2021 Fraser Sockeye and Pink

Draft IFMP Escapement Options and Management Issues

presented to: FSMC Forum
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March 2, 2021

Presentation Outline

1) Draft Sockeye Escapement Options

- Total Allowable Mortality Rule Description
- 2021 Draft Escapement Options review
- Projected escapement tables for each option

2) 2021 Management Issues

- Key Considerations

3) Pink Salmon escapement plan

Fraser Sockeye and Pink Salmon

2021 Draft Fraser Sockeye Escapement Plan Options

Total Allowable Mortality Rule Explained

Management Unit	Harvest Rule Parameters: Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point
Early Stuart	10%	60%	108,000	270,000
Early Summer (w/o misc)	10%	60%	80,000	200,000
Summer (w/o misc)	10%	60%	1,250,000	3,125,000
Late (w/o misc)	10-20%	60%	300,000	750,000

Option 1- Modified Brood Year (2017) Escapement Plan

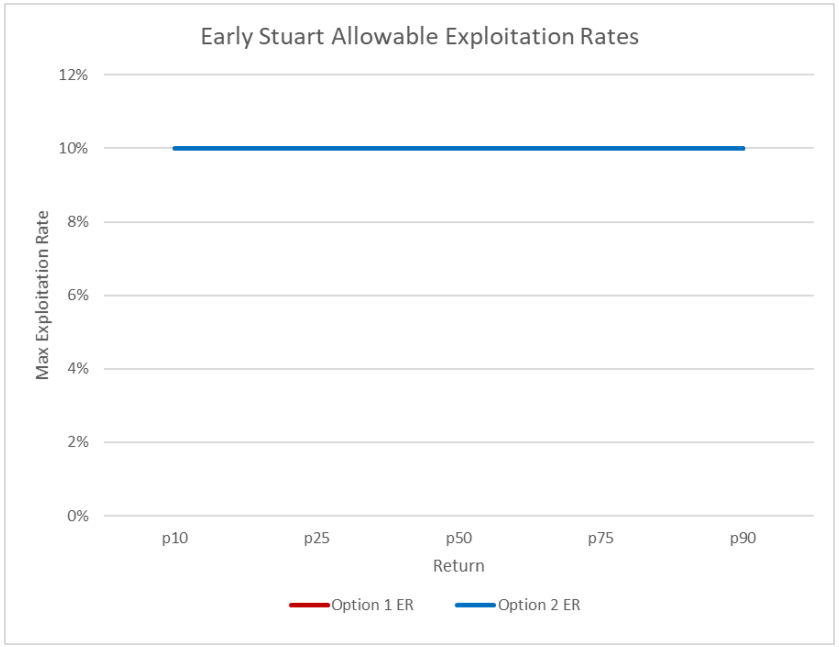
Management Unit	Harvest Rule Parameters Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA @p50
Early Stuart	10%	60%	108,000	270,000	0.69
Early Summer (w/o misc)	10%	60%	100,000	250,000	0.39
Summer (w/o misc)	10%	60%	640,000	1,600,000	0.09
Late (w/o misc)	10-20%	60%	300,000	750,000	0.96

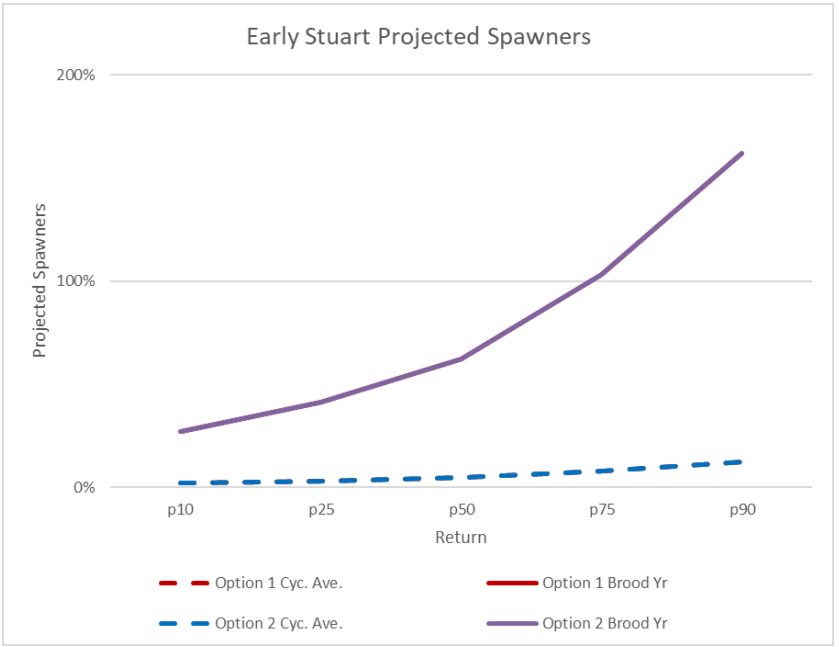
Option 2: Modified 2020 Escapement Plan

Management Unit	Harvest Rule Parameters 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	0.69
Early Summer (w/o misc)	10%	50%	100,000	200,000	0.39
Summer (w/o misc)	10%	50%	1,250,000	2,500,000	0.09
Late (w/o misc)	10%	50%	300,000	600,000	0.96

Note: grey cells indicate changes from the Option 1 Escapement Plan

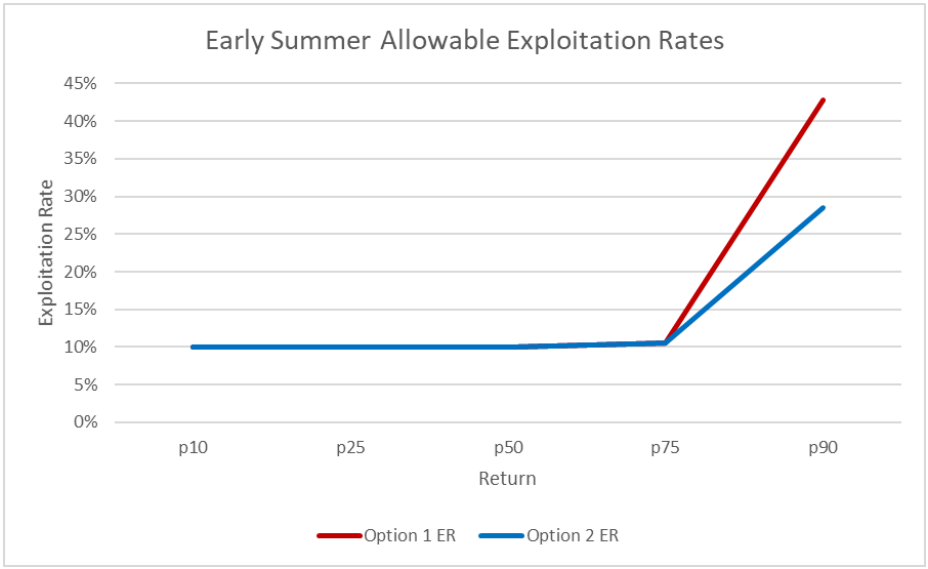
Early Stuart Option Comparison

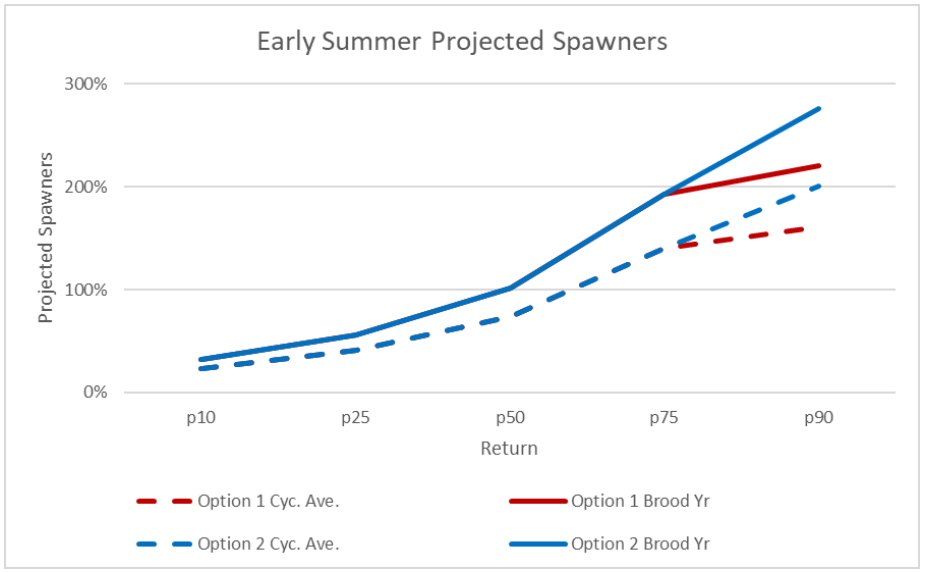




	Management Unit	Harvest Rule Parameters Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA @p50
Option 1	**Early Stuart**	10%	60%	108,000	270,000	0.69
Option 2	**Early Stuart**	10%	50%	108,000	216,000	0.69

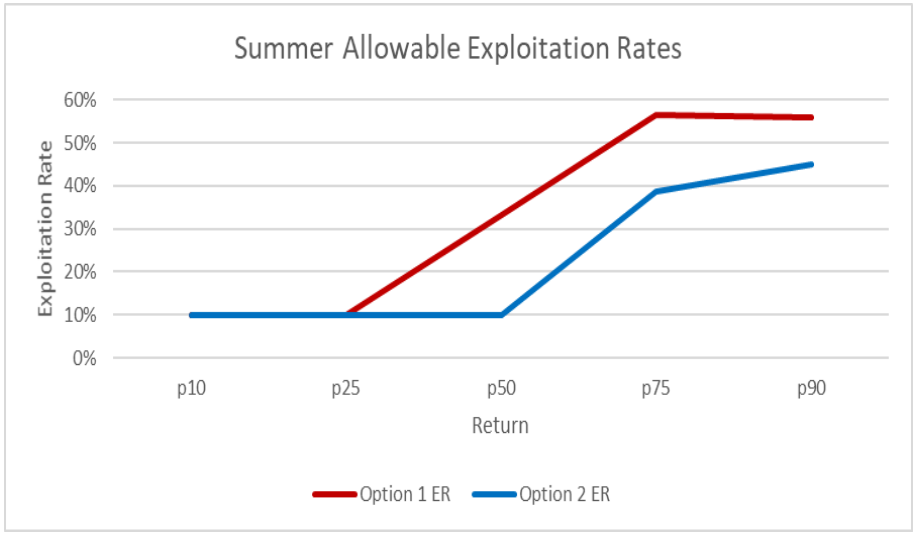
Early Summer Options Comparison

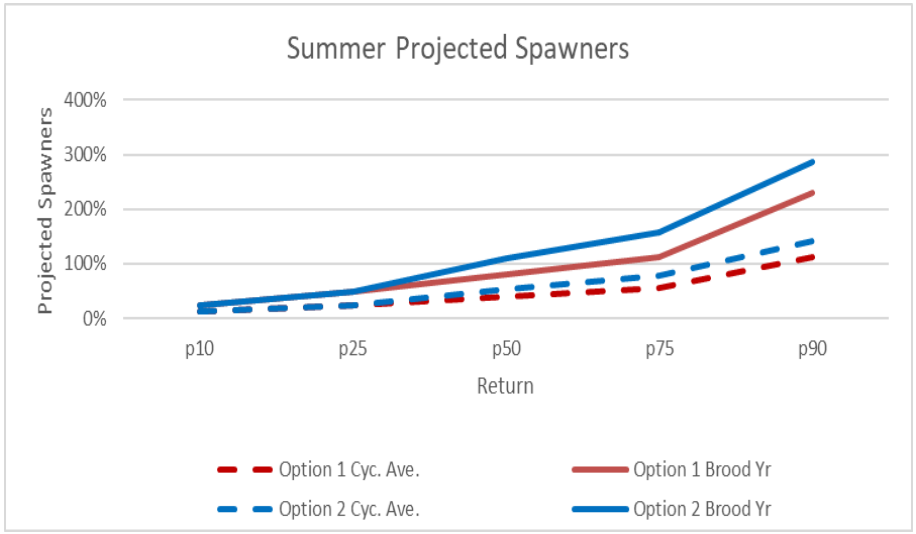




	Management Unit	Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA @p50
Option 1	**Early Summer (w/o misc.)**	10%	60%	100,000	250,000	0.39
Option 2	**Early Summer (w/o misc.)**	10%	50%	100,000	200,000	0.39

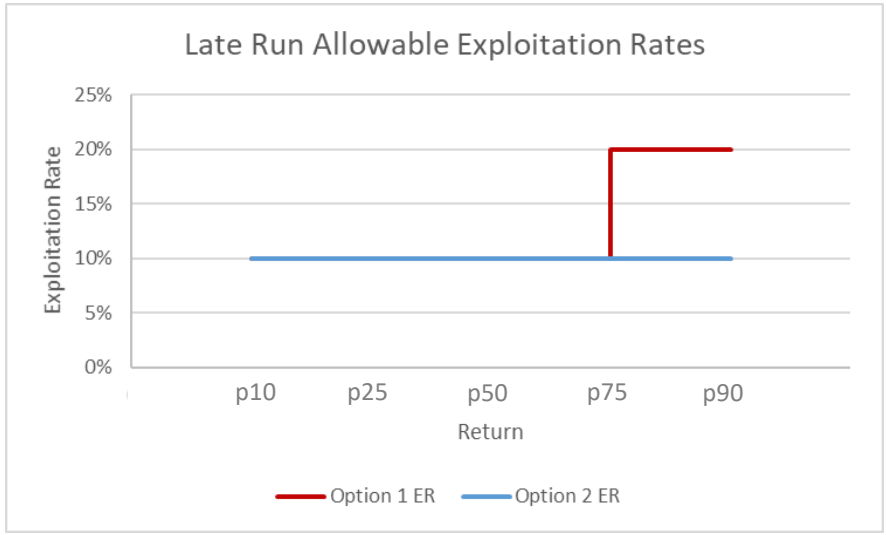
Summers Options Comparison

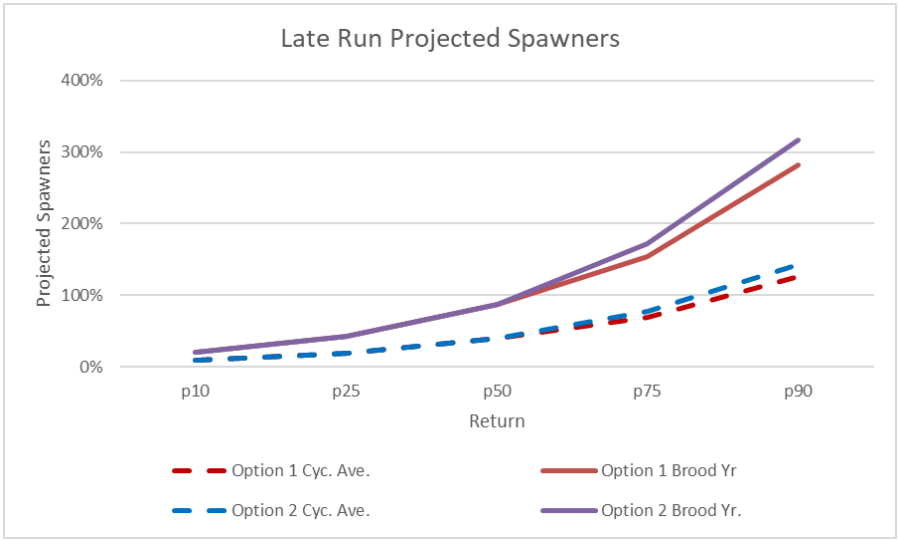




	Management Unit	Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA @p50
Option 1	**Summer (w/o misc.)**	10%	60%	640,000	1,600,000	0.09
Option 2	**Summer (w/o misc.)**	10%	50%	1,250,000	2,500,000	0.09

Lates Options Comparison





	Management Unit	Harvest Rule Parameters Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA @p50
Option 1	**Late**	10-20%	60%	300,000	750,000	0.96
Option 2	**Late**	10%	50%	300,000	600,000	0.96

Option 1- Projected Escapements Relative to Cycle Average and Brood Year

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Run timing group / Stocks	Total Escapement Cycle Ave	Total Escapement Brood Year	Comparisons @p10 Cycle Ave	Comparisons @p10 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
Early Stuart	**204,064**	**15,433**	**2%**	**27%**	**3%**	**41%**	**5%**	**62%**	**8%**	**103%**
Early Summer	**94,107**	**68,477**	**23%**	**32%**	**41%**	**56%**	**74%**	**102%**	**140%**	**193%**
Bowron	5,470	244	1%	25%	2%	49%	4%	94%	7%	164%
Upper Barriere	3,086	678	6%	25%	9%	43%	19%	86%	56%	254%
Gates	10,079	7,040	11%	16%	23%	33%	51%	74%	108%	154%
Nadina	21,222	5,322	16%	65%	27%	108%	52%	206%	100%	398%
Pitt	28,490	34,159	38%	31%	62%	51%	107%	90%	184%	154%
Scotch	7,568	5,654	8%	10%	23%	31%	46%	61%	98%	132%
Seymour	8,035	3,949	22%	44%	36%	73%	57%	117%	114%	232%
Misc (EShu)	1,361	2,737	43%	21%	127%	63%	253%	126%	462%	230%
Misc (Taseko)	1,043	20	2%	100%	3%	150%	6%	300%	11%	550%
Misc (Chilliwack)	4,792	6,746	51%	36%	76%	54%	126%	89%	263%	186%
Misc (Nahatlatch)	2,961	1,928	39%	60%	78%	119%	156%	239%	329%	505%
Summer	**1,611,409**	**788,761**	**12%**	**24%**	**24%**	**50%**	**40%**	**81%**	**55%**	**113%**
Chilko	296,918	372,212	20%	16%	40%	32%	64%	51%	91%	73%
Late Stuart	366,198	147,470	14%	35%	29%	72%	48%	119%	66%	163%
Quesnel	804,835	115,618	7%	49%	15%	105%	25%	176%	35%	246%
Stellako	59,872	91,391	29%	19%	48%	32%	70%	46%	86%	56%
Harrison	60,142	49,983	3%	4%	9%	10%	17%	20%	27%	33%
Raft	8,069	4,518	21%	37%	41%	73%	61%	109%	80%	142%
Misc (N. Thomp. Tribs)	593	1,458	111%	45%	280%	114%	413%	168%	609%	248%
Misc (N. Thomp River)	13,336	5,697	19%	44%	50%	116%	78%	183%	102%	239%
Misc (Widgeon)	1,446	414	4%	14%	13%	46%	24%	82%	21%	75%
Late	**184,910**	**83,120**	**9%**	**21%**	**19%**	**43%**	**39%**	**88%**	69%	153%
Cultus	5,549	681	1%	12%	3%	28%	6%	50%	12%	98%
Late Shuswap	71,442	22,644	4%	13%	8%	27%	19%	58%	37%	116%
Portage	4,687	1,265	3%	12%	6%	24%	16%	60%	29%	106%
Weaver	31,830	32,881	27%	26%	48%	46%	88%	85%	144%	139%
Birkenhead	68,862	18,636	5%	17%	9%	35%	21%	77%	39%	145%
Misc. non-Shuswap	2,540	7,013	76%	28%	306%	111%	638%	231%	1043%	378%

= or > 125%
< 125%
< 75%
< 25%

Option 2- Projected Escapements Relative to Cycle Average and Brood Year

Option 2- Projected Escapements Relative to Cycle Average and Brood Year

= or > 125%
< 125%
< 75%
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Run timing group / Stocks	Total Escapement Cycle Ave	Total Escapement Brood Year	Comparisons @p10 Cycle Ave	Comparisons @p10 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
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Summer	**1,611,409**	**788,761**	**12%**	**24%**	**24%**	**50%**	**53%**	**109%**	**77%**	**158%**
Chilko	296,918	372,212	20%	16%	40%	32%	87%	69%	128%	102%
Late Stuart	366,198	147,470	14%	35%	29%	72%	64%	160%	92%	229%
Quesnel	804,835	115,618	7%	49%	15%	105%	34%	237%	50%	345%
Stellako	59,872	91,391	29%	19%	48%	32%	94%	62%	120%	79%
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Misc (N. Thomp. Tribs)	593	1,458	111%	45%	280%	114%	558%	227%	855%	348%
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Escapement Options- Summary

	p10	p25	p50	p75	p90
Option 1					
Allowable Harvest (TF, US, CDN)	31,249	62,460	376,590	1,342,400	2,800,800
Total projected spawners	234,700	471,800	791,000	1,163,200	2,222,000
Option 2					
Allowable Harvest (TF, US, CDN)	31,249	62,460	133,060	918,700	2,194,800
Total projected spawners	234,700	471,800	1,014,000	1,538,200	2,742,000
Difference (Option 2 - Option 1)					
Allowable Harvest (TF, US, CDN)	-	-	(243,530)	(423,700)	(606,000)
Total projected spawners	-	-	223,000	375,000	520,000

- International TAC at or below p50 return under current assumptions is unlikely. Harvestable surplus below full below FSC needs until returns approach or exceed p75 forecast level.
- Early Stuarts and Late Run will likely be in a LAER for the entire forecast range
- Early Summer harvestable surplus (small) at or above the p75 for Options 1 and 2
- Summer Run harvestable surplus above the p25 for Option 1; above the p50 for Option 2
- Early Stuart spawners projected to be well below cycle average over entire forecast range for both Options
- Early Summer Run spawners projected to exceed cycle average at a p75 return for both Options.
- Summer and Late Run spawners projected to be below cycle average for both Option 1 and 2 below the p75

Sockeye Window Closure Proposed Dates

- In some marine areas, the window closure must also take into consideration the timing of Sakinaw sockeye.
- In some years (2020), a one week extension is added on to the Early Stuart closure with the aim of providing some protection to earlier returning Early Summer sockeye (e.g. Bowron and Taseko).

Do you have any advice on how long the window closure should be to protect Early Stuart and potentially Early Summer Sockeye in 2021?

Proposed Window Closure Dates

Areas	Start Date	End Date ~3 Weeks	End Date ~4 weeks
Areas 11 to 17, 19 to 21, 121 and 123 to 127	June 19	July 15	July 22
Areas 18 and 29	June 28	July 21	July 27
Steveston to Mission	June 28	July 21	July 27
Mission to Sawmill	June 29	July 22	July 29
Sawmill to Deadman	July 3	July 25	Aug 1
Deadman-Hixon	July 8	July 30	Aug 6
Hixon to Prince George	July 11	Aug 2	Aug 9
Prince George to Stuart River	July 13	Aug 4	Aug 11

Note that in-season, the actual dates may be adjusted based on in-season run timing information.

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2021 MANAGEMENT ISSUES

Escapement Options- Key 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?
- Given the return forecast distribution and potential constraints to access allowable harvest should additional harvest in terminal areas where surpluses are expected be considered?

Key Considerations

- Forecast model selection deviated slightly from past forecasts in order to attempt to align more closely with recent productivity
- Although the 2021 forecast distribution aligns better with recent productivity estimates the recent productivity observations fall somewhere between the p25 and p50 forecast distribution (but closer to the p25 forecast for some stocks).
- Forecast distribution of stocks within the management groups
- Forecast and projected spawners of weak and strong stocks within the management groups
- Stocks that migrate above Big Bar Slide
- Timing overlaps between the stock management groups and other species.
- Early Stuart window closure; 3 or 4 weeks
- If returns are poor, all management units may be in a LAER for 2021

Fraser Sockeye and Pink Salmon

2021 PINK SALMON ESCAPEMENT PLAN

2021 Fraser Pink Escapement Plan

2021 Fraser Pink Escapement Plan

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%

	2019 Pre-season Forecast Return				
	p10	p25	**p50**	p75	p90
forecast	1,701,000	2,229,000	**3,009,000**	4,051,000	5,375,000
escapement target	1,640,000	2,123,000	**2,817,000**	3,702,000	4,761,000
allowable ER	4%	5%	**6%**	9%	11%
Available Harvest (TF, US, CDN)	61,000	106,000	**192,000**	349,000	614,000

- Low allowable harvest expected throughout the full range of the forecast
- A pre-season fishing plan will be developed by DFO and the Fraser River Panel
  - This plan considers concerns for other species, pre-season forecasts, timing, and diversion rate

Key Considerations

- Rolling window closure to support IFR Steelhead conservation will apply to all FSC fisheries in the Fraser River
- FSC fisheries will be planned to maximize use of selective gear types to reduce bycatch where possible
- In some cases full harvest targets may not be harvestable due to conservation concerns and management considerations identified in-season