Questions and/or Requests for Advice from FORUM Participants on Fraser Sockeye
Draft for information purposes – Version TWO Mar. 22, 2018

The FORUM provides an annual process for information sharing and discussion on Fraser salmon fisheries issues between DFO and First Nations (Tier 2) and First Nations with other First Nations (Tier 1). First Nation attendees have the opportunity to provide their advice and recommendations on management plans. Presentations and discussion at the February and March FORUM's are intended to assist with providing Fisheries and Oceans Canada with your thoughts on the following questions.

We hope this approach is helpful and we welcome your feedback. *Forum Planning Committee*

Summary of Questions

1. For 2018, the Department is seeking input on two escapement options and their components. The Department will consider all input provided during final escapement plan development. The final escapement plan may be different from the two options described here based on input received.

2. 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?

3. What are your thoughts on the two LAER options for Early Summer and Summer run sockeye (remain at 10% or increase to 20%) and what are the reasons for the preference"?

4. 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?

5. Given this is a dominant cycle, outcomes from the plan may result in escapement levels well above cycle average escapements for the aggregate and some individual stocks within. Should additional harvest in those terminal areas where surpluses are expected to occur be considered? If yes what triggers should be used to initiate fisheries (ie WSP upper benchmarks) and what proportion of the surplus should be harvested (10%, 25%, 50%, etc)?

6. Do you have any advice on how long the window closure for Early Stuart sockeye should be in 2018? Should there be an additional week added to protect the earliest stocks in the Early Summer aggregate?

7. The Department is seeking feedback on a sharing arrangement for Early Stuart sockeye. A proposal similar to 2017 will be put forward with modifications dependent on the 2018 Forecast for Early Stuart sockeye. Do you have any advice or suggestions for improvements on this proposal?

8. The Department will be seeking feedback on how to manage FSC sockeye fisheries for stocks other than Early Stuart sockeye when there is not enough Total Allowable Catch (TAC) for all to catch the amount as set out in licences issued by DFO.

Information to support your discussions is provided on the following pages.
The 2018 forecast is on Page 11.

Escapement Options (Questions 1 to 5)

For 2018, the Department **is seeking input on two escapement options and their components**. The Department will consider all input provided during final escapement plan development. The final escapement plan may be different from the two options described here based on input received.

Option 1 Adjusted 2014 (brood year) Fraser sockeye Escapement Plan

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)	20%	65%	180,000	514,000
Summer (w/o misc)	20%	65%	1,020,000	2,914,000
Late (w/o misc)	20%-30%	65%	1,100,000	3,143,000

Option 2 Adjusted 2010 (brood year) Fraser sockeye Escapement Plan

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%	180,000	450,000
Summer (w/o misc)	10%	60%	1,020,000	2,550,000
Late (w/o misc)	20%	60%	1,100,000	2,750,000

The two escapement options are described below. The differences between the two options are:

1. Early Stuart
   - The same fisheries reference points (FRP) are proposed for both option 1 and 2 and is consistent with the escapement plan for Early Stuarts since 2013.
2. Early Summer and Summer Run
   - Option 1 –is consistent with the escapement plan used in 2014 (brood year) with the exception that the LAER is proposed to increase from 10% to 20% to allow for additional harvest flexibility at low run sizes and/or high MAs. In 2014 the TAM cap was increased from 60% to 65% to provide some additional harvest opportunity should the return be near average or larger for the dominant cycle return.
   - Option 2 – is consistent with the escapement plan used in 2010 (2014 brood year). This escapement plan is more conservative to harvest at low run sizes (LAER 10%) and at near average or large run sizes (TAM cap 60%). The reference points were selected in 2010 to provide additional protection to weaker stocks within the Early Summer and Summer run. Although harvest flexibility is reduced more fish are expected to reach the spawning grounds over the forecast range.

3. Late Run
    - Option 1 –is consistent with the escapement plan used in 2014 (brood year). The LAER of 20-30% allows for additional harvest flexibility at low run sizes and/or high MAs and the 65% TAM cap provides some additional harvest opportunity for most of the forecast range given returns are near average or larger for this dominant cycle return.
        - Option 2 – is consistent with the escapement plan used in 2010 (2014 brood year) with the exception that the LAER is proposed to remain at 20% across all run sizes. In 2010 the reference points were selected to provide additional protection to weaker stocks within the Late run aggregate. This escapement plan is more conservative to harvest at low run sizes (LAER 20%) and at near average or large run sizes (TAM cap 60%). The 2018 Late run is dominated by one stock (Late Shuswap). Although harvest flexibility is reduced more fish are expected to reach the spawning grounds over the forecast range including the weaker stocks within this aggregate such as Cultus sockeye.
        - Cultus- Given the weak forecast for Cultus sockeye in 2018 it is expected that the recovery objective for Cultus sockeye will not be met. Therefore, it is unlikely that the Late run exploitation rate identified in the escapement plan will be achieved. Instead the allowable Late run exploitation rate will equal the Late run LAER in areas where Cultus sockeye may be encountered.

Although two options are provided the actual escapement plan may look different than either option based on consultations this spring.

In the comparison tables, there are some acronyms used.

ER = exploitation rate
S = spawners
BY S = Brood year spawners. Brood year escapement (2014) was 68,613.
MA = management adjustment

The tables are colour coded. Please note, these colours are not related to the WSP status of the stocks but rather whether or not the forecast is above or below the upper and lower fisheries reference points.

	forecast p-level is below lower fisheries reference point
	forecast p-level is between lower & upper fisheries reference point
	forecast p-level is above upper fisheries reference point

Early Stuart Options Comparison (Note: there is only one proposed option for Early Stuart)

Early Stuart	forecast	p10 37,000	p25 54,000	p50 84,000	p75 133,000	p90 199,000
Option 1	Allowable ER	10%	10%	10%	10%	10%
	Projected S (after MA)	19,600	28,700	44,600	70,600	105,700
	Proj. S as % BY S	29%	42%	65%	103%	154%
	Proj. S as % cycle S	59%	86%	134%	212%	318%
Option 2	*same as option 1*					

Early Summer Options Comparison

Early Summer	forecast (incl. misc)	p10 584,000	p25 1,102,000	p50 2,155,000	p75 3,765,000	p90 6,587,000
Option 1	Allowable ER	29%	45%	45%	45%	45%
	Projected S (after MA)	266,600	388,000	757,500	1,321,700	2,309,100
	Proj. S as % BY S	41%	60%	117%	204%	356%
	Proj. S as % cycle S	81%	117%	229%	400%	699%
Option 2	*Allowable ER*	29%	38%	38%	38%	38%
	Projected S (after MA)	266,600	443,400	865,800	1,510,600	2,639,000
	Proj. S as % BY S	41%	68%	134%	233%	407%
	Proj. S as % cycle S	81%	134%	262%	457%	799%

Summer Options Comparison

Summer	forecast (incl. misc)	p10 1,470,000	p25 2,473,000	p50 4,344,000	p75 7,669,000	p90 13,173,000
Option 1	Allowable ER	20%	53%	62%	61%	61%
	Projected S (after MA)	1,063,200	1,062,200	1,515,300	2,694,200	4,616,000
	Proj. S as % BY S	37%	37%	53%	95%	163%
	Proj. S as % cycle S	130%	130%	186%	330%	566%
Option 2	Allowable ER	20%	53%	56%	56%	56%
	Projected S (after MA)	1,063,200	1,062,200	1,731,800	3,079,100	5,275,300
	Proj. S as % BY S	37%	37%	61%	109%	186%
	Proj. S as % cycle S	130%	130%	212%	378%	647%

Lates Options Comparison

Lates	forecast (incl. misc)	p10 3,174,000	p25 4,794,000	p50 7,398,000	p75 11,370,000	p90 16,934,000
Option 1	Allowable ER	50%	50%	50%	50%	50%
	Projected S (after MA)	1,113,100	1,681,400	2,595,200	3,989,500	5,943,400
	Proj. S as % BY S	48%	73%	113%	173%	258%
	Proj. S as % cycle S	42%	63%	98%	150%	224%
Option 2	Allowable ER	43%	43%	43%	43%	43%
	Projected S (after MA)	1,272,000	1,921,700	2,966,000	4,559,400	6,792,400
	Proj. S as % BY S	55%	83%	129%	198%	295%
	Proj. S as % cycle S	48%	72%	112%	172%	256%

Option 1: Projected escapement relative to cycle average and brood year.

Note: Colours are a means of comparing to brood year and cycle line average and not related to WSP status.

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

Run timing group / Stocks	Total Escapement		Comparisons @p10		Comparisons @p25		Comparisons @p50		Comparisons @p75	
	Cycle Ave	Brood Year	Cycle Ave	Brood Year	Cycle Ave	Brood Year	Cycle Ave	Brood Year	Cycle Ave	Brood Year
Early Stuart	**33,275**	**68,613**	**59%**	**29%**	**86%**	**42%**	**134%**	**65%**	**212%**	**103%**
Early Summer	**330,355**	**647,784**	**81%**	**41%**	**117%**	**60%**	**229%**	**117%**	**400%**	**204%**
Bowron	5,767	12,210	55%	26%	73%	34%	121%	57%	212%	100%
Upper Barriere	5,365	11,467	76%	36%	91%	43%	162%	76%	300%	140%
Gates	4,274	16,928	117%	30%	164%	41%	311%	79%	622%	157%
Nadina	4,127	61,389	492%	33%	686%	46%	1296%	87%	2464%	166%
Pitt	25,593	36,507	52%	36%	58%	41%	96%	67%	152%	107%
Scotch	141,006	135,134	29%	30%	41%	43%	82%	85%	186%	194%
Seymour	92,481	114,013	103%	83%	132%	107%	210%	170%	335%	272%
Misc (EShu)	43,798	252,793	192%	33%	332%	58%	763%	132%	1233%	214%
Misc (Taseko)	1,733	114	0%	0%	6%	88%	12%	175%	17%	263%
Misc (Chilliwack)	2,620	3,470	19%	14%	38%	29%	88%	66%	198%	150%
Misc (Nahatlatch)	5,324	3,873	26%	36%	45%	62%	85%	116%	163%	225%
Summer	**820,977**	**2,862,856**	**130%**	**37%**	**129%**	**37%**	**185%**	**53%**	**328%**	**94%**
Chilko	375,259	1,029,313	161%	59%	154%	56%	211%	77%	358%	131%
Late Stuart	36,661	50,691	109%	79%	117%	30%	191%	48%	372%	94%
Quesnel	211,016	832,835	100%	25%	103%	75%	142%	103%	242%	175%
Stellako	124,282	507,777	134%	33%	120%	29%	158%	39%	255%	62%
Harrison	63,070	399,557	12%	2%	18%	3%	38%	6%	100%	16%
Raft	5,197	17,102	279%	85%	258%	78%	323%	98%	531%	161%
Misc (N. Thomp. Tribs)	1,250	1,170	112%	120%	136%	145%	200%	214%	424%	453%
Misc (N. Thomp River)	3,121	21,602	580%	84%	689%	100%	942%	136%	1983%	287%
Misc (Widgeon)	1,121	2,809	54%	21%	62%	25%	71%	28%	152%	61%
Late	**2,647,383**	**2,297,272**	**42%**	**48%**	**64%**	**73%**	**98%**	**113%**	**151%**	**174%**
Cultus	14,602	4,411	1%	2%	1%	5%	3%	9%	6%	20%
Late Shuswap	2,438,497	2,208,177	44%	48%	65%	72%	99%	110%	150%	165%
Portage	13,650	24,275	56%	32%	113%	63%	262%	147%	601%	338%
Weaver	58,362	24,646	23%	54%	47%	111%	90%	213%	191%	452%
Birkenhead	122,272	35,763	18%	60%	31%	107%	56%	191%	100%	340%
Misc. non-Shuswap	4,803	6,112	77%	61%	137%	108%	267%	209%	510%	401%

Option 2: Projected escapement relative to cycle average and brood year

Note: Colours are a means of comparing to brood year and cycle line average and not related to WSP status.

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

Run timing group / Stocks	Total Escapement		Comparisons @p10		Comparisons @p25		Comparisons @p50		Comparisons @p75	
	Cycle Ave	Brood Year	Cycle Ave	Brood Year	Cycle Ave	Brood Year	Cycle Ave	Brood Year	Cycle Ave	Brood Year
Early Stuart	**33,275**	**68,613**	**59%**	**29%**	**86%**	**42%**	**134%**	**65%**	**212%**	**103%**
Early Summer	**330,355**	**647,784**	**81%**	**41%**	**134%**	**68%**	**262%**	**134%**	**457%**	**233%**
Bowron	5,767	12,210	55%	26%	83%	39%	139%	66%	243%	115%
Upper Barriere	5,365	11,467	76%	36%	104%	49%	186%	87%	343%	160%
Gates	4,274	16,928	117%	30%	187%	47%	356%	90%	711%	180%
Nadina	4,127	61,389	492%	33%	783%	53%	1480%	100%	2816%	189%
Pitt	25,593	36,507	52%	36%	66%	47%	110%	77%	174%	122%
Scotch	141,006	135,134	29%	30%	47%	49%	93%	98%	212%	222%
Seymour	92,481	114,013	103%	83%	151%	122%	240%	195%	383%	310%
Misc (EShu)	43,798	252,793	192%	33%	379%	66%	872%	151%	1410%	244%
Misc (Taseko)	1,733	114	0%	0%	6%	88%	12%	175%	17%	263%
Misc (Chilliwack)	2,620	3,470	19%	14%	46%	35%	99%	75%	225%	170%
Misc (Nahatlatch)	5,324	3,873	26%	36%	53%	72%	98%	134%	188%	258%
Summer	**820,977**	**2,862,856**	**130%**	**37%**	**129%**	**37%**	**211%**	**60%**	**375%**	**108%**
Chilko	375,259	1,029,313	161%	59%	154%	56%	241%	88%	409%	149%
Late Stuart	36,661	50,691	109%	79%	117%	30%	218%	55%	426%	108%
Quesnel	211,016	832,835	100%	25%	103%	75%	163%	118%	277%	200%
Stellako	124,282	507,777	134%	33%	120%	29%	180%	44%	291%	71%
Harrison	63,070	399,557	12%	2%	18%	3%	44%	7%	114%	18%
Raft	5,197	17,102	279%	85%	258%	78%	369%	112%	606%	184%
Misc (N. Thomp. Tribs)	1,250	1,170	112%	120%	136%	145%	224%	239%	488%	521%
Misc (N. Thomp River)	3,121	21,602	580%	84%	689%	100%	1077%	156%	2265%	327%
Misc (Widgeon)	1,121	2,809	54%	21%	62%	25%	89%	36%	169%	68%
Late	**2,647,383**	**2,297,272**	**48%**	**55%**	**73%**	**84%**	**112%**	**129%**	172%	198%
Cultus	14,602	4,411	1%	2%	1%	5%	3%	9%	8%	25%
Late Shuswap	2,438,497	2,208,177	50%	55%	75%	82%	114%	126%	171%	189%
Portage	13,650	24,275	64%	36%	129%	73%	299%	168%	686%	386%
Weaver	58,362	24,646	26%	62%	53%	127%	103%	244%	218%	517%
Birkenhead	122,272	35,763	20%	69%	36%	122%	64%	218%	114%	389%
Misc. non-Shuswap	4,803	6,112	87%	69%	156%	123%	304%	239%	583%	458%

It is expected that there will be significant harvestable surplus at the full forecast range (p10-p90). Although a surplus is expected over the full forecast range for Early Summer, Summer and Late run sockeye most of the surplus is on one Late run stock (Late Adams). In addition there should be considerable surplus of Early Shuswap, Chilko, and Stellako.

Under current assumptions projected spawners for Early Stuart, Early Summer and Summer will be well above the cycle average and near average for the Late Run for both escapement options at the p50.

If the run is lower relative to forecast (similar to previous 3 years) the returns relative to cycle average are near or lower than cycle average except for Summer Run (which is above cycle line average for most stocks).

	p10	p25	p50	p75	p90
Option 1					
Allowable Harvest (TF, US, CDN)	2,060,400	4,202,600	7,353,700	12,091,550	19,524,150
Total projected spawners	2,462,500	3,160,300	4,912,600	8,076,000	12,974,200
Option 2					
Allowable Harvest (TF, US, CDN)	1,833,500	3,773,900	6,417,600	10,559,300	17,068,600
Total projected spawners	2,621,400	3,456,000	5,608,200	9,219,700	14,812,400
Difference (Option 2 - Option 1)					
Allowable Harvest (TF, US, CDN)	(226,900)	(428,700)	(936,100)	(1,532,250)	(2,455,550)
Total projected spawners	158,900	295,700	695,600	1,143,700	1,838,200

Note: The difference between options is merely the amount of allowable harvest in Option 2 minus the amount in Option 1 in the first row AND the same but for total projected spawners in the second row. In other words under Option 2 you have more projected spawners and less allowable harvest than for Option 1. All of these numbers assume that all catch is available and not subject to any other constraints (such as co-migrating stocks of concern).

Length of Early Stuart Window Closure (Question 6)

Do you have any advice on how long the window closure for Early Stuart sockeye should be in 2018? Should there be an additional week added to protect the earliest stocks in the Early Summer aggregate?

The Department will likely be seeking feedback on the length of the Early Stuart window closure in 2018. In some years, a one week extension of the Early Stuart closure is implemented with the aim of providing some protection to some of the earliest returning Early Summer sockeye (Bowron and Taseko for example). The forecast is provided on Page 11.

Proposed end dates for a **THREE** week window closure:

Early Stuart Run Size (p50)= Printed on: 22-Feb-18
A20 Peak=

Area	Actual Dates Start (date, time)		End (date, time)		Management Action
Areas 111, 121, 123 to 127	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Sn, Gn, Tr)
Area 11	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Gn, Tr); July 25 (Sn)[1,2]
Area 12	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Gn, Tr); July 25 (Sn)[1,2]
Area 13	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Gn, Tr); July 25 (Sn)[1]
Areas 14 to 16	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Gn, Tr); Aug 15 (Sn)[1]
Areas 17, 19, 20 and 21	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Sn, Gn, Tr)
Areas 18 and 29	27-Jun		20-Jul	Noon	Earliest potential opening to FNs FSC fishing for Fraser sockeye = July 19, noon
Steveston-Mission Bridge	27-Jun		20-Jul	Noon	
Mission Bridge-Sawmill Cr	29-Jun		21-Jul	6:00 AM	Earliest potential opening to FNs FSC fishing for Fraser sockeye = July 21, **noon**
Sawmill Cr-Texas Cr	04-Jul	6:00 PM	25-Jul	6:00 PM	FN's FSC: Open to selective fishing for chinook (dip net, angling and potential for 8" mesh gill net) and open in tribs for sockeye and chinook.
Texas Cr-Kelly Cr	04-Jul	6:00 PM	25-Jul	6:00 PM	
Kelly Cr-Deadman	04-Jul	6:00 PM	25-Jul	6:00 PM	
Deadman-Chilcotin	09-Jul	6:00 PM	30-Jul	6:00 PM	FN's FSC: Open to selective fishing for chinook (dip net, angling) and open in tribs for sockeye and chinook.
Chilcotin-Quesnel	09-Jul	6:00 PM	30-Jul	6:00 PM	
Quesnel-Hixon	09-Jul	6:00 PM	30-Jul	6:00 PM	
Hixon-Prince George	12-Jul	6:00 PM	02-Aug	6:00 PM	FN's FSC: Open to selective fishing for chinook (dip net and 8" mesh gill net) and open in tribs for sockeye and chinook.
Prince George-Stuart R	12-Jul	6:00 PM	02-Aug	6:00 PM	FN's FSC: some allowable harvest in terminal areas.

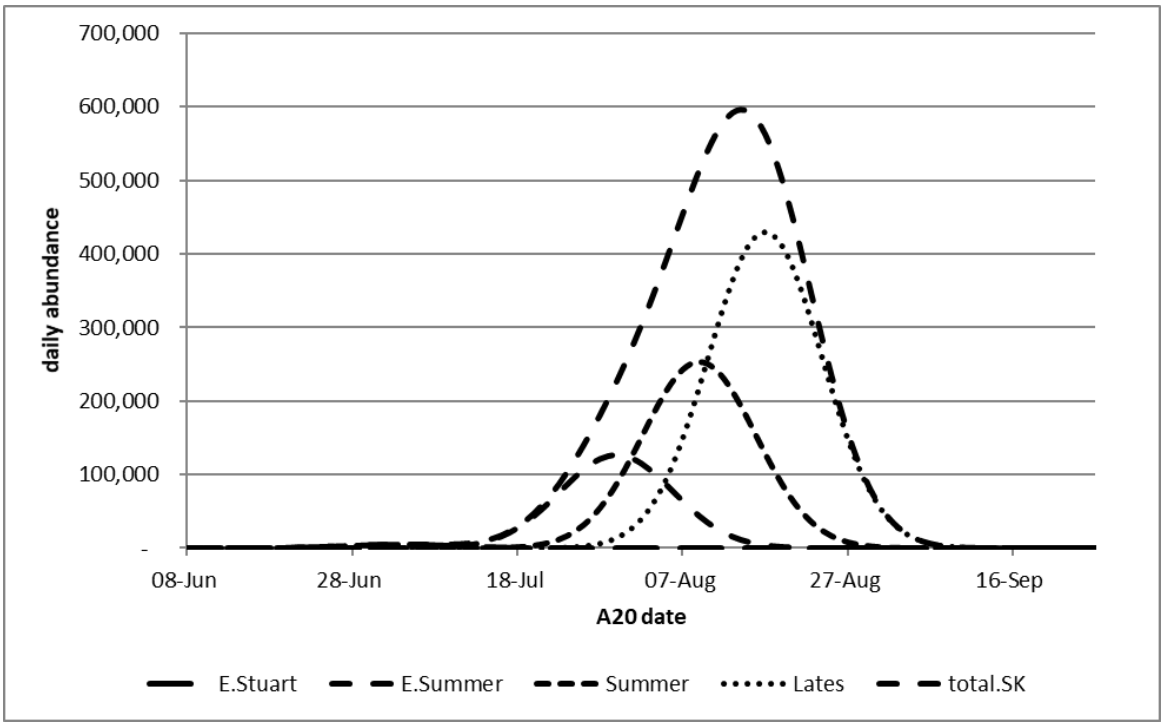
[1] Gear restrictions remain in place to protect Sakinaw sockeye until July 25 (Queen Charlotte and Johnstone Straits) and August 15 (northern Strait of Georgia).
[2] Additional sockeye closures will remain in place in portions of Areas 11 and 12 until late July in waters north of Lewis Point to protect Nimpkish sockeye.

Proposed end dates for a **FOUR** week window closure:

Area	Date Start (date, time)		Date End (date, time)		Management Action
Areas 111, 121, 123 to 127	Open 22-July, 7 days week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 22 (Sn, Gn, Tr)
Area 11	Open 22-July, 7 days week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 22 (Gn, Tr); July 25 (Sn)1,2
Area 12	Open 22-July, 7 days week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 22 (Gn, Tr); July 25 (Sn)1,2
Area 13	Open 22-July, 7 days week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 22 (Gn, Tr); July 25 (Sn)1
Area 20	Open 15-July, 7 days week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 22 (Gn, Tr); Aug 15 (Sn)1
Areas 18 & 29	27-Jun	00:00	27-Jan	Noon	Earliest potential opening to FNs FSC fishing for Fraser sockeye = July 19, noon
Steveston-Mission Bridge	27-Jun	00:00	27-Jan	Noon	
Mission Bridge-Sawmill Cr	29-Jun	00:00	28-Jan	06:00	Earliest potential opening to FNs FSC fishing for Fraser sockeye = July 21, noon
Sawmill Cr-Texas Cr	04-Jul	18:00	01-Aug	18:00	FN's FSC: Open to selective fishing for chinook (dip net, angling and potential for 8" mesh gill net) and open in tribs for sockeye and chinook.
Texas Cr-Kelly Cr	04-Jul	18:00	01-Aug	18:00	
Kelly Cr-Deadman	04-Jul	18:00	01-Aug	18:00	
Deadman-Chilcotin	09-Jul	18:00	06-Aug	18:00	FN's FSC: Open to selective fishing for chinook (dip net, angling) and open in tribs for sockeye and chinook.
Chilcotin-Quesnel	09-Jul	18:00	06-Aug	18:00	
Quesnel-Hixon	09-Jul	18:00	06-Aug	18:00	
Hixon-Prince George	12-Jul	18:00	09-Aug	18:00	FN's FSC: Open to selective fishing for chinook (dip net and 8" mesh gill net) and open in tribs for sockeye and chinook.
Prince George-Stuart R	12-Jul	18:00	09-Aug	18:00	FN's FSC: some allowable harvest in terminal areas.

[1] Gear restrictions remain in place to protect Sakinaw sockeye until July 25, 2018.

Pre-season Run Timing Curves for 2018 Fraser Sockeye Salmon



Early Stuart Sockeye Sharing (Question 7)

The Department is seeking feedback on a sharing arrangement for Early Stuart sockeye. A proposal similar to 2017 will be put forward with modifications dependent on the 2018 Forecast for Early Stuart sockeye. Do you have any advice or suggestions for improvements on this proposal?

This table contains information for the P50 forecast.

2018 Early Stuart FSC Sharing

February-22-18

Early Stuart Run Size	**84,000**
Total for FSC sharing (under LAER)	**7,560**

FN Group	Share of available FSC
Carrier-Sekani TC	1,543
Lheidli T'enneh	93
Carrier-Chilcotin	31
TNG; NSTC; Esket	925
Whispering Pines - High Bar	31
Stl'atl'imx Nation	1,543
NWSFA; NNTC	1,543
Above Port Mann	1,543
Below Port Mann	309
Marine incidental	
Total	7,560

Implied Spawners to the Grounds

run - LAER	75,600
pMA	0.69
DBE	-40.83%
predicted DBE (# fish) = (run-LAER)*DBE	(30,866)
implied spawners to the grounds	44,734

This table contains information for the P25 forecast.

2018 Early Stuart FSC Sharing

March-20-18

Early Stuart Run Size	**54,000**
Total for FSC sharing (under LAER)	**4,860**

FN Group	Share of available FSC
Carrier-Sekani TC	992
Lheidli T'enneh	60
Carrier-Chilcotin	20
TNG; NSTC; Esket	595
Whispering Pines - High Bar	20
Stl'atl'imx Nation	992
NWSFA; NNTC	992
Above Port Mann	992
Below Port Mann	198
Marine incidental	
Total	4,860

Implied Spawners to the Grounds

run - LAER	48,600
pMA	0.69
DBE	-40.83%
predicted DBE (# fish) = (run-LAER)*DBE	(19,843)
implied spawners to the grounds	28,757

LAER (Question 3 and possibly 8)

If in-season assessment information indicates that the escapement targets in the Fraser sockeye escapement plan are not going to be achieved the priority is conservation. In cases when the total allowable mortality minus any management adjustment results in a zero or very low total allowable mortality for a timing group, the Department may consider measures to protect 80-90% of the return of that Fraser sockeye timing group while allowing directed harvest of co-migrating stock groups or species. In the escapement plan table, this concept is expressed as the low abundance exploitation rate (LAER).

Two different options are proposed for the LAER's in 2018.

Option one is

Run timing aggregate	Proposed LAER
Early Stuart	10%
Early Summer	20%
Summer	20%
Lates	20-30%*

*20% at run sizes less than the P75 and 30% at run sizes greater than the P75.

Option two is

Run timing aggregate	Proposed LAER
Early Stuart	10%
Early Summer	10%
Summer	10%
Lates	20%

This option is similar to that in place in 2016 and 2017.

The LAER is not a target as the objective is to allow as many fish to pass to the spawning grounds as possible while allowing some incidental harvest, and in some cases some directed harvest when there is little opportunity for harvest directed on other Fraser sockeye stock groups or species.

All fishery impacts including test fisheries and fishery induced mortalities (FIM's) are to be accounted for under the LAER. Fisheries are only considered if they provide scientific information necessary for conservation (test fisheries) or have reasonably low catch impacts on Fraser sockeye. Additional considerations under LAER management necessary for fishery planning include: current and projected catch accounting for all United States and Canadian fisheries, the distribution of impacts between gear groups, gear selectivity, release mortality rates, sockeye mortality relative to target species, compliance with licence regulations and environmental conditions.

For First Nation FSC fisheries the above considerations apply and a sharing plan may be required to enable a fair distribution of impacts between marine and Fraser River First Nations. When FSC fisheries are prosecuted using the LAER the licence amounts by area (South Coast, Lower Fraser, Middle/Upper Fraser) are generally used to guide low impact fisheries for other species or stocks.

Appendix A: 2018 Sockeye Forecast by stock and timing group

Run timing group / Stocks	Forecast Model [a]	Probability that Return will be at/or Below Specified Run Size				
		10%	25%	50%	75%	90%
Early Stuart	*Ricker (Ei)*	*37,000*	*54,000*	*84,000*	*133,000*	*199,000*
		584,000	**1,102,000**	**2,155,000**	**3,765,000**	**6,587,000**
Early Summer						
(total excluding miscellaneous)		***393,000***	***674,000***	***1,175,000***	***2,168,000***	***3,750,000***
Bowron	*Ricker (Pi)*	*7,000*	*12,000*	*20,000*	*35,000*	*59,000*
Upper Barriere (Fennell)	*Power*	*9,000*	*14,000*	*25,000*	*46,000*	*80,000*
Gates	*Larkin*	*11,000*	*20,000*	*38,000*	*76,000*	*149,000*
Nadina	*MRJ*	*45,000*	*81,000*	*153,000*	*291,000*	*518,000*
Pitt	*Larkin*	*22,000*	*32,000*	*53,000*	*84,000*	*130,000*
Scotch	*Larkin*	*89,000*	*166,000*	*330,000*	*750,000*	*1,513,000*
Seymour	*RickerCyc*	*210,000*	*349,000*	*556,000*	*886,000*	*1,301,000*
Misc (EShu) [b]	*R/S*	*186,000*	*416,000*	*956,000*	*1,546,000*	*2,736,000*
Misc (Taseko) [c]	*R/S*	-	-	-	*1,000*	*1,000*
Misc (Chilliwack)	*Ricker*	*2,000*	*5,000*	*11,000*	*25,000*	*53,000*
Misc (Nahatlatch) [d]	*R/S*	*3,000*	*7,000*	*13,000*	*25,000*	*47,000*
		1,470,000	**2,473,000**	**4,344,000**	**7,669,000**	**13,173,000**
Summer						
(total excluding miscellaneous)		***1,442,000***	***2,417,000***	***4,250,000***	***7,473,000***	***12,778,000***
Chilko	*4-PowJuvPi; 5-Sib*	*833,000*	*1,345,000*	*2,259,000*	*3,801,000*	*6,098,000*
Late Stuart	*R1C*	*55,000*	*88,000*	*149,000*	*251,000*	*401,000*
Quesnel	*RickerEi*	*292,000*	*573,000*	*1,148,000*	*2,223,000*	*4,152,000*
Stellako	*Larkin*	*229,000*	*347,000*	*559,000*	*895,000*	*1,454,000*
Harrison [e]	*3-Ricker; 4-sibling*	*13,000*	*33,000*	*87,000*	*225,000*	*548,000*
Raft [e]	*Ricker (PDO)*	*20,000*	*31,000*	*48,000*	*78,000*	*125,000*
Misc (N. Thomp. Tribs) [e & f]	*R/S*	*2,000*	*4,000*	*7,000*	*15,000*	*31,000*
Misc (N. Thomp River) [e & f]	*R/S*	*25,000*	*50,000*	*84,000*	*175,000*	*354,000*
Misc (Widgeon) [g]	*R/S*	*1,000*	*2,000*	*3,000*	*6,000*	*10,000*
		3,174,000	**4,794,000**	**7,398,000**	**11,370,000**	**16,934,000**
Late						
(total excluding miscellaneous)		***3,164,000***	***4,776,000***	***7,363,000***	***11,303,000***	***16,818,000***
Cultus	*power (juv) (Pi)*	-	*1,000*	*1,000*	*3,000*	*6,000*
Late Shuswap	*RickerCyc*	*3,045,000*	*4,548,000*	*6,923,000*	*10,415,000*	*15,091,000*
Portage	*Larkin*	*22,000*	*44,000*	*102,000*	*234,000*	*479,000*
Weaver	*Ricker PDO*	*38,000*	*78,000*	*150,000*	*318,000*	*655,000*
Birkenhead	*Ricker (Ei)*	*59,000*	*105,000*	*187,000*	*333,000*	*587,000*
Misc Harrison/Lillooet [g]	*R/S*	*10,000*	*18,000*	*35,000*	*67,000*	*116,000*
TOTAL SOCKEYE SALMON		**5,265,000**	**8,423,000**	**13,981,000**	**22,937,000**	**36,893,000**
(TOTAL excluding miscellaneous)		***5,036,000***	***7,921,000***	***12,872,000***	***21,077,000***	***33,545,000***

a. See Table 4 for model descriptions
b. Misc. Early Shuswap uses Scotch & Seymour R/EFS
c. Misc. Taseko uses Chilko R/EFS
d. Misc. Nahatlach uses Early summer-run stocks R/EFS
e. Raft, Harrison, Misc. North Thompson stocks moved to Summer run-timing group
f. Misc. North Thompson stocks use Raft & Fennel R/EFS
g. Misc. Late Run stocks (Harrison Lake down-stream migrants including Big Silver, Cogburn, etc.), and river-type Widgeon use Birkenhead R/EFS