2019 Fraser Sockeye and Pink Draft Escapement Options

presented to: Forum on Conservation and Harvest Planning
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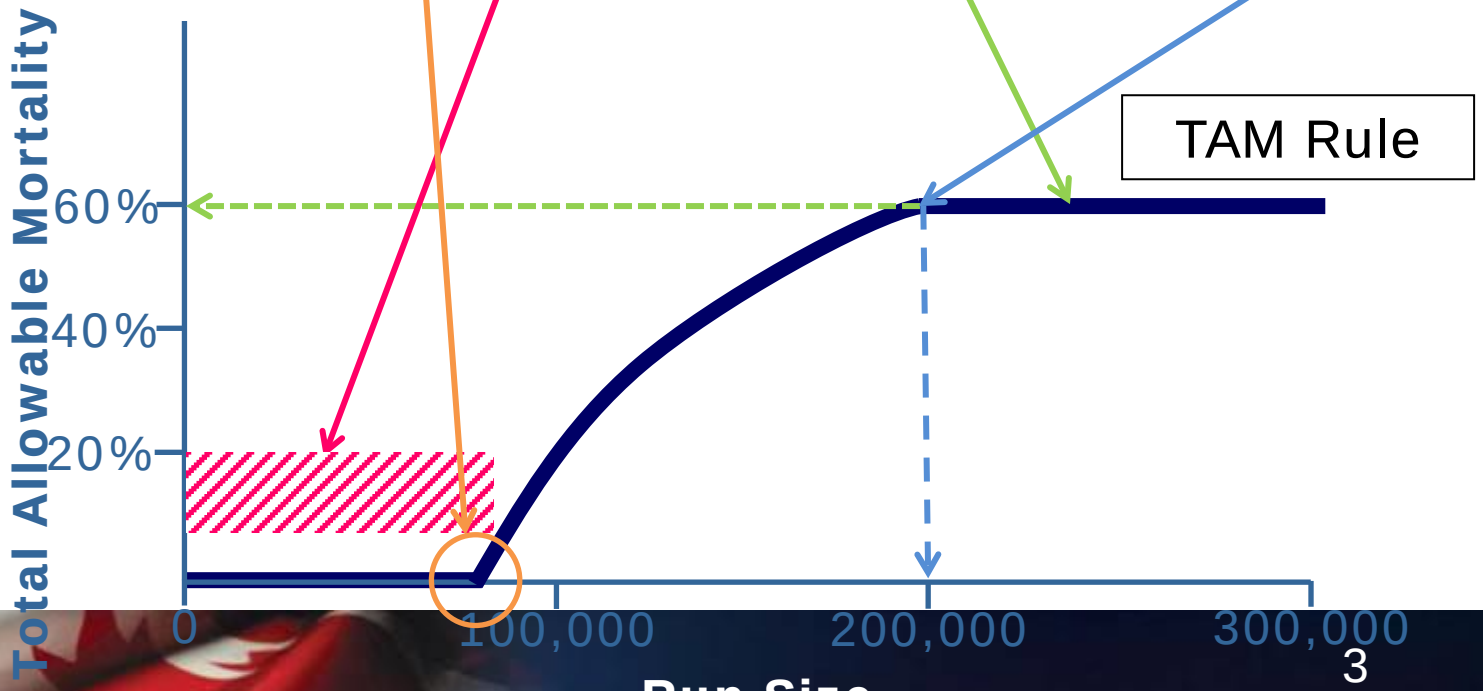
Presentation Outline

- Total Allowable Mortality Rule Explained
- 2019 draft escapement table options
  - FR SK escapement options tables (Option 1 and 2)
  - Comparison of options by run timing group
  - Expected spawning escapement outcomes
  - FR PK escapement option
  - Key Questions

Total Allowable Mortality Rule Explained

Management Unit	Harvest Rule Parameters Low 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%	100,000	250,000
Summer (w/o misc)	10%	60%	1,250,000	3,125,000
Late (w/o misc)	20%-30%	60%	300,000	750,000



2019 FR SK Escapement Tables

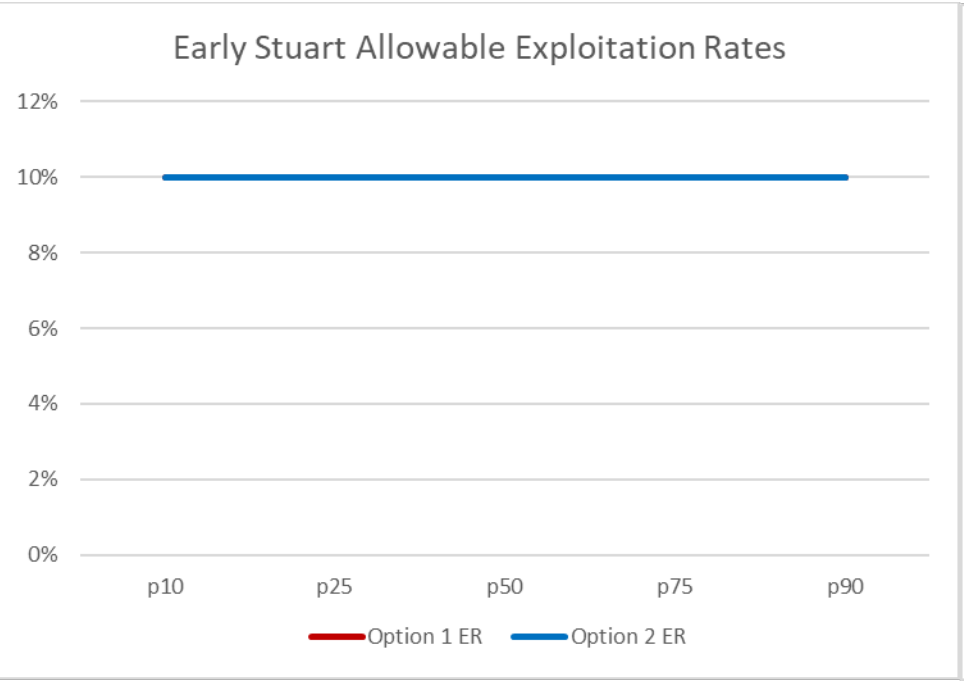
Option 1- Brood Year (2015) Escapement Plan with Lower Summer TAM and LAER Adjustments

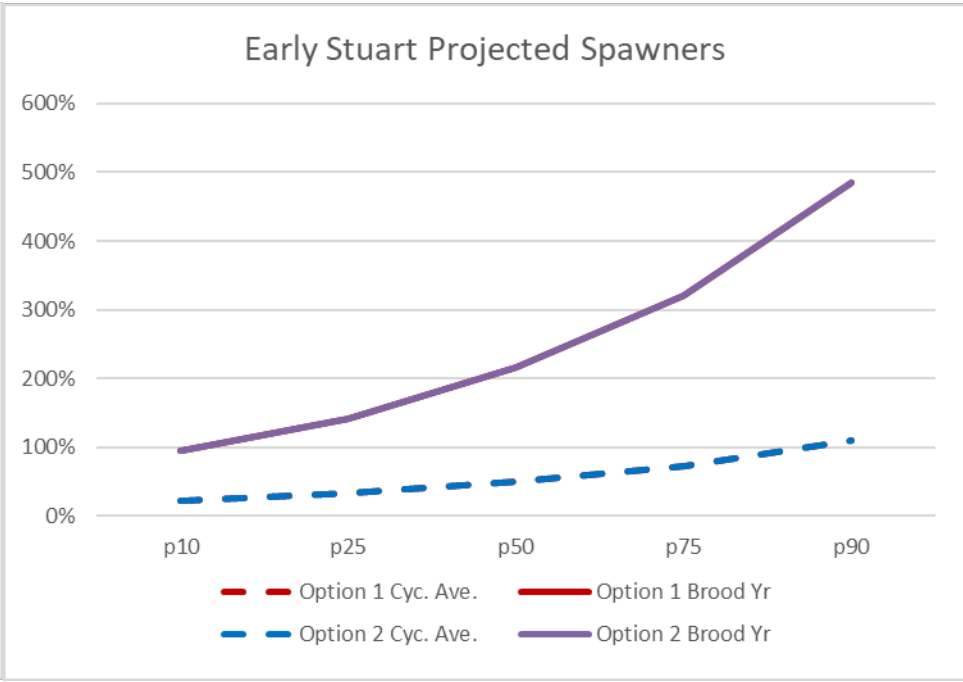
Management Unit	Harvest Rule Parameters Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA @p50
Early Stuart	10%	60%	108,000	270,000	0.69
Early Summer (w/o misc)	20%	60%	100,000	250,000	0.43
Summer (w/o misc)	20%	60%	1,000,000	2,500,000	0.10
Late (w/o misc)	20%	60%	300,000	750,000	0.54

Option 2- Brood Year (2015) Escapement Plan with Lower TAM and a Lower Late Run LAER

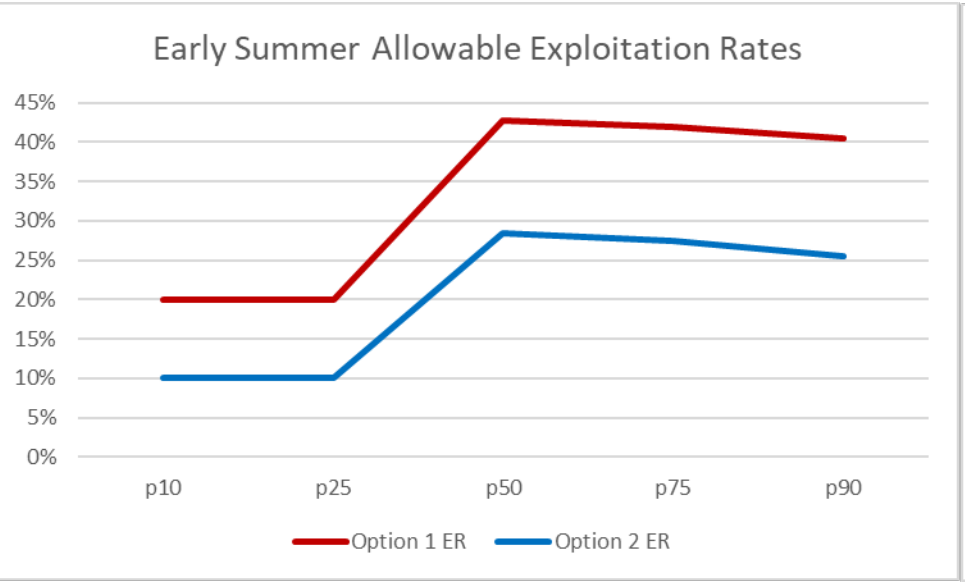
Management Unit	Harvest Rule Parameters Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA @p50
Early Stuart	10%	50%	108,000	216,000	0.69
Early Summer (w/o misc)	10%	50%	100,000	200,000	0.43
Summer (w/o misc)	10%	50%	1,000,000	2,000,000	0.10
Late (w/o misc)	20%	50%	300,000	600,000	0.54

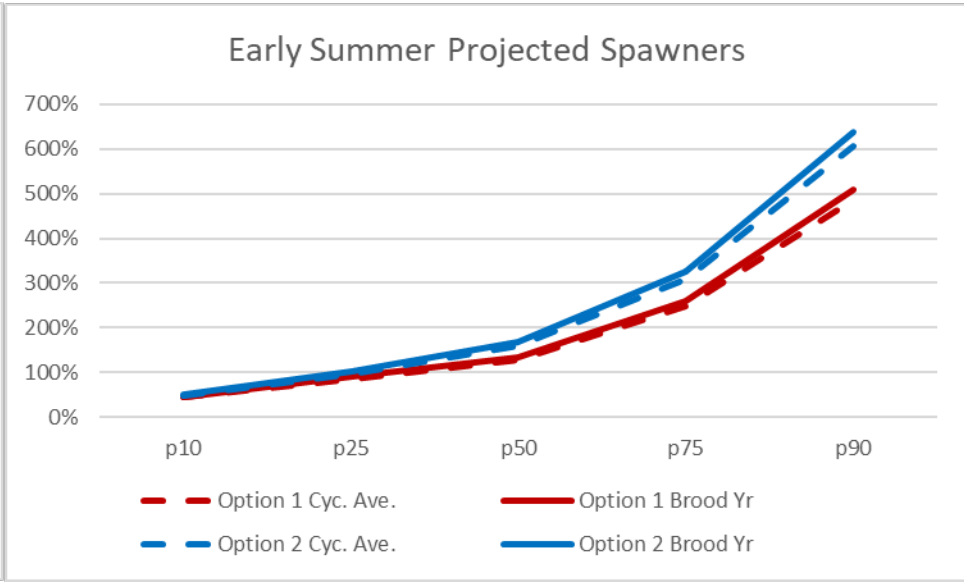
Early Stuart Option Comparison



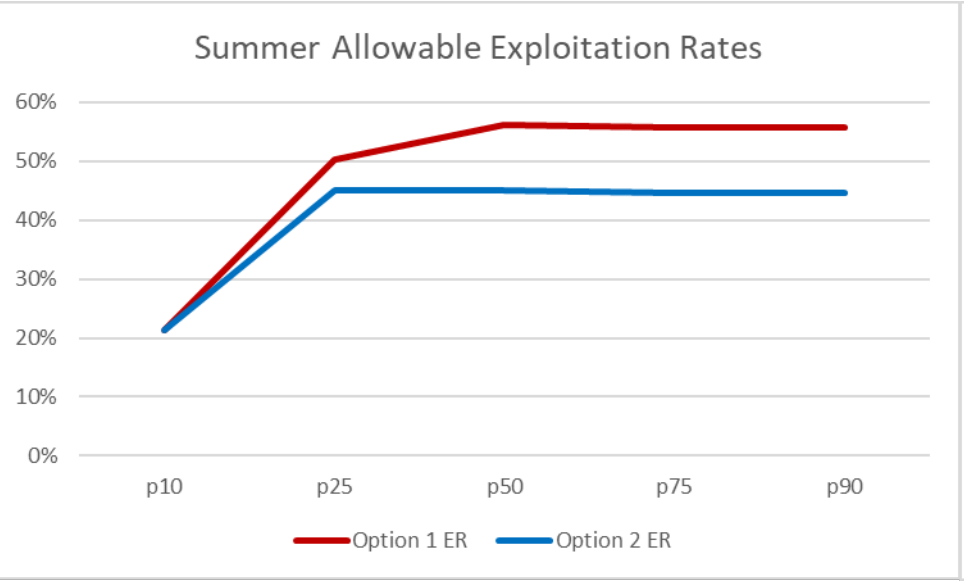


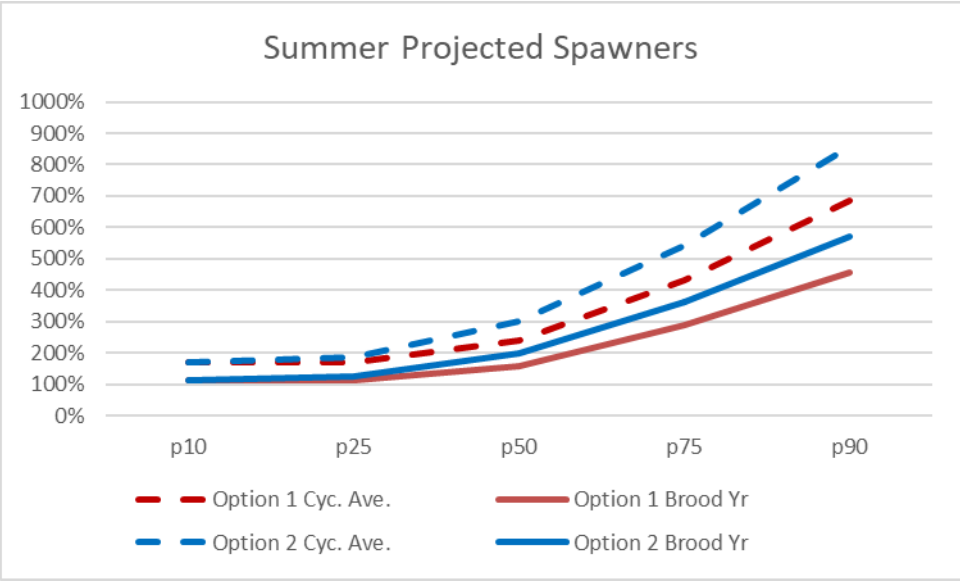
Early Summer Options Comparison



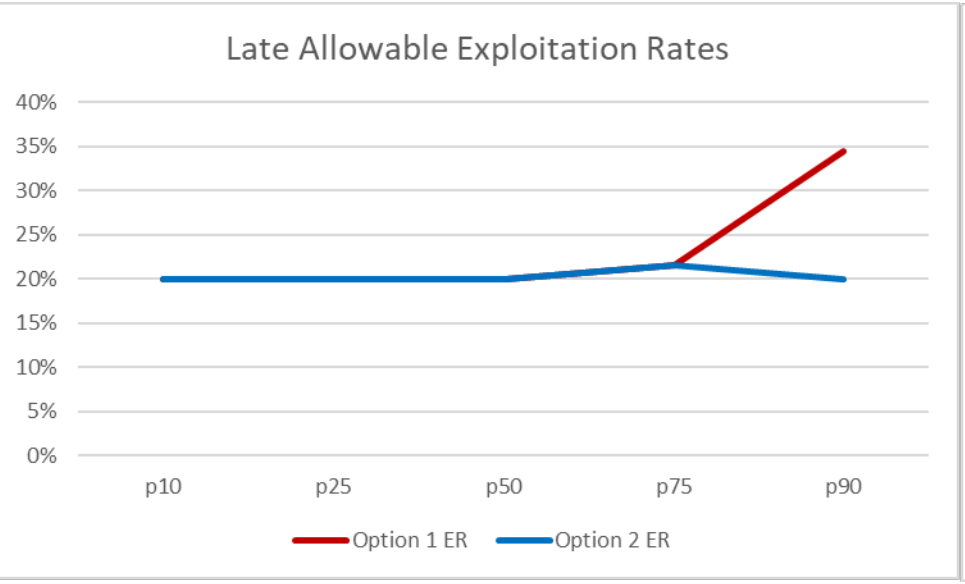


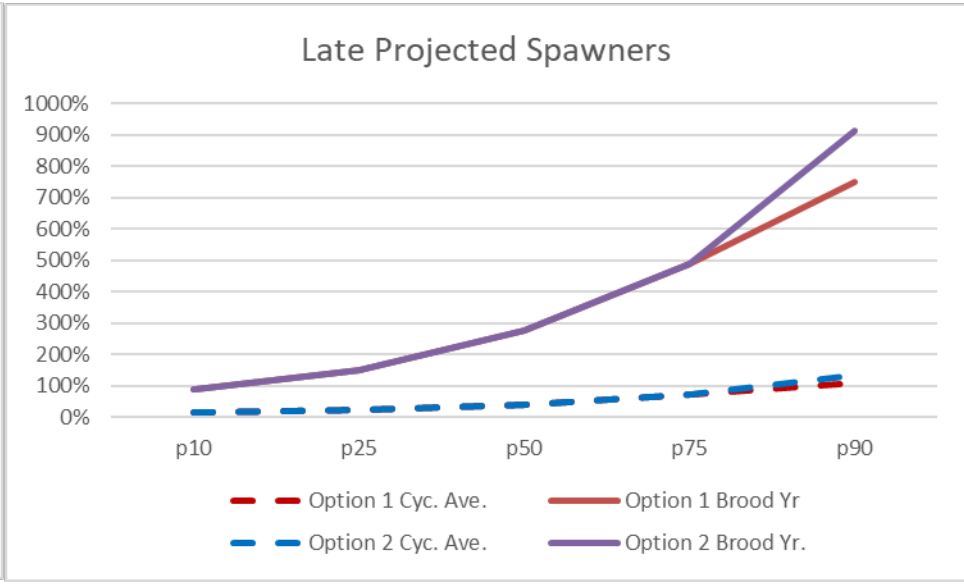
Summers Options Comparison





Lates Options Comparison





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

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	**44,409**	**10,096**	**22%**	**95%**	**32%**	**142%**	**49%**	**216%**	**73%**	**321%**
Early Summer	**144,830**	**137,845**	**44%**	**46%**	**86%**	**91%**	**128%**	**135%**	**248%**	**260%**
Bowron	16,904	3,875	20%	88%	30%	129%	35%	155%	57%	250%
Upper Barriere	8,051	1,420	21%	120%	35%	197%	50%	282%	96%	542%
Gates	9,889	20,326	68%	33%	124%	61%	166%	81%	333%	162%
Nadina	16,814	34,434	96%	47%	196%	96%	307%	150%	683%	334%
Pitt	32,655	38,478	27%	23%	42%	35%	51%	43%	86%	73%
Scotch	9,791	6,614	22%	33%	51%	76%	78%	115%	157%	233%
Seymour	34,955	7,897	14%	63%	26%	114%	33%	147%	64%	282%
Misc (EShu)	3,705	12,697	453%	132%	1028%	300%	1687%	492%	2772%	809%
Misc (Taseko)	5,955	980	7%	41%	18%	112%	24%	143%	44%	265%
Misc (Chilliwack)	1,799	6,710	33%	9%	83%	22%	206%	55%	723%	194%
Misc (Nahatlatch)	4,312	4,414	39%	39%	79%	77%	111%	109%	216%	211%
Summer	**651,121**	**977,005**	**171%**	**114%**	**170%**	**114%**	**241%**	**160%**	**434%**	**289%**
Chilko	412,471	662,707	202%	126%	197%	122%	270%	168%	471%	293%
Late Stuart	18,039	11,124	24%	39%	35%	58%	88%	142%	238%	386%
Quesnel	46,078	45,678	157%	158%	176%	177%	293%	295%	609%	614%
Stellako	102,375	101,422	124%	125%	117%	118%	146%	147%	228%	230%
Harrison	60,926	115,715	67%	35%	83%	44%	154%	81%	344%	181%
Raft	5,457	16,054	304%	103%	277%	94%	385%	131%	607%	206%
Misc (N. Thomp. Tribs)	333	932	210%	75%	420%	150%	601%	215%	1231%	440%
Misc (N. Thomp River)	4,792	23,072	392%	81%	507%	105%	751%	156%	1578%	328%
Misc (Widgeon)	650	301	15%	33%	15%	33%	46%	100%	77%	166%
Late	**465,982**	**68,022**	**13%**	**89%**	**22%**	**148%**	**40%**	**275%**	72%	490%
Cultus	20,701	1,220	0%	8%	0%	8%	1%	16%	3%	49%
Late Shuswap	310,704	9,688	1%	38%	3%	90%	7%	212%	15%	477%
Portage	3,793	36	0%	0%	3%	278%	13%	1389%	66%	6944%
Weaver	29,300	3,032	8%	79%	15%	145%	31%	300%	62%	597%
Birkenhead	99,123	45,049	48%	106%	77%	168%	135%	297%	226%	497%
Misc. non-Shuswap	2,361	8,997	271%	71%	496%	130%	966%	253%	1770%	465%

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

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

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	**44,409**	**10,096**	**22%**	**95%**	**32%**	**142%**	**49%**	**216%**	**73%**	**321%**
Early Summer	**144,830**	**137,845**	**50%**	**52%**	**97%**	**102%**	**161%**	**169%**	**310%**	**325%**
Bowron	16,904	3,875	22%	98%	34%	147%	44%	194%	72%	315%
Upper Barriere	8,051	1,420	24%	134%	40%	225%	62%	352%	119%	676%
Gates	9,889	20,326	77%	37%	141%	68%	207%	101%	416%	202%
Nadina	16,814	34,434	109%	53%	221%	108%	384%	188%	854%	417%
Pitt	32,655	38,478	30%	26%	47%	40%	63%	54%	107%	91%
Scotch	9,791	6,614	26%	38%	58%	86%	97%	144%	197%	292%
Seymour	34,955	7,897	16%	72%	29%	128%	41%	184%	80%	353%
Misc (EShu)	3,705	12,697	510%	149%	1155%	337%	2108%	615%	3466%	1011%
Misc (Taseko)	5,955	980	8%	51%	20%	122%	29%	173%	54%	327%
Misc (Chilliwack)	1,799	6,710	39%	10%	94%	25%	256%	69%	906%	243%
Misc (Nahatlatch)	4,312	4,414	44%	43%	88%	86%	139%	136%	271%	265%
Summer	**651,121**	**977,005**	**171%**	**114%**	**188%**	**126%**	**301%**	**200%**	**542%**	**361%**
Chilko	412,471	662,707	202%	126%	217%	135%	337%	210%	589%	367%
Late Stuart	18,039	11,124	24%	39%	39%	64%	109%	177%	297%	482%
Quesnel	46,078	45,678	157%	158%	194%	196%	366%	369%	761%	768%
Stellako	102,375	101,422	124%	125%	129%	130%	182%	184%	285%	288%
Harrison	60,926	115,715	67%	35%	92%	49%	193%	102%	430%	226%
Raft	5,457	16,054	304%	103%	306%	104%	482%	164%	759%	258%
Misc (N. Thomp. Tribs)	333	932	210%	75%	450%	161%	751%	268%	1532%	547%
Misc (N. Thomp River)	4,792	23,072	392%	81%	559%	116%	939%	195%	1972%	410%
Misc (Widgeon)	650	301	15%	33%	31%	66%	46%	100%	92%	199%
Late	**465,982**	**68,022**	**13%**	**89%**	**22%**	**148%**	**40%**	**275%**	72%	490%
Cultus	20,701	1,220	0%	8%	0%	8%	1%	16%	3%	49%
Late Shuswap	310,704	9,688	1%	38%	3%	90%	7%	212%	15%	477%
Portage	3,793	36	0%	0%	3%	278%	13%	1389%	66%	6944%
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Misc. non-Shuswap	2,361	8,997	271%	71%	496%	130%	966%	253%	1770%	465%

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

Escapement Options- Summary

	p10	p25	p50	p75	p90
Option 1					
Allowable Harvest (TF, US, CDN)	378,900	1,318,200	2,475,700	4,445,900	7,372,600
Total projected spawners	1,246,000	1,349,500	1,961,200	3,548,700	5,728,500
Option 2					
Allowable Harvest (TF, US, CDN)	367,700	1,166,900	1,976,900	3,533,300	5,687,400
Total projected spawners	1,253,900	1,482,600	2,399,300	4,344,500	7,133,000
Difference (Option 2 - Option 1)					
Allowable Harvest (TF, US, CDN)	(11,200)	(151,300)	(498,800)	(912,600)	(1,685,200)
Total projected spawners	7,900	133,100	438,100	795,800	1,404,500

- Summer Run International TAC is anticipated for the full forecast range (p10-p90)
- Early Stuarts and Late Run will likely be in a LAER for the entire forecast range
- Harvest of Summer Run TAC will likely be constrained by Early Summer and Late Run/Cultus
- Under both Options projected spawners show rebuilding even at low run sizes for all management groups however, Early Stuart and Late Run spawners are projected to be well below cycle average over most of the forecast range
- Early Summer and Summer Run spawners are projected to be well above cycle average escapement over most of the forecast range.

2019 FR PK Escapement Table

2019 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	2,530,000	3,577,000	**5,018,600**	7,513,000	10,610,000
escapement target	2,394,000	3,305,000	**4,483,000**	6,000,000	6,000,000
allowable ER	5%	8%	**11%**	20%	43%
Available Harvest (TF, US, CDN)	136,000	272,000	**535,600**	1,513,000	4,610,000

- Will not reach the pink escapement target until p50-p75
- Expect a low TAC and exploitation rate at the p50
- Late Run sockeye may constrain pink harvest in CA and the US

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?
- Do you support an increase in LAERs for Early Summer and Summer run sockeye the alternative for Lates?
- 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?