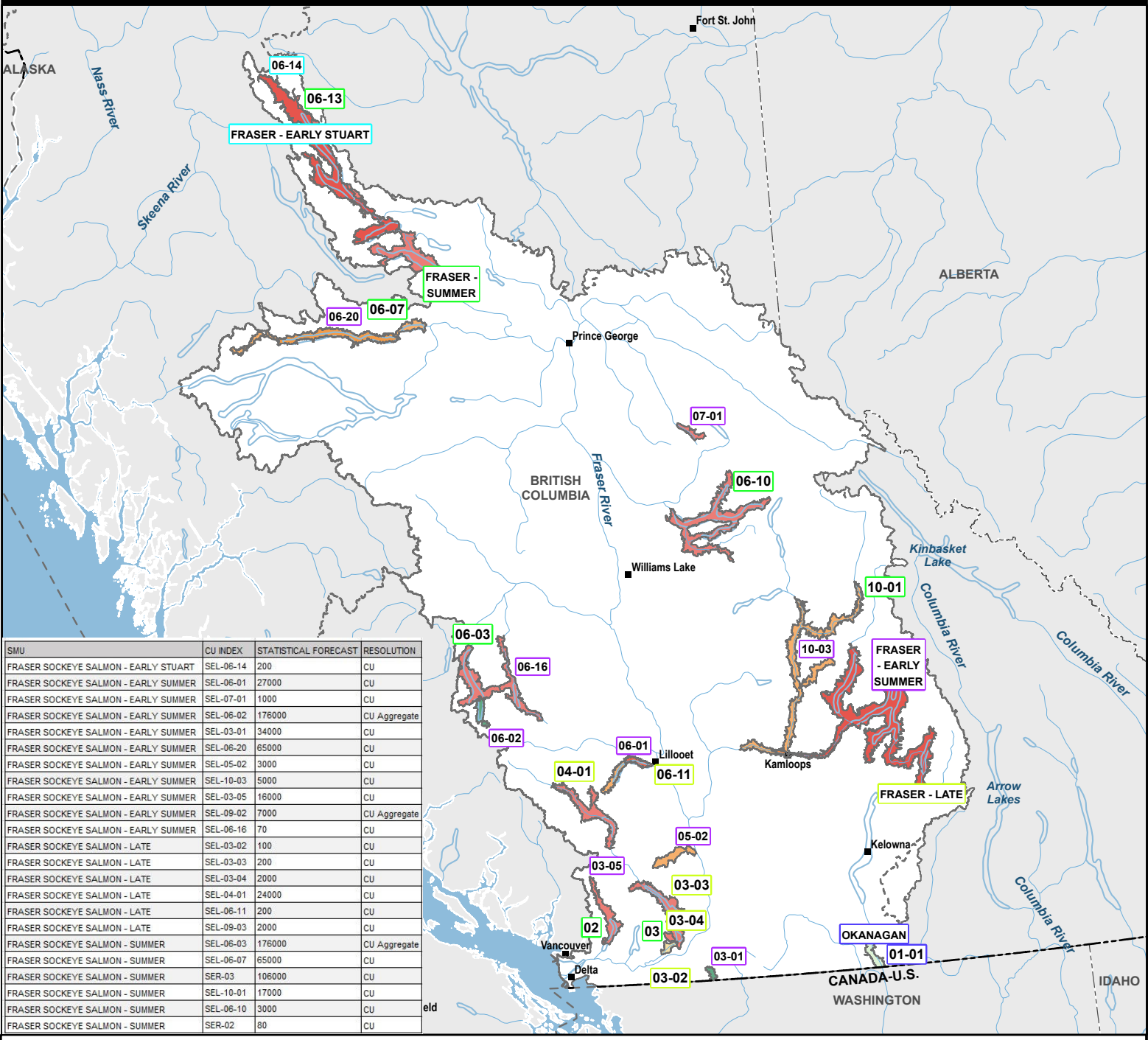
2024 - Salmon Outlook - Pacific Region



SMU	CU INDEX	STATISTICAL FORECAST	RESOLUTION
FRASER SOCKEYE SALMON - EARLY STUART	SEL-06-14	200	CU
FRASER SOCKEYE SALMON - EARLY SUMMER	SEL-06-01	27000	CU
FRASER SOCKEYE SALMON - EARLY SUMMER	SEL-07-01	1000	CU
FRASER SOCKEYE SALMON - EARLY SUMMER	SEL-06-02	176000	CU Aggregate
FRASER SOCKEYE SALMON - EARLY SUMMER	SEL-03-01	34000	CU
FRASER SOCKEYE SALMON - EARLY SUMMER	SEL-06-20	65000	CU
FRASER SOCKEYE SALMON - EARLY SUMMER	SEL-05-02	3000	CU
FRASER SOCKEYE SALMON - EARLY SUMMER	SEL-10-03	5000	CU
FRASER SOCKEYE SALMON - EARLY SUMMER	SEL-03-05	16000	CU
FRASER SOCKEYE SALMON - EARLY SUMMER	SEL-09-02	7000	CU Aggregate
FRASER SOCKEYE SALMON - EARLY SUMMER	SEL-06-16	70	CU
FRASER SOCKEYE SALMON - LATE	SEL-03-02	100	CU
FRASER SOCKEYE SALMON - LATE	SEL-03-03	200	CU
FRASER SOCKEYE SALMON - LATE	SEL-03-04	2000	CU
FRASER SOCKEYE SALMON - LATE	SEL-04-01	24000	CU
FRASER SOCKEYE SALMON - LATE	SEL-06-11	200	CU
FRASER SOCKEYE SALMON - LATE	SEL-09-03	2000	CU
FRASER SOCKEYE SALMON - SUMMER	SEL-06-03	176000	CU Aggregate
FRASER SOCKEYE SALMON - SUMMER	SEL-06-07	65000	CU
FRASER SOCKEYE SALMON - SUMMER	SER-03	106000	CU
FRASER SOCKEYE SALMON - SUMMER	SEL-10-01	17000	CU
FRASER SOCKEYE SALMON - SUMMER	SEL-06-10	3000	CU
FRASER SOCKEYE SALMON - SUMMER	SER-02	80	CU

Sockeye Salmon - Fraser River/BC Interior Area

Outlook Category

The purpose of the Outlook is to provide the expected abundance of salmon to inform the harvest planning process. The preliminary Outlook provides a categorical abundance expectation based expert opinion and the final outlook replaces 'categorical outlooks' with expected abundance for those stock units with statistical forecasts.

1 | 1-2 | 2 | 2-3 | 3 | 3-4 | 4 | 5

1. Poor status. This category is undesirable because of the risk of extirpation, and the loss of ecological benefits and salmon production. The presence of a SMU/CU in this category will initiate consideration of ways to protect the fish, increase their abundance, and reduce the potential risk of loss.
2. Marginal status. This category status implies caution in the management of the unit. While a unit in this category should be at a low risk of loss, there will be a degree of lost production. Higher management intervention.
3. Healthy status. Near average spawning abundance. Possible management intervention for social and economic considerations.
4. Abundant status. High spawning abundance and distribution. Low management intervention.
5. Data Deficient. SMUs for which insufficient data area available to determine an Outlook are noted as 'Data Deficient'.

Conservation Unit (CU) #

The index number is a code assigned to the CU that when prefixed by the species code becomes the CU index, e.g., Chinook: CK-1, Chum: CM-1, Coho: CO-1, River-Type Sockeye: SER-1, Lake-Type Sockeye: SEL-1, Even Year Pink: PKE-1, Odd Year Pink: PKO-1.

Stock Management Unit (SMU) SMU

For salmon, the working definition of a 'stock management unit' is a 'group of one or more CUs that are managed together with the objective of achieving a joint status'.

For more information visit:
https://www.pac.dfo-mpo.gc.ca/pacific-smon-pacifique/science/research-recherche/smon-summ-somm-eng.html

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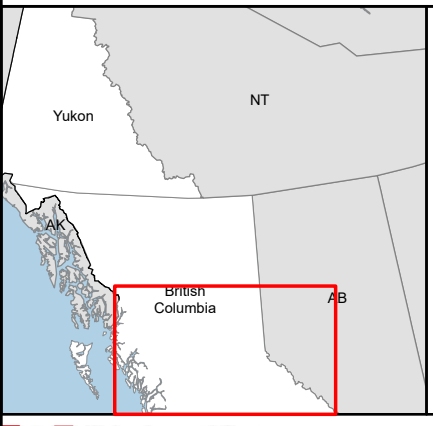
Even Year Pink Salmon - Fraser River/BC Interior Area



Outlook Category

The purpose of the Outlook is to provide the expected abundance of salmon to inform the harvest planning process. The preliminary Outlook provides a categorical abundance expectation based expert opinion and the final outlook replaces 'categorical outlooks' with expected abundance for those stock units with statistical forecasts.

1	1-2	2	2-3	3	3-4	4	5

1. Poor status. This category is undesirable because of the risk of extirpation, and the loss of ecological benefits and salmon production. The presence of a SMU/CU in this category will initiate consideration of ways to protect the fish, increase their abundance, and reduce the potential risk of loss.
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3. Healthy status. Near average spawning abundance. Possible management intervention for social and economic considerations.
4. Abundant status. High spawning abundance and distribution. Low management intervention.
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Conservation Unit (CU) #

The index number is a code assigned to the CU that when prefixed by the species code becomes the CU index, e.g., Chinook: CK-1, Chum: CM-1, Coho: CO-1, River-Type Sockeye: SER-1, Lake-Type Sockeye: SEL-1, Even Year Pink: PKE-1, Odd Year Pink: PKO-1.

Stock Management Unit (SMU) SMU

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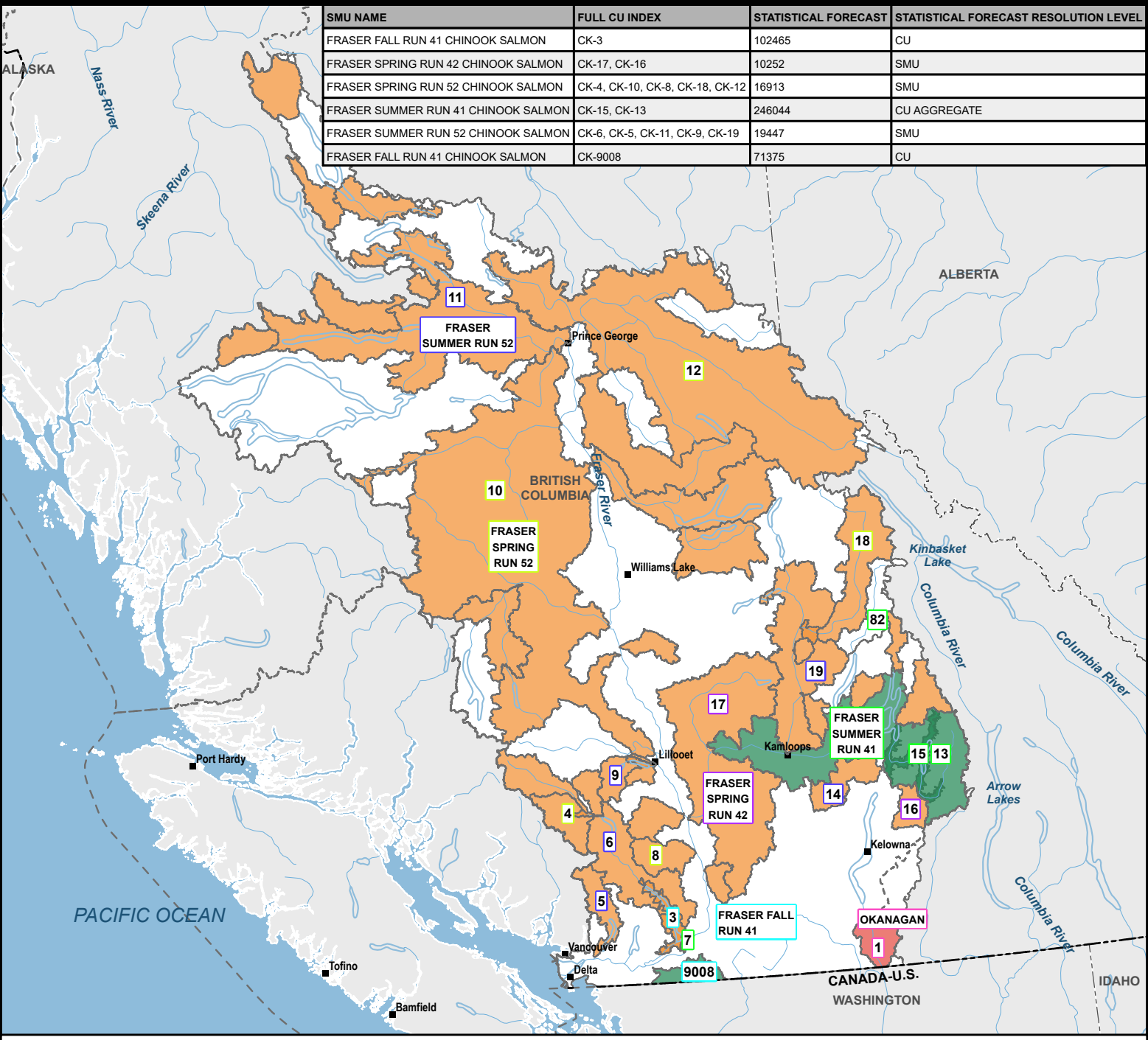
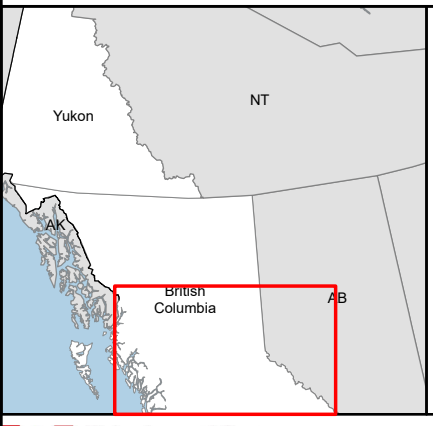
2024 - Salmon Outlook - Pacific Region

SMU NAME	FULL CU INDEX	STATISTICAL FORECAST	STATISTICAL FORECAST RESOLUTION LEVEL
FRASER FALL RUN 41 CHINOOK SALMON	CK-3	102465	CU
FRASER SPRING RUN 42 CHINOOK SALMON	CK-17, CK-16	10252	SMU
FRASER SPRING RUN 52 CHINOOK SALMON	CK-4, CK-10, CK-8, CK-18, CK-12	16913	SMU
FRASER SUMMER RUN 41 CHINOOK SALMON	CK-15, CK-13	246044	CU AGGREGATE
FRASER SUMMER RUN 52 CHINOOK SALMON	CK-6, CK-5, CK-11, CK-9, CK-19	19447	SMU
FRASER FALL RUN 41 CHINOOK SALMON	CK-9008	71375	CU



Chinook Salmon - Fraser River/BC Interior Area



Outlook Category

The purpose of the Outlook is to provide the expected abundance of salmon to inform the harvest planning process. The preliminary Outlook provides a categorical abundance expectation based expert opinion and the final outlook replaces 'categorical outlooks' with expected abundance for those stock units with statistical forecasts.

1 | 1-2 | 2 | 2-3 | 3 | 3-4 | 4 | 5

1. Poor status. This category is undesirable because of the risk of extirpation, and the loss of ecological benefits and salmon production. The presence of a SMU/CU in this category will initiate consideration of ways to protect the fish, increase their abundance, and reduce the potential risk of loss.
2. Marginal status. This category status implies caution in the management of the unit. While a unit in this category should be at a low risk of loss, there will be a degree of lost production. Higher management intervention.
3. Healthy status. Near average spawning abundance. Possible management intervention for social and economic considerations.
4. Abundant status. High spawning abundance and distribution. Low management intervention.
5. Data Deficient. SMUs for which insufficient data area available to determine an Outlook are noted as 'Data Deficient'.

Conservation Unit (CU) #

The index number is a code assigned to the CU that when prefixed by the species code becomes the CU index, e.g., Chinook: CK-1, Chum: CM-1, Coho: CO-1, River-Type Sockeye: SER-1, Lake-Type Sockeye: SEL-1, Even Year Pink: PKE-1, Odd Year Pink: PKO-1.

Stock Management Unit (SMU) SMU

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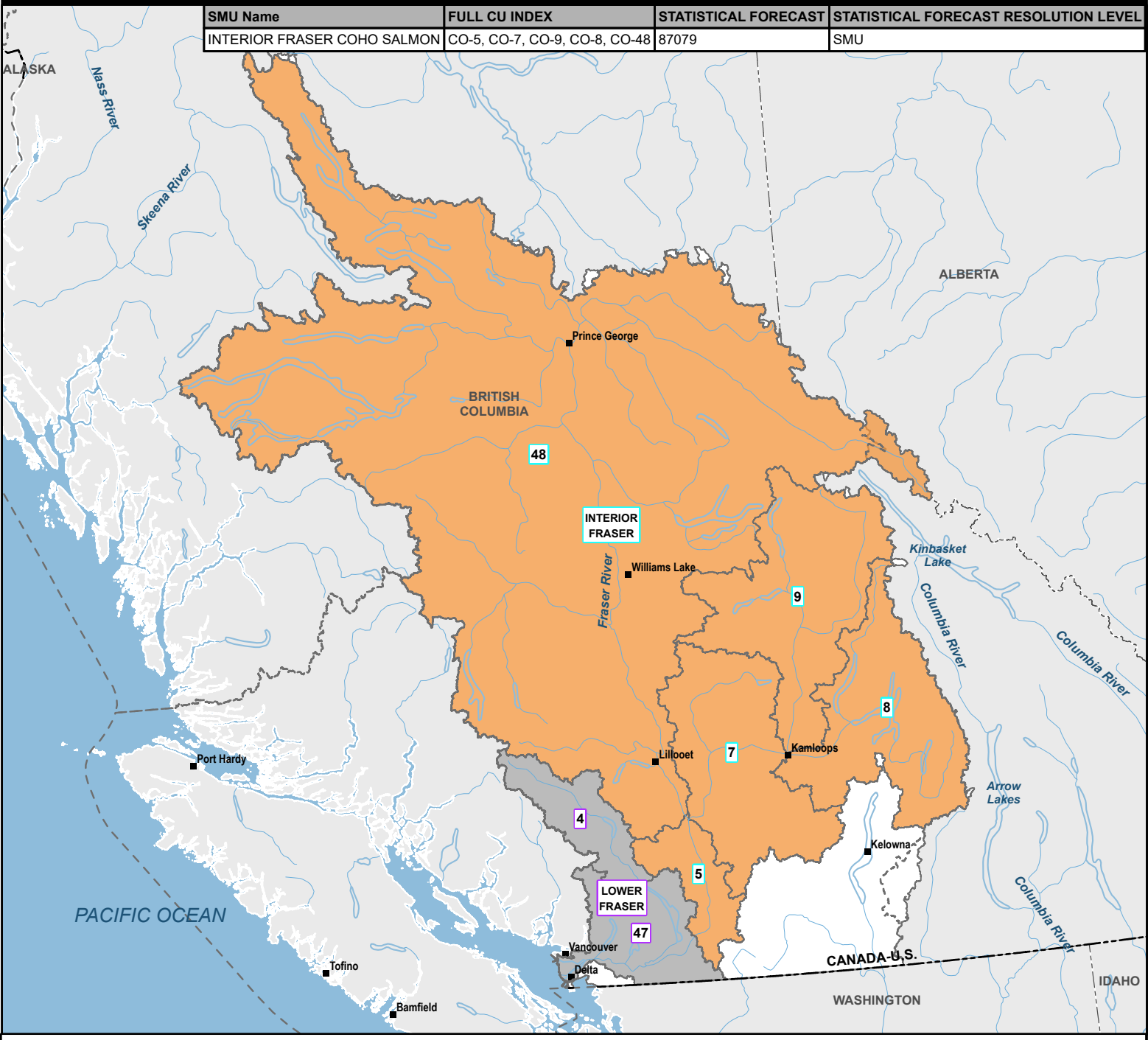
2024 - Salmon Outlook - Pacific Region

SMU Name	FULL CU INDEX	STATISTICAL FORECAST	STATISTICAL FORECAST RESOLUTION LEVEL
INTERIOR FRASER COHO SALMON	CO-5, CO-7, CO-9, CO-8, CO-48	87079	SMU



Coho Salmon - Fraser River/BC Interior Area

Outlook Category

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1 | 1-2 | 2 | 2-3 | 3 | 3-4 | 4 | 5

1. Poor status. This category is undesirable because of the risk of extirpation, and the loss of ecological benefits and salmon production. The presence of a SMU/CU in this category will initiate consideration of ways to protect the fish, increase their abundance, and reduce the potential risk of loss.
2. Marginal status. This category status implies caution in the management of the unit. While a unit in this category should be at a low risk of loss, there will be a degree of lost production. Higher management intervention.
3. Healthy status. Near average spawning abundance. Possible management intervention for social and economic considerations.
4. Abundant status. High spawning abundance and distribution. Low management intervention.
5. Data Deficient. SMUs for which insufficient data area available to determine an Outlook are noted as 'Data Deficient'.

Conservation Unit (CU) #

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Stock Management Unit (SMU) SMU

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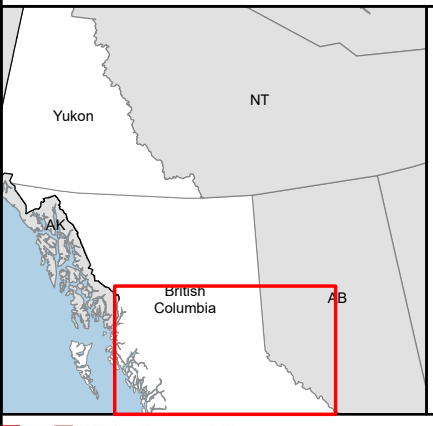
2024 - Salmon Outlook - Pacific Region

Chum Salmon - Fraser River/BC Interior Area



Outlook Category

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1 | 1-2 | 2 | 2-3 | 3 | 3-4 | 4 | 5

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3. **Healthy status.** Near average spawning abundance. Possible management intervention for social and economic considerations.
4. **Abundant status.** High spawning abundance and distribution. Low management intervention.
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Stock Management Unit (SMU) SMU

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