2025 Management - Fraser Sockeye and Pink salmon

Fraser Forum #2

February 2025

Overview

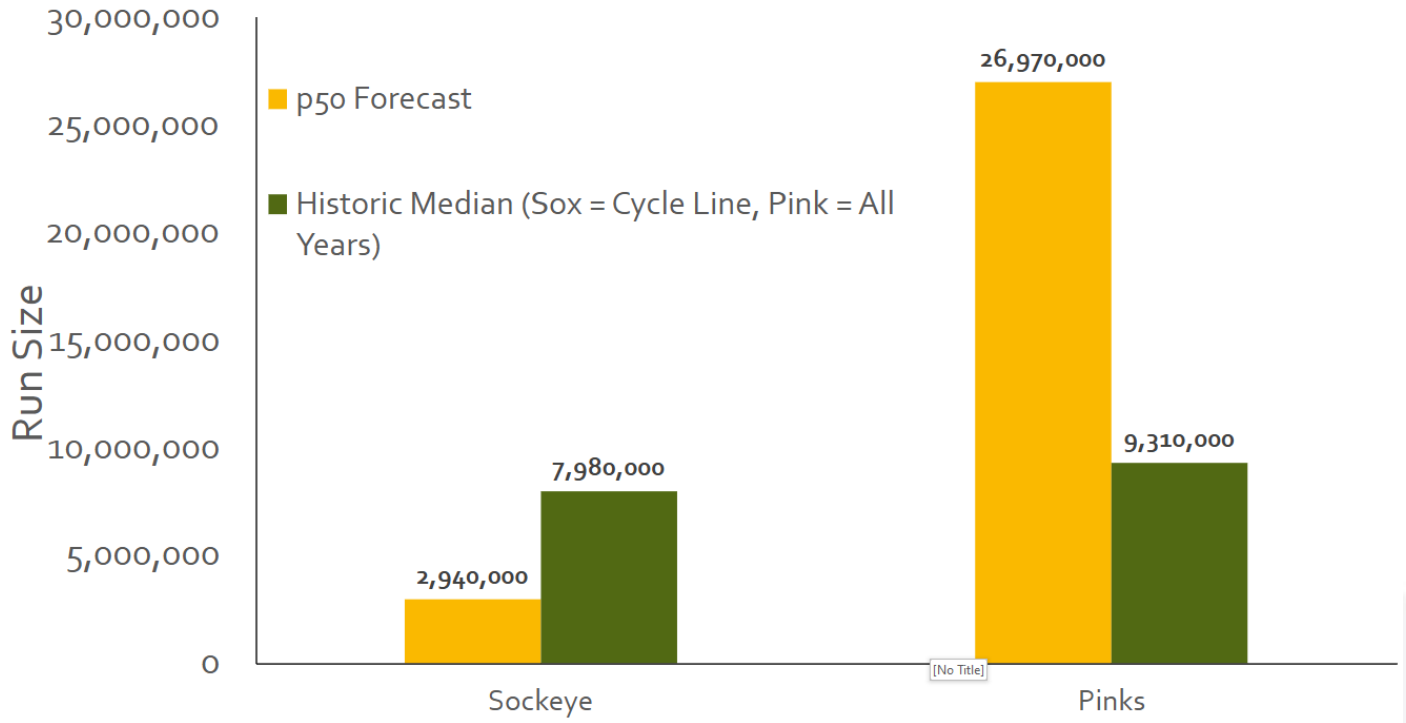
- 2025 Forecast
- Escapement planning and management considerations

2025 FORECAST

2025 Fraser Sockeye and Pink Run Size Forecast

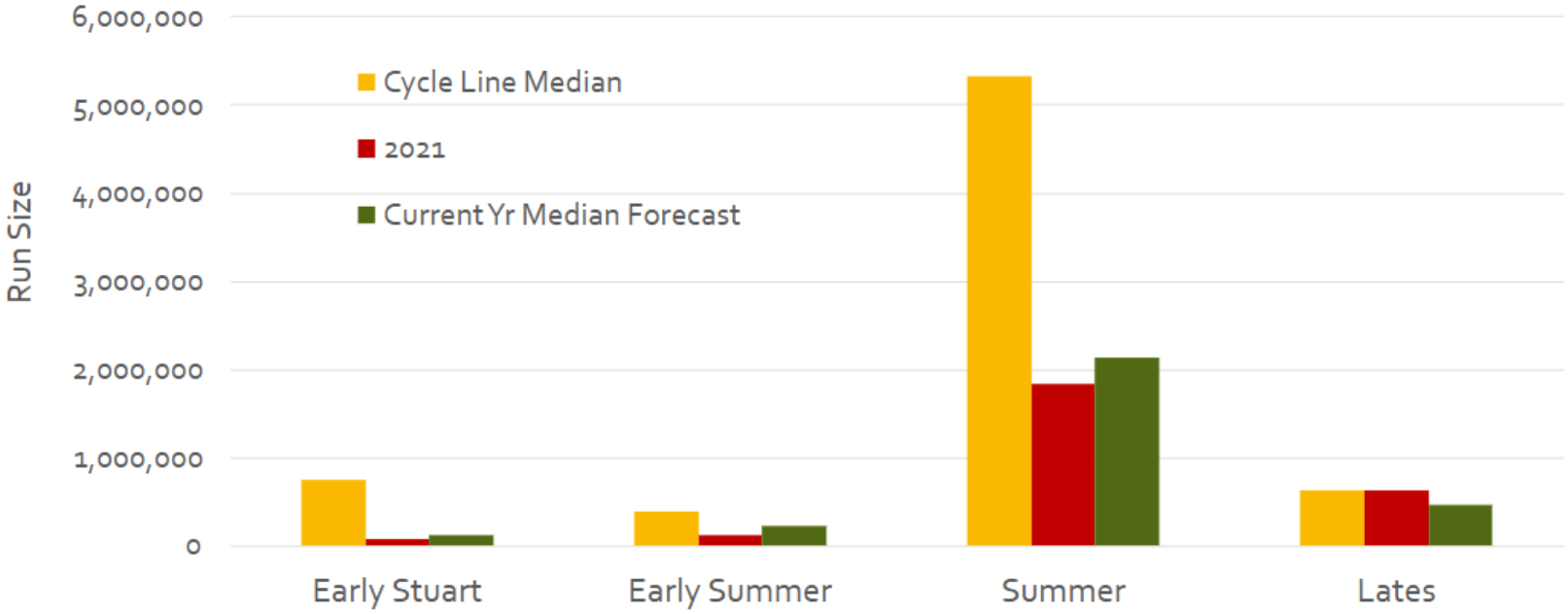
- DFO produces probabilistic forecasts of the number of fish anticipated to return
- Median estimate (p50) is used for pre-season planning, but in-season information is essential to management; range of the forecast can be very large
- Median Fraser Sockeye forecast is 2.9 million fish
  - Higher than recent years, coming from a strong brood return in 2021
- Median Fraser Pink forecast is 27 million fish
  - If realized, this would be the highest return on record, but this forecast is highly uncertain

Preliminary Sockeye and Pink Forecast



Provided by PSC staff
Feb 2025

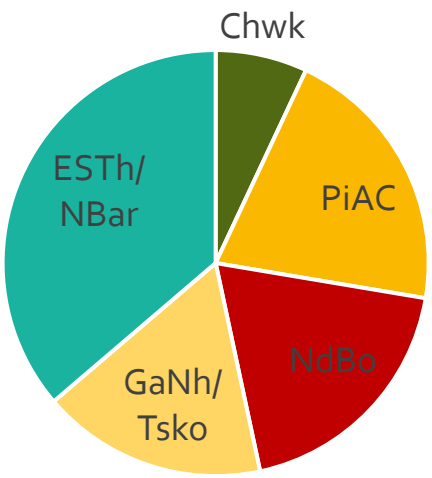
Preliminary Sockeye Forecast by Management Unit



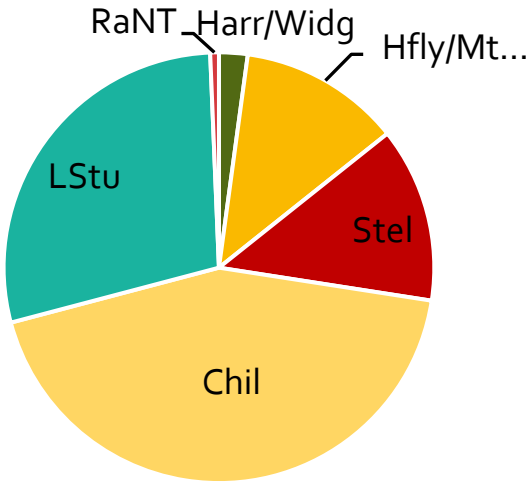
Provided by PSC staff
Feb 2025

Preliminary Sockeye Forecast by Management Unit

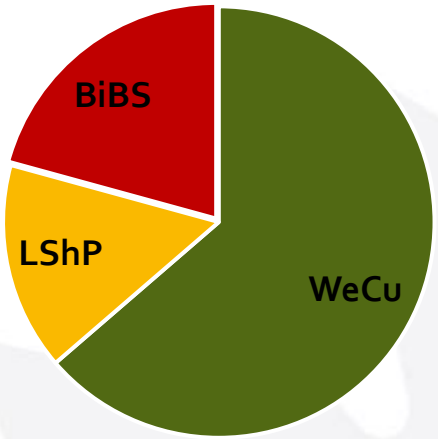
Early Summer



Summer



Lates



2025 Fraser Sockeye Run Size Forecast

Management Group	p25	p50	p75
Early Stuart	72,000	116,000	202,000
Early Summer	103,000	221,000	448,000
Summer	990,000	2,136,000	4,749,000
Late	238,000	468,000	994,000
Total Sockeye	**1,405,000**	**2,940,000**	**6,393,000**
Total Pink	**17,738,000**	**26,964,000**	**39,168,000**

ESCAPEMENT PLANNING AND MANAGEMENT CONSIDERATIONS

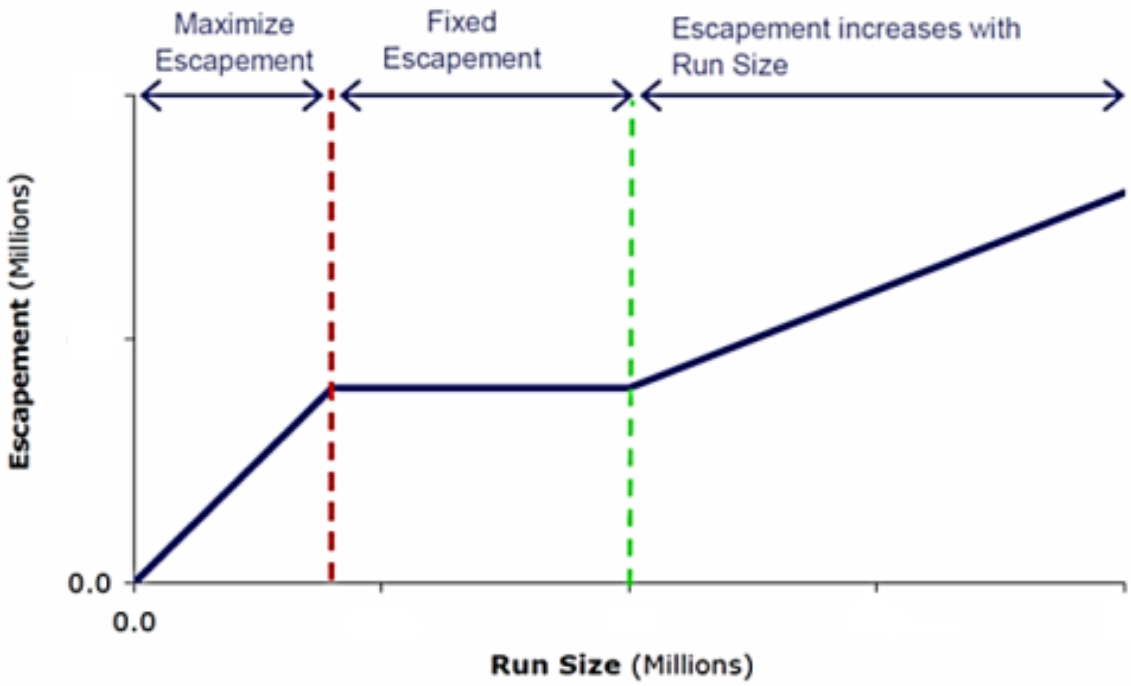
Sockeye Escapement Planning

- Escapement plans set out an abundance-based approach which defines the number of fish required to meet spawning requirements to sustain populations
- Under the Pacific Salmon Treaty, Canada is responsible for establishing annual escapement plans. Within Canada the Fraser Salmon Management Board consider escapement plan options
- The escapement plan and in-season information is used to inform decisions about fisheries in Canada and the United States based on the best-available data.
  - Abundance estimates from scientific test fisheries, and measures of environmental conditions are used to adjust the target number of fish to the spawning grounds.

Escapement Planning Process

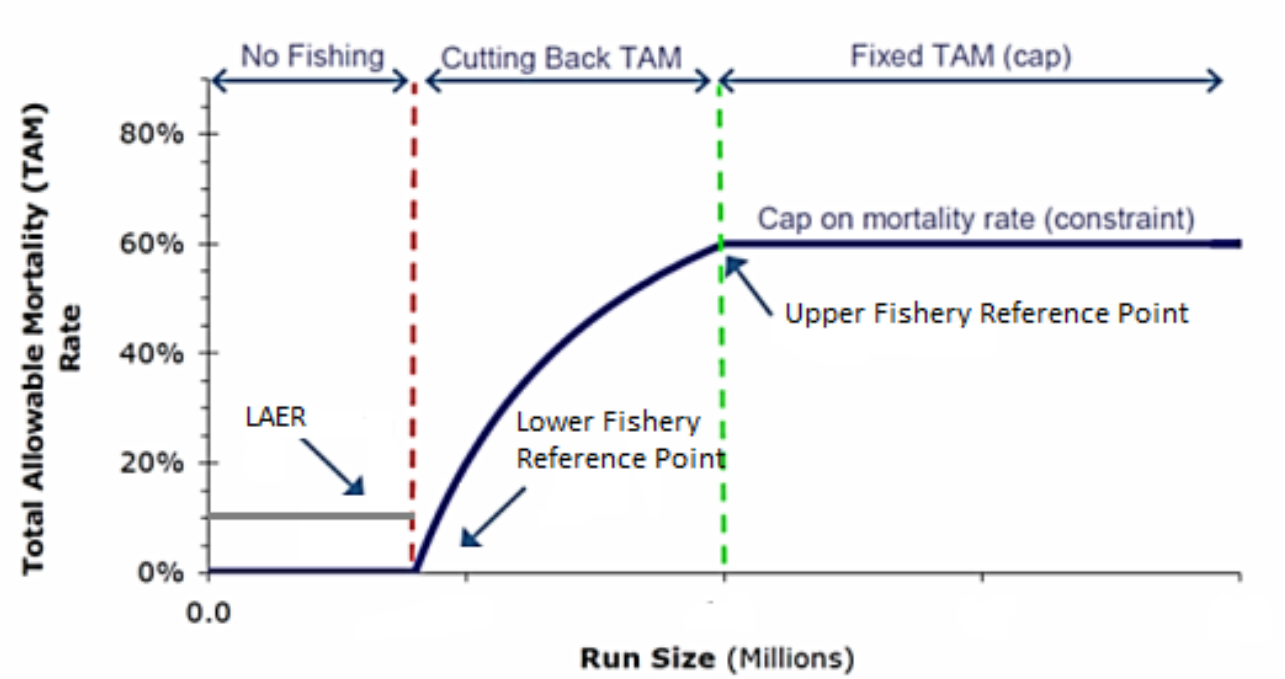
- January – Begin planning options and considerations with FSMB technical representatives for Draft IFMP inclusion
  - Options typically include conservative approach based on brood year, and an option that increase harvest and proportionally decreases escapement at larger run sizes.
- February – Consultations occur via Draft IFMP distribution, as well as through various in-person and online engagement processes (Forum, IHPC, SFAC)
  - All input and feedback considered in determining final escapement plan
    - May differ from those presented in draft IFMP
    - Will change based on in-season conditions
- June – Final escapement plan adopted and communicated to the Pacific Salmon Treaty's Fraser River Panel

Escapement Plan



- At low run sizes all fish escape to the spawning grounds until the Lower Fishery Reference Point is achieved
- At moderate run sizes, the number of fish to spawning grounds is fixed until the Upper Fishery Reference Point
- At larger run sizes, the fishing rate is fixed and the number of fish to spawning grounds increases

Fraser Sockeye Harvest Control Rule



Total Allowable Mortality (TAM): includes all sources of mortality (natural and fishing mortality)

Lower Fishery Reference Point (LFRP): describes the numerical escapement target

Upper Fishery Reference Point (UFRP): describes the run size above which the mortality rates plateaus, and the remaining proportion goes to escapement

Low Abundance Exploitation Rate (LAER): When the run size is below the Lower Fishery Reference Point, the escapement target is the run size, but it is recognized that there will be some low incidental harvest in the form of low abundance exploitation rates (LAERs) to allow for fisheries directed on co-migrating stocks and species.

Draft Fraser Sockeye Escapement Options

- Subject to the escapement plan, a harvestable surplus expected for some Management Units at median forecast
- Subject to the escapement plan, Early Stuart and Lates are expected to be in LAER – no directed harvest
- At the median forecast return, abundance is only sufficient to support FSC fisheries
- Commercial and/or recreational opportunities may be available at higher run sizes

	p10	p25	p50	p75	p90
Option 1					
Max Allowable Exploitation Rate	10%	10%	29%	37%	38%
Allowable Fishing Mortality (TF, US, CDN)	73,652	140,484	840,345	*2,383,488*	*4,971,734*
Max Allowable Harvest (excl. LAER)	-	-	781,989	*2,263,844*	*4,740,257*
Total projected spawners	517,800	984,600	1,596,400	*3,017,600*	*6,215,700*
Option 2					
Max Allowable Exploitation Rate	10%	10%	29%	*46%*	*47%*
Allowable Harvest (TF, US, CDN)	73,652	140,484	840,345	*2,969,977*	*6,198,483*
Max Allowable Harvest (excl LAER)	-	-	781,989	*2,850,333*	*5,956,788*
Total projected spawners	517,800	984,600	1,596,400	*2,499,700*	*5,133,200*

- Fraser Salmon Management Board is implementing an engagement process for Fraser Sockeye escapement plan options for the 2025-26 IFMP

- In addition to the escapement plan, there are other management measures in place to protect other species of concern.

Draft Fraser Pink Escapement Options

- Subject to the escapement plan, a large harvestable surplus expected throughout the forecast ranges, but note significant uncertainty in forecast
- FSC, commercial, recreational opportunities are expected throughout the forecasted run sizes
- Pink-directed fisheries will likely be constrained by non-target, co-migrating stocks of concerns (e.g., Lates)

Run Size	**Escapement Plan**
Less than 7.059M	Exploitation rate increases linearly from 0% at run size =0 to 15% at run size = 7.059M
Between 7.059M-20M	Fixed Escapement. Escapement goal = 6,000,000
Greater than 20M	Exploitation Rate Cap = 70%

	2023 Pre-season Forecast Return				
	p10	p25	**p50**	p75	p90
forecast	12,585,000	17,738,000	**26,964,000**	39,168,000	57,854,000
escapement target	6,000,000	6,000,000	**8,089,000**	11,750,000	17,356,000
allowable ER	52%	66%	**70%**	70%	70%
Available Harvest (TF, US, CDN)	6,585,000	11,738,000	**18,875,000**	27,418,000	40,498,000

Management Considerations

- Sockeye abundance within Management Units is diverse; possible identify limited terminal harvest opportunities?
- Pre-season fishery planning will attempt to identify Pink fishery opportunities that avoid Sockeye, in particular Late run
  - Environmental conditions, and stock composition will meaningfully influence harvest opportunity for Lates
- Window closures to protect stocks of concerns will also constrain fisheries
  - Window closures are defined periods of time where a portion of the migration route is closed to fishing to protect fish as they migrate through the area

Proposed Window Closures

- Window closures between 3 and 5 weeks are considered
  - 3-week window designed to protect 90% of the Early Stuart migration
  - 5-week window protects E. Stuart and protects ~60-70% to early-timed Early Summers

Areas	Start Date	End Date ~3 Weeks	End Date ~4 Weeks	End Date ~5 weeks
Areas 11 to 17, 19 to 21, 121 and 123 to 127	June 23	July 14	July 22	July 29
Areas 18 and 29	June 28	July 19	July 26	Aug 2
Steveston to Mission	June 28	July 19	July 26	Aug 2
Mission to Sawmill	June 30	July 21	July 28	Aug 4
Sawmill to Deadman	July 3	Jul 24	Jul 31	Aug 7
Deadman-Hixon	July 9	Jul 30	Aug 6	Aug 13
Hixon to Prince George	July 11	Aug 2	Aug 9	Aug 16
Prince George to Stuart River	July 13	Aug 4	Aug 11	Aug 18

2025 In-season management considerations

- Run size, timing, diversion rate and stock composition*
- River conditions
- Chilko landslide
- Differences between estimates

Key Consideration and Questions

- Given recent returns and uncertainty in the forecast, are there additional actions that should be considered to address returns at the lower end of the forecast?

- Are there additional measures that should be considered for specific stocks within the aggregates that are a concern as far as expected escapements, large or weak?

Questions?

Extra Slides

Draft Sockeye Escapement Options

Option 1- Brood Year (2021) Escapement Plan

	Harvest Rule Parameters				
Management Unit	Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA @p50
Early Stuart	10%	50%	108,000	216,000	1.17
Early Summer (w/o	10%	50%	100,000	200,000	0.59
Summer (w/o misc)	10%	50%	1,250,000	2,500,000	0.09
Late (w/o misc)	10%	50%	300,000	600,000	1.70

Option 2- Pre-2020 Escapement Plan (Fisheries Weighted)

	Harvest Rule Parameters				
Management Unit	Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA @p50
Early Stuart	10%	60%	108,000	270,000	1.17
Early Summer (w/o misc)	10%	60%	100,000	250,000	0.59
Summer (w/o misc)	10%	60%	1,250,000	3,125,000	0.09
Late (w/o misc)	10%	60%	300,000	750,000	1.70

Photo by Maxime Veille

Draft Escapement Option

Early Stuart	forecast	p10 41,955	p25 72,374	p50 115,983	p75 202,430	p90 319,236
Option 1	Max. Allowable ER	**10%**	**10%**	**10%**	**10%**	**10%**
	Allowable Harvest	**4,196**	**7,237**	**11,598**	**20,243**	**31,924**
	Projected S (after MA)	17,400	30,000	48,000	83,800	132,200
	Proj. S as % BY S	32%	56%	89%	155%	245%
	Proj. S as % cycle S	9%	15%	25%	43%	68%
Option 2	Max. Allowable ER	**10%**	**10%**	**10%**	**10%**	**13%**
	Allowable Harvest	**4196**	**7237**	**11598**	**20243**	**42142**
	Projected S (after MA)	17,400	30,000	48,000	83,800	127,500
	Proj. S as % BY S	32%	56%	89%	155%	236%
	Proj. S as % cycle S	9%	15%	25%	43%	66%

Early Summer	forecast (incl. misc)	p10 54,785	p25 103,071	p50 220,862	p75 447,905	p90 820,145
Option 1	Max. Allowable ER	**10%**	**10%**	**18%**	**23%**	**23%**
	Allowable Harvest	**5,500**	**10,300**	**39,000**	**103,100**	**188,700**
	Projected S (after MA)	32,300	60,600	118,100	223,000	407,600
	Proj. S as % BY S	31%	58%	114%	215%	393%
	Proj. S as % cycle S	35%	65%	128%	241%	440%
Option 2	Max. Allowable ER	**10%**	**10%**	**18%**	**38%**	**38%**
	Allowable Harvest	**5,500**	**10,300**	**39,000**	**172,000**	**314,900**
	Projected S (after MA)	32,300	60,600	118,100	178,500	326,100
	Proj. S as % BY S	31%	58%	114%	172%	315%
	Proj. S as % cycle S	35%	65%	128%	193%	352%
	Incidental Fishing Mortality (LAER)					
	Directed Harvest					

Photo by Maxime Veille

Draft Escapement Option

Summer	forecast (incl. misc)	p10 521,998	p25 991,392	p50 2,136,089	p75 4,748,888	p90 10,003,313
Option 1	Max. Allowable ER	**10%**	**10%**	**35%**	**45%**	**46%**
	Allowable Harvest	**52,200**	**99,139**	**742,989**	**2,160,744**	**4,551,557**
	Projected S (after MA)	430,900	817,800	1,275,700	2,367,400	4,981,800
	Proj. S as % BY S	27%	52%	81%	150%	315%
	Proj. S as % cycle S	27%	52%	81%	151%	318%
Option 2	Max. Allowable ER	**10%**	**10%**	**35%**	**56%**	**56%**
	Allowable Harvest	**52,200**	**99,139**	**742,989**	**2,678,333**	**5,641,888**
	Projected S (after MA)	430,900	817,800	1,275,700	1,894,000	3,985,500
	Proj. S as % BY S	27%	52%	81%	120%	252%
	Proj. S as % cycle S	27%	52%	81%	121%	254%

Lates	forecast (incl. misc)	p10 117,570	p25 238,069	p50 467,581	p75 994,008	p90 1,995,537
Option 1	Max. Allowable ER	**10%**	**10%**	**10%**	**10%**	**10%**
	Allowable Harvest	**11,757**	**23,807**	**46,758**	**99,401**	**199,554**
	Projected S (after MA)	37,200	76,200	154,600	343,400	694,100
	Proj. S as % BY S	23%	47%	96%	213%	430%
	Proj. S as % cycle S	21%	42%	86%	191%	386%
Option 2	Max. Allowable ER	**10%**	**10%**	**10%**	**10%**	**10%**
	Allowable Harvest	**11,757**	**23,807**	**46,758**	**99,401**	**199,554**
	Projected S (after MA)	37,200	76,200	154,600	343,400	694,100
	Proj. S as % BY S	23%	47%	96%	213%	430%
	Proj. S as % cycle S	21%	42%	86%	191%	386%
	Incidental Fishing Mortality (LAER)					
	Directed Harvest					

Photo by Maxime Veille

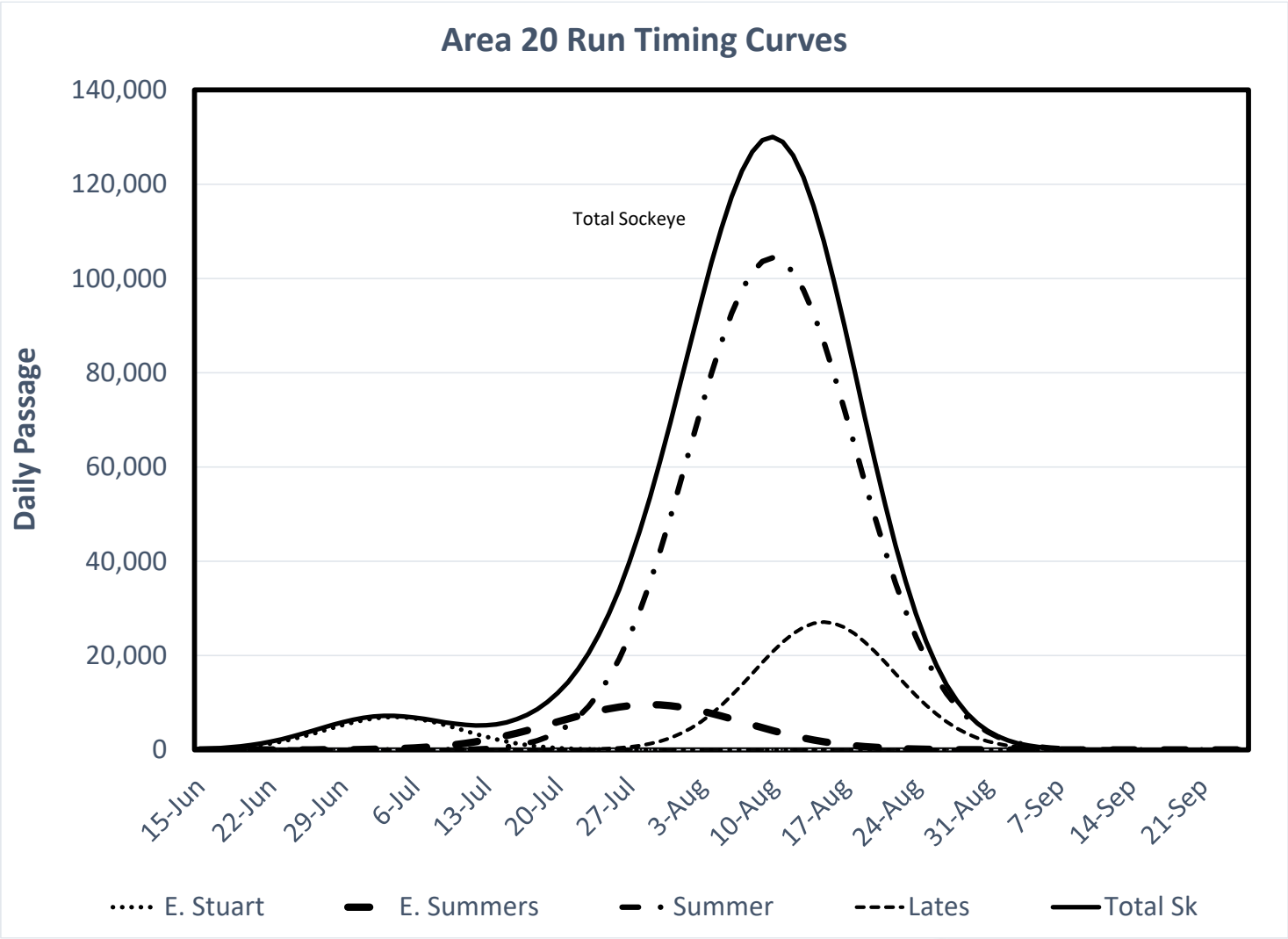
Run timing group / Stocks	Total Escapement Cycle Ave	Total Escapement Brood Year	Comparisons @p25 Cycle Ave	Comparisons @p25 Brood Year	Comparisons @p50 Cycle Ave	Comparisons @p50 Brood Year	Comparisons @p75 Cycle Ave	Comparisons @p75 Brood Year	Option 2: Comparisons @p75 Cycle Ave	Option 2: Comparisons @p75 Brood Year
Early Stuart	**194,632**	**54,013**	**15%**	**56%**	**25%**	**89%**	**43%**	**155%**	**43%**	**155%**
Early Summer	**92,563**	**103,684**	**65%**	**58%**	**128%**	**114%**	**241%**	**215%**	**193%**	**172%**
Bowron	5,198	2,974	23%	40%	45%	79%	92%	161%	73%	128%
Upper Barriere	2,914	891	16%	52%	38%	123%	92%	301%	73%	240%
Gates	9,894	30,439	83%	27%	153%	50%	289%	94%	231%	75%
Nadina	20,427	12,895	54%	86%	95%	151%	177%	280%	141%	224%
Pitt	28,774	19,441	57%	84%	95%	141%	163%	241%	131%	193%
Scotch	7,356	14,465	172%	88%	331%	168%	639%	325%	511%	260%
Seymour	7,808	8,262	79%	75%	141%	133%	237%	224%	189%	179%
Misc (EShu)	1,422	4,956	62%	18%	360%	103%	611%	175%	489%	140%
Misc (Taseko)	950	1,327	23%	n/a	81%	58%	148%	n/a	119%	n/a
Misc (Chilliwack)	4,954	2,037	46%	112%	156%	380%	389%	947%	311%	757%
Misc (Nahatlatch)	2,867	5,997	38%	18%	128%	61%	318%	152%	254%	122%
Summer	**1,568,493**	**1,580,984**	**52%**	**52%**	**81%**	**81%**	**151%**	**150%**	**121%**	**120%**
Chilko	299,440	917,861	126%	41%	186%	61%	332%	108%	266%	87%
Late Stuart	355,262	380,161	57%	53%	103%	96%	214%	200%	171%	160%
Quesnel	770,374	102,923	12%	86%	20%	151%	37%	280%	30%	224%
Stellako	61,229	118,177	220%	114%	275%	143%	421%	218%	336%	174%
Harrison	59,634	56,217	19%	20%	36%	38%	81%	86%	65%	69%
Raft	7,891	3,325	61%	144%	98%	232%	182%	432%	146%	346%
Misc (N. Thomp. Tribs)	644	1,241	39%	20%	70%	36%	162%	84%	129%	67%
Misc (N. Thomp River)	12,487	698	1%	17%	2%	32%	4%	73%	3%	59%
Misc (Widgeon)	1,532	381	2%	8%	2%	8%	36%	144%	37%	147%
Late	**179,737**	**161,574**	**42%**	**47%**	**86%**	**96%**	**191%**	**213%**	**191%**	**213%**
Cultus	5,305	295	2%	27%	3%	58%	7%	122%	7%	122%
Late Shuswap	69,002	31,559	7%	16%	21%	46%	50%	110%	50%	110%
Portage	4,516	2,902	32%	50%	70%	109%	183%	285%	183%	285%
Weaver	31,870	80,103	127%	51%	226%	90%	438%	174%	438%	174%
Birkenhead	66,351	45,893	43%	61%	96%	139%	215%	311%	215%	311%
Misc. non-Shuswap	2,693	822	9%	28%	12%	38%	238%	779%	238%	779%

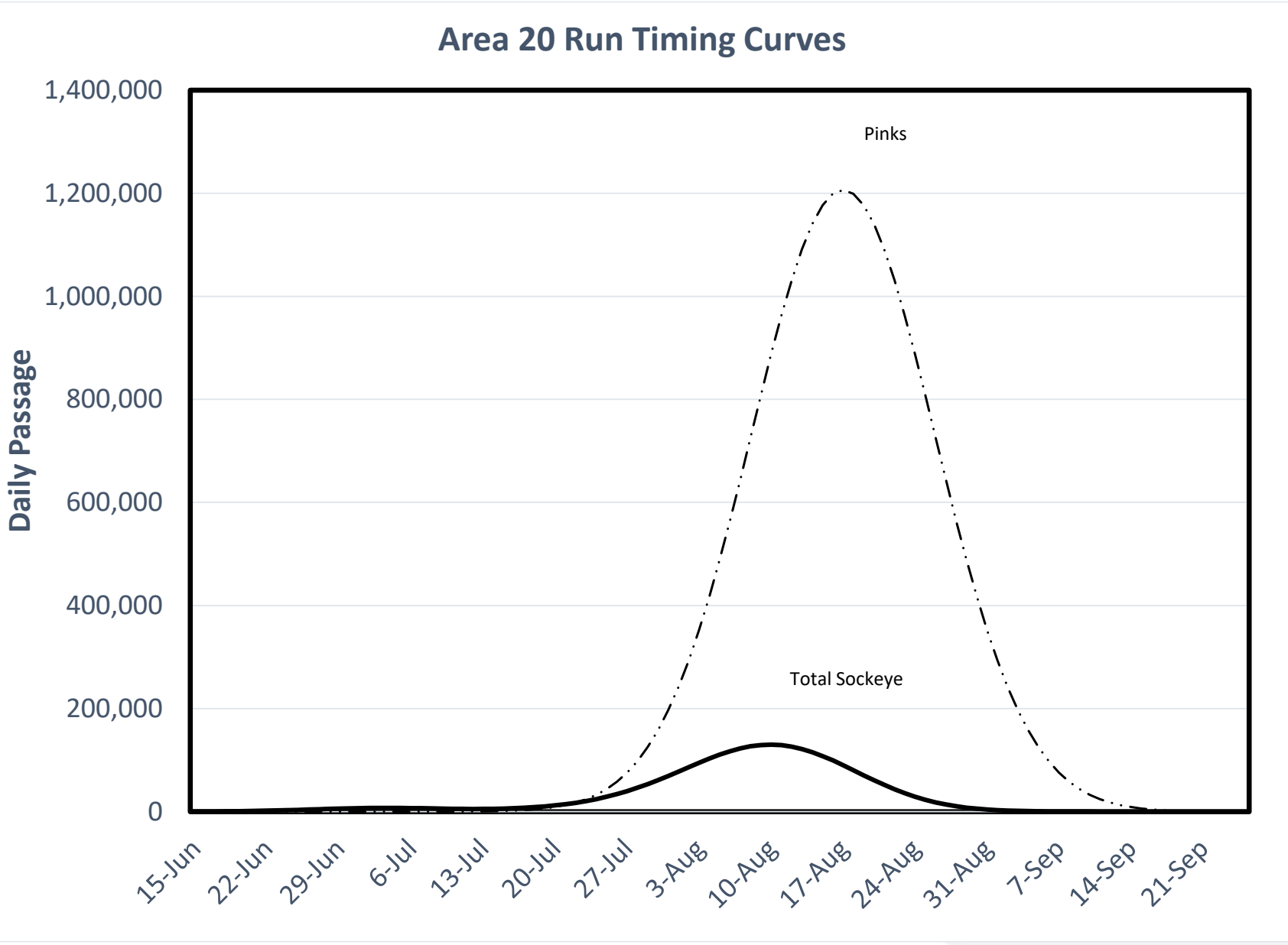
Option 1

Option 2

Photo by Maxime Veille

Sockeye Run Timing Considerations




Area 20 Run Timing Curves
Daily Passage
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
Pinks
Total Sockeye
15-Jun
22-Jun
29-Jun
6-Jul
13-Jul
20-Jul
27-Jul
3-Aug
10-Aug
17-Aug
24-Aug
31-Aug
7-Sep
14-Sep
21-Sep

Returns compared to pre-season

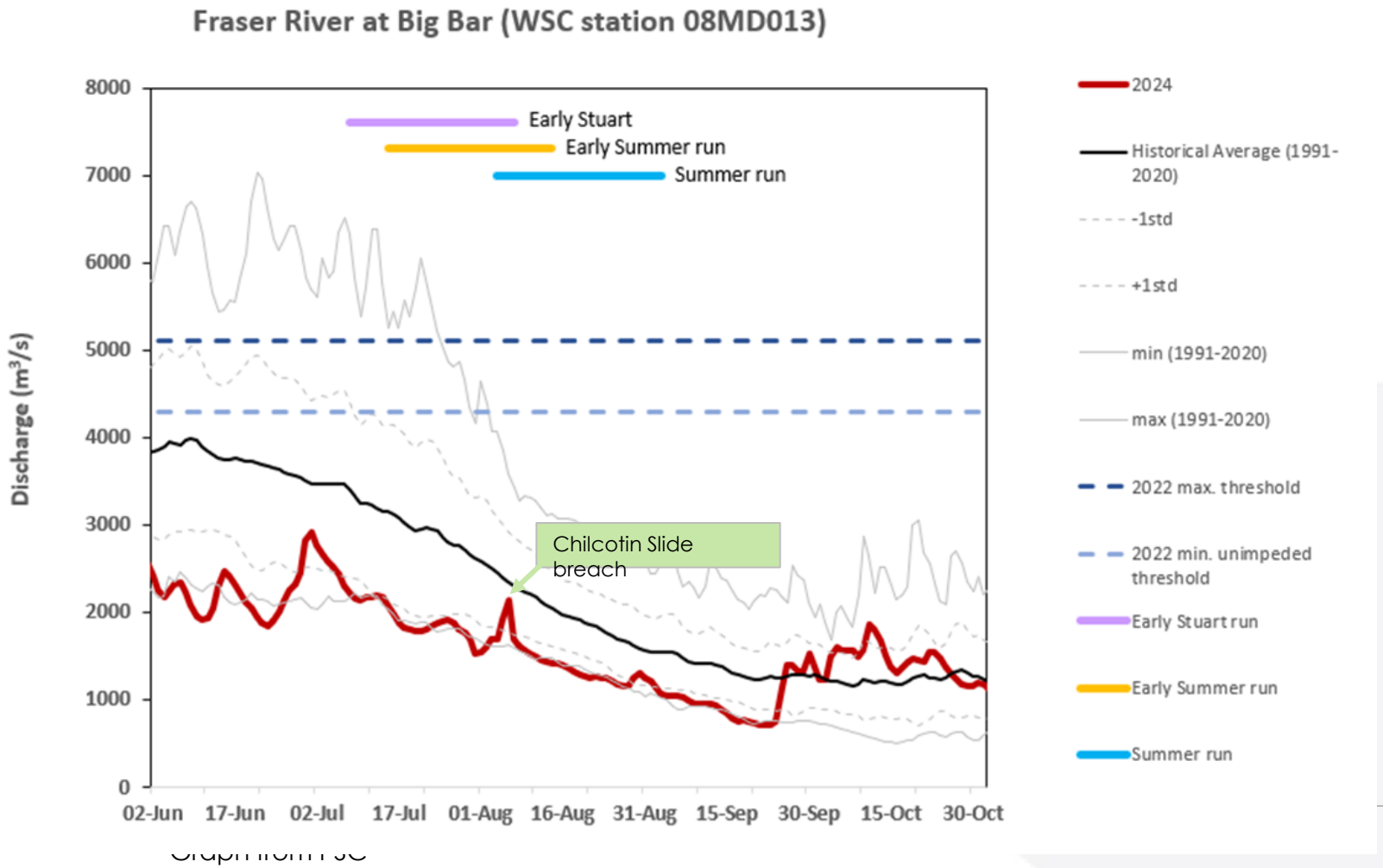
Return Year	Forecast Probability Level						Actual Returns
	<10%	10%	25%	50%	75%	90%	
1998	NA	4,391,000	6,040,000	6,822,000	11,218,000	18,801,000	10,870,000
1999	NA	3,067,000	4,267,000	4,843,000	8,248,000	14,587,000	3,640,000
2000	NA	1,487,000	2,449,000	4,304,000	7,752,000	NA	5,200,000
2001	NA	3,869,000	6,797,000	12,864,000	24,660,000	NA	7,190,000
2002	NA	4,859,000	7,694,400	12,915,900	22,308,500	NA	15,130,000
2003	NA	1,908,000	2,742,000	3,141,000	5,502,000	9,744,000	4,890,000
2004	NA	1,858,000	2,615,000	2,980,000	5,139,000	9,107,000	4,180,000
2005	NA	5,149,000	8,734,000	16,160,000	30,085,000	53,191,000	7,020,000
2006	NA	5,683,000	9,530,000	17,357,000	31,902,000	56,546,000	12,980,000
2007	NA	2,242,500	3,602,000	6,247,000	11,257,000	19,706,000	1,510,000
2008	NA	1,258,000	1,854,000	2,899,000	4,480,000	7,057,000	1,740,000
2009	NA	3,556,000	6,039,000	10,578,000	19,451,000	37,617,000	1,590,000
2010	NA	5,360,000	8,351,000	13,989,000	23,541,000	40,924,000	28,250,000
2011	NA	1,700,000	2,693,000	4,627,000	9,074,000	15,086,000	5,110,000
2012	NA	743,000	1,203,000	2,119,000	3,763,000	6,634,000	2,050,000
2013	NA	1,554,000	2,655,000	4,765,000	8,595,000	15,608,000	4,130,000
2014	NA	7,237,000	12,788,000	22,854,000	41,121,000	72,014,000	20,000,000
2015	NA	2,364,000	3,824,000	6,778,000	12,635,000	23,580,000	2,120,000
2016	NA	814,000	1,296,000	2,271,000	4,227,000	8,181,000	853,000
2017	NA	1,315,000[tt]	2,338,000	4,432,000	8,873,000	17,633,000	1,641,000
2018	NA	5,265,000	8,423,000	13,981,000	22,937,000	36,893,000	10,675,000
2019	NA	1,832,000	2,979,000	5,056,000	9,133,000	15,313,000	564,000
2020	NA	275,000	486,000	924,000	1,834,000	3,573,000	288,000
2021	NA	313,000	624,000	1,330,000	2,775,000	5,496,000	2,549,000
2022	NA	2,374,000	4,662,000	9,775,000	20,395,000	41,707,000	6,886,000
2023	NA	453,000	800,000	1,564,000	3,185,000	5,952,000	1,653,000*

- Highlighted boxes show forecast value closest to the actual return for that year
- Returns have been below the p50 forecast since 2005 (with exception of 2010 and 2021).

← 2025 brood year

*red text is near final

Fraser Discharge and Salmon Passage at Big Bar



Graph from FOC