Option 3 Description

Through the Fraser Sockeye Escapement Plan option development process at the Fraser Salmon Management Board (FSMB), the Fraser Salmon Management Council (FSMC) Joint Technical Committee (JTC) participants developed a third Fraser Sockeye Escapement Plan option (Option 3) for consideration.

Based on advice from FSMC leadership there was interest in developing an Escapement Plan option that increases escapement, based on conservation concerns for individual stocks and increased uncertainty for the future of Fraser Sockeye. Major environmental events and increasing uncertainty related to Fraser Salmon like the 2019 Big Bar rockslide, 2021 atmospheric river floods, 2022 drought conditions, 2023 BC wildfires, 2024 Tŝilhqox Slide and the expected continuation of activity resulting from the Tŝilhqox Slide have lead FSMB to consider additional changes to the Fraser Sockeye Escapement Plan to increase escapement within the existing fishery management framework.

The 2025 return year has previously produced substantial fishing access as the sub-dominant cycle, but in recent years run sizes and escapements have declined substantially. The cycle line average run size for 2025 Fraser Sockeye is 10.8 million, meanwhile the midpoint forecast is less than a third of that at 2.9 million.

Without the ability to implement a comprehensive review of the Fraser Sockeye Harvest Control Rule for the 2025 fishery which has been identified as priority work, immediate changes to the existing Total Allowable Mortality (TAM) rule parameters to address escapement concerns were explored by the FSMC technical support.

Option 3 increases the Lower Fishery Reference Point (LFRP) for the Summer run Management Unit (MU) from 1.25m to 1.60m, and reduces the Early Stuart MU TAM cap from 50% to 20%. The Summer run MU LFRP increases the abundance required to identify allowable harvest of Fraser Sockeye. The Total Allowable Mortality (TAM) cap reduction for the Early Stuart MU maintains a TAM cap reduction initiated in 2022.

Option 3 differs most notably from Options 1 and 2 at the midpoint forecast of Fraser Sockeye, resulting in a reduced allowable harvest and increased escapement. At high run sizes (p75 forecast and above) all fisheries are expected to be operational based on pre-season information, and at low run sizes (p25 forecast and below) all fisheries are expected to be managed using the Low Abundance Exploitation Rate (LAER).

At the midpoint forecast, Option 3 results in the Summer run MU escapement maintaining projected escapement at approximately the abundance of the brood and cycle line escapement, based on pre-season information. Alternatively, Option 1 and 2 result in projected escapement below the brood and cycle line average (~80%).

The allowable harvest at the midpoint forecast abundance for all three options is projected to be predominantly First Nations FSC fisheries. At the midpoint forecast, Options 1 and 2 result in allowable harvest (~840,000) which is slightly below the DFO managed FSC requirement of 1.1 million, whereas Option 3 projects half of that allowable harvest (~450,000).

Option 3

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%	20%	108,000	135,000	1.17
Early Summer (w/o misc)	10%	50%	100,000	200,000	0.59
Summer (w/o misc)	10%	50%	1,600,000	3,200,000	0.09
Late (w/o misc)	10%	50%	300,000	600,000	1.70

MU: Early Stuart

	Pre-season Forecast Return: p10	p25	**p50**	p75	p90
lower ref. pt. (w misc)	108,000	108,000	**108,000**	108,000	108,000
upper ref. pt. (w misc)	135,000	135,000	**135,000**	135,000	135,000
forecast	41,955	72,374	**115,983**	202,430	319,236
TAM Rule (%)	0%	0%	**7%**	20%	20%
Escapement Target	41,955	72,374	**108,000**	161,944	255,389
MA	49,100	84,700	**126,400**	189,500	298,800
Esc. Target + MA	91,055	157,074	**234,400**	351,444	554,189
LAER	10%	10%	**10%**	10%	10%
Available ER at Return	0%	0%	**0%**	0%	0%
Max. Allowable ER	10%	10%	**10%**	10%	10%
Max. Allowable Harvest	4,196	7,237	**11,598**	20,243	31,924
<u>2025 Performance</u>					
Projected S (after MA)	17,400	30,000	**48,000**	83,800	132,200
BY Spawners	54,013	54,013	**54,013**	54,013	54,013
Proj. S as % BY S	32%	56%	**89%**	155%	245%
cycle avg S	194,632	194,632	**194,632**	194,632	194,632
Proj. S as % cycle S	9%	15%	**25%**	43%	68%

MU: Early Summer (w/o RNT)

	Pre-season Forecast Return				
	p10	p25	**p50**	p75	p90
lower ref. pt. (w misc)	118,100	118,100	**118,100**	118,100	118,100
upper ref. pt. (w misc)	236,100	236,100	**236,100**	236,100	236,100
forecast (incl. misc)	54,785	103,071	**220,862**	447,905	820,145
TAM Rule (%)	0%	0%	**47%**	50%	50%
Escapement Target	54,785	103,071	**118,100**	223,953	410,073
MA	29,600	55,700	**63,800**	120,900	221,400
Esc. Target + MA	84,385	158,771	**181,900**	344,853	631,473
LAER	10%	10%	**10%**	10%	10%
Available ER at Return	0%	0%	**18%**	23%	23%
Max. Allowable ER	10%	10%	**18%**	23%	23%
Max. Allowable Harvest	5,500	10,300	**39,000**	103,100	188,700
2025 Performance					
Projected S (after MA)	32,300	60,600	**118,100**	223,000	407,600
BY Spawners	103,684	103,684	**103,684**	103,684	103,684
Proj. S as % BY S	31%	58%	**114%**	215%	393%
cycle avg S	92,563	92,563	**92,563**	92,563	92,563
Proj. S as % cycle S	35%	65%	**128%**	241%	440%

MU: Summer (w/ RNT & Harrison)

	Pre-season Forecast Return				
	p10	p25	**p50**	p75	p90
lower ref. pt. (w misc)	1,636,000	1,636,000	**1,636,000**	1,636,000	1,636,000
upper ref. pt. (w misc)	3,271,900	3,271,900	**3,271,900**	3,271,900	3,271,900
forecast	521,998	991,392	**2,136,089**	4,748,888	10,003,313
TAM Rule (%)	0%	0%	**23%**	50%	50%
Escapement Target	521,998	991,392	**1,636,000**	2,374,444	5,001,657
MA	47,000	89,200	**147,200**	213,700	450,100
Esc. Target + MA	568,998	1,080,592	**1,783,200**	2,588,144	5,451,757
LAER	10%	10%	**10%**	10%	10%

Available ER at Return	0%	0%	**17%**	45%	46%
Max. Allowable ER	10%	10%	**17%**	45%	46%
Max. Allowable Harvest	52,200	99,139	**352,889**	2,160,744	4,551,557
2025 Performance Projected S (after MA)	430,900	817,800	**1,632,900**	2,367,400	4,981,800
BY Spawners	1,580,984	1,580,984	**1,580,984**	1,580,984	1,580,984
Proj. S as % BY S	27%	52%	**103%**	150%	315%
cycle avg S	1,568,493	1,568,493	**1,568,493**	1,568,493	1,568,493
Proj. S as % cycle S	27%	52%	**104%**	151%	318%

MU: Late (w/o Harrison)

	Pre-season Forecast Return				
	p10	p25	**p50**	p75	p90
lower ref. pt. (w misc)	300,800	300,800	**300,800**	300,800	300,800
upper ref. pt. (w misc)	601,600	601,600	**601,600**	601,600	601,600
forecast	117,570	238,069	**467,581**	994,008	1,995,537
TAM Rule (%)	0%	0%	**36%**	50%	50%
Escapement Target	117,570	238,069	**300,800**	497,004	997,769
MA	218,700	423,800	**511,400**	810,100	1,556,500
Esc. Target + MA	336,270	661,869	**812,200**	1,307,104	2,554,269
LAER	10%	10%	**10%**	10%	10%
Available ER at Return	0%	0%	**0%**	0%	0%
Max. Allowable ER	10%	10%	**10%**	10%	10%
Max. Allowable Harvest	11,757	23,807	**46,758**	99,401	199,554
2025 Performance Projected S (after MA)	37,200	76,200	**154,600**	343,400	694,100
BY Spawners	161,574	161,574	**161,574**	161,574	161,574
Proj. S as % BY S	23%	47%	**96%**	213%	430%
cycle avg S	179,737	179,737	**179,737**	179,737	179,737

Proj. S as % cycle S	21%	42%	**86%**	191%	386%

Total Fraser

	p10	p25	**p50**	p75	p90
Allowable Harvest (TF, US, CDN)	73,652	140,484	**450,245**	2,383,488	4,971,734
Total projected spawners	517,800	984,600	**1,953,600**	3,017,600	6,215,700
total escapement goal	736,308	1,404,906	2,162,900	3,257,345	6,664,886
Implied Total Mortality	0%	0%	26%	49%	49%
Actual Harvest Rate	10%	10%	15%	37%	38%