

## 2015 Fraser sockeye escapement options evaluations

### Option 1

Raft North Thompson & Harrison in Summer Run. Variable Late Run LAER. Higher Summer FRPs.

Harvest Rule Parameters						
Management Unit	Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA	
Early Stuart	10%		108,000	270,000	0.68	
Early Summer (w/o misc)	10%	60%	100,000	250,000	0.51	
Summer (w/o misc)	10%	60%	1,000,000	2,500,000	0.18	
Late (w/o misc)	20-30%	60%	300,000	750,000	1.14	

Management Unit	forecast	Pre-season Forecast Return				
		p10	p25	p50	p75	p90
Early Stuart		8,000	16,000	30,000	58,000	108,000
	TAM Rule (%)	0%	0%	0%	0%	0%
	Escapement Target	8,000	16,000	30,000	58,000	108,000
	MA	5,400	10,900	20,400	39,400	73,400
	Esc. Target + MA	13,400	26,900	50,400	97,400	181,400
	LAER	10%	10%	10%	10%	10%
	ER at Return	0%	0%	0%	0%	0%
	Allowable ER	10%	10%	10%	10%	10%
	available harvest	800	1,600	3,000	5,800	10,800

#### 2015 Performance

Projected S (after MA)	4,000	9,000	16,000	31,000	58,000
BY Spawners	800	800	800	800	800
Proj. S as % BY S	500%	1125%	2000%	3875%	7250%
cycle avg S	52,800	52,800	52,800	52,800	52,800
Proj. S as % cycle S	8%	17%	30%	59%	110%

Management Unit	forecast (incl. misc)	Pre-season Forecast Return				
		p10	p25	p50	p75	p90
Early Summer (w/o RNT)		236,000	424,000	837,000	1,603,000	2,963,000
	lower ref. pt. (w misc)	134,000	134,000	134,000	134,000	134,000
	upper ref. pt. (w misc)	335,000	335,000	335,000	335,000	335,000
	TAM Rule (%)	43%	60%	60%	60%	60%
	Escapement Target	134,000	169,600	334,800	641,200	1,185,200
	MA	68,300	86,500	170,700	327,000	604,500
	Esc. Target + MA	202,300	256,100	505,500	968,200	1,789,700
	LAER	10%	10%	10%	10%	10%
	ER at Return	14%	40%	40%	40%	40%
	Allowable ER	14%	40%	40%	40%	40%
	available harvest	33,700	167,900	331,500	634,800	1,173,300

#### 2015 Performance

Projected S (after MA)	134,000	170,000	335,000	641,000	1,185,000
BY Spawners	219,800	219,800	219,800	219,800	219,800
Proj. S as % BY S	61%	77%	152%	292%	539%
cycle avg S	150,647	150,647	150,647	150,647	150,647
Proj. S as % cycle S	89%	113%	222%	425%	787%

Management		Pre-season Forecast Return				
Unit		p10	p25	p50	p75	p90
Summer	<i>lower ref. pt. (w misc)</i>	1,448,000	1,448,000	<b>1,448,000</b>	1,448,000	1,448,000
(w. RNT & Har)	<i>upper ref. pt. (w misc)</i>	3,621,000	3,621,000	<b>3,621,000</b>	3,621,000	3,621,000
	forecast	1,701,000	2,681,000	<b>4,675,000</b>	8,764,000	16,511,000
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	TAM Rule (%)	15%	46%	<b>60%</b>	60%	60%
	Escapement Target	1,448,000	1,448,000	<b>1,870,000</b>	3,505,600	6,604,400
	MA	261,300	261,300	<b>337,500</b>	632,600	1,191,800
	Esc. Target + MA	1,709,300	1,709,300	<b>2,207,500</b>	4,138,200	7,796,200
	LAER	10%	10%	<b>10%</b>	10%	10%
	ER at Return	0%	36%	<b>53%</b>	53%	53%
	Allowable ER	10%	36%	<b>53%</b>	53%	53%
	available harvest	170,100	971,700	<b>2,467,500</b>	4,625,800	8,714,800
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<u>2015 Performance</u>						
	Projected S (after MA)	1,297,000	1,448,000	<b>1,870,000</b>	3,506,000	6,604,000
	BY Spawners	1,866,100	1,866,100	1,866,100	1,866,100	1,866,100
	Proj. S as % BY S	70%	78%	<b>100%</b>	188%	354%
	cycle avg S	778,300	778,300	<b>778,300</b>	778,300	778,300
	Proj. S as % cycle S	167%	186%	<b>240%</b>	450%	849%
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Management		Pre-season Forecast Return				
Unit		p10	p25	p50	p75	p90
Late	<i>lower ref. pt. (w misc)</i>	315,000	315,000	<b>315,000</b>	315,000	315,000
(w/o Har)	<i>upper ref. pt. (w misc)</i>	788,000	788,000	<b>788,000</b>	788,000	788,000
	forecast	419,000	703,000	<b>1,236,000</b>	2,210,000	3,998,000
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	TAM Rule (%)	25%	55%	<b>60%</b>	60%	60%
	Escapement Target	315,000	315,000	<b>494,400</b>	884,000	1,599,200
	MA	359,100	359,100	<b>563,600</b>	1,007,800	1,823,100
	Esc. Target + MA	674,100	674,100	<b>1,058,000</b>	1,891,800	3,422,300
	LAER	20%	20%	<b>20%</b>	30%	30%
	ER at Return	0%	4%	<b>14%</b>	14%	14%
	Allowable ER	20%	20%	<b>20%</b>	30%	30%
	available harvest	83,800	140,600	<b>247,200</b>	663,000	1,199,400
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<u>2015 Performance</u>						
	Projected S (after MA)	157,000	263,000	<b>462,000</b>	723,000	1,308,000
	BY Spawners	493,200	493,200	493,200	493,200	493,200
	Proj. S as % BY S	32%	53%	<b>94%</b>	147%	265%
	cycle avg S	524,000	524,000	<b>524,000</b>	524,000	524,000
	Proj. S as % cycle S	30%	50%	<b>88%</b>	138%	250%
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	Available Harvest (TF, US, CDN)	288,400	1,281,800	<b>3,049,200</b>	5,929,400	11,098,300
	Total projected spawners	1,592,000	1,890,000	<b>2,683,000</b>	4,901,000	9,155,000
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	total escapement goal	1,905,000	1,948,600	2,729,200	5,088,800	9,496,800

# 2015 Projected Total Escapement

Option 1

Run timing group Stocks	Total Escapement		Projected esc. across range of run size forecasts at special comparisons @p50					to cycle to BY	
	cycle yr	brood yr	10%	25%	50%	75%	90%		
<b>Early Stuart</b>	<b>52,800</b>	<b>800</b>	<b>4,000</b>	<b>9,000</b>	<b>16,000</b>	<b>31,000</b>	<b>58,000</b>	30%	2000%
<b>Early Summer</b>			134,000	170,000	335,000	641,000	1,185,000		
<b>(total excluding misc.)</b>	<b>133,500</b>	<b>185,900</b>	<b>109,000</b>	<b>130,300</b>	<b>249,700</b>	<b>502,200</b>	<b>936,600</b>		
Bowron	17,600	4,100	3,400	4,400	8,400	16,000	28,800	48%	205%
Fennell (cycle avg since 1974)	10,900	9,900	5,700	6,400	10,800	18,800	31,200	99%	109%
Gates	7,800	55,900	26,100	31,700	56,400	112,000	200,800	723%	101%
Nadina	19,000	10,100		6,000	12,400	26,000	50,400	65%	123%
Pitt	28,000	56,000	18,700	20,400	31,600	48,000	76,000	113%	56%
Scotch (cycle avg since 1983)	9,800	33,800	27,300	34,100	74,000	171,900	337,900	755%	219%
Seymour	40,400	16,100	23,300	27,300	56,000	109,600	211,600	139%	348%
Misc (EShu & Taseko)									
Misc (Chilliwack)									
Misc (Nahatlatch)									
<b>Summer</b>			1,297,000	1,448,000	1,870,000	3,506,000	6,604,000		
<b>(tl excl. NThmisc, incl. Har)</b>	<b>778,300</b>	<b>1,866,100</b>	<b>1,290,900</b>	<b>1,439,900</b>	<b>1,859,200</b>	<b>3,484,400</b>	<b>6,562,000</b>		
Chilko g	502,500	916,600	851,700	857,100	954,800	1,525,400	2,388,700	190%	104%
Late Stuart	19,900	3,800	9,100	13,500	21,600	47,200	98,000	109%	568%
Quesnel	58,400	45,500	82,300	106,400	146,800	273,600	568,400	251%	323%
Stellako	117,500	85,400	141,800	141,000	156,000	220,800	329,200	133%	183%
Raft h	5,100	9,200	11,400	12,400	14,400	22,400	34,800	282%	157%
Harrison	74,900	805,600	194,400	309,500	565,600	1,395,000	3,143,000	755%	70%
Misc (N. Thomp. Tribs)									
Misc (N. Thomp River)									
<b>Late</b>			157,000	263,000	462,000	723,000	1,308,000		
<b>(total excluding misc.)</b>	<b>518,000</b>	<b>474,000</b>	<b>149,900</b>	<b>251,000</b>	<b>439,600</b>	<b>688,000</b>	<b>1,246,200</b>		
Cultus (high hatchery contrib.)	18,300	6,900	400	1,100	2,200	3,900	7,200	12%	32%
Late Shuswap	361,600	165,700	63,000	109,600	193,300	302,300	575,200	53%	117%
Portage	4,100	1,100	400	1,100	3,000	6,200	18,000	73%	273%
Weaver	34,100	72,600	41,200	70,700	129,300	207,700	358,300	379%	178%
Birkenhead	99,900	227,700	45,000	68,500	111,800	167,800	287,600	112%	49%

greater than 125%

less than 75%

## 2015 Fraser sockeye escapement options evaluations

### Option 2

Raft North Thompson & Harrison in Summer Run. Variable Late Run LAER. 65% TAM cap.

Harvest Rule Parameters						
Management Unit	Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA	
Early Stuart	10%		108,000	270,000	0.68	
Early Summer (w/o misc)	10%	65%	100,000	286,000	0.51	
Summer (w/o misc)	10%	65%	540,000	1,543,000	0.18	
Late (w/o misc)	20-30%	65%	300,000	857,000	1.14	

Management Unit	forecast	Pre-season Forecast Return				
		p10	p25	p50	p75	p90
Early Stuart		8,000	16,000	<b>30,000</b>	58,000	108,000
	TAM Rule (%)	0%	0%	<b>0%</b>	0%	0%
	Escapement Target	8,000	16,000	<b>30,000</b>	58,000	108,000
	MA	5,400	10,900	<b>20,400</b>	39,400	73,400
	Esc. Target + MA	13,400	26,900	<b>50,400</b>	97,400	181,400
	LAER	10%	10%	<b>10%</b>	10%	10%
	ER at Return	0%	0%	<b>0%</b>	0%	0%
	Allowable ER	10%	10%	<b>10%</b>	10%	10%
	available harvest	800	1,600	<b>3,000</b>	5,800	10,800

#### 2015 Performance

Projected S (after MA)	4,000	9,000	<b>16,000</b>	31,000	58,000
BY Spawners	800	800	<b>800</b>	800	800
Proj. S as % BY S	500%	1125%	<b>2000%</b>	3875%	7250%
cycle avg S	52,800	52,800	<b>52,800</b>	52,800	52,800
Proj. S as % cycle S	8%	17%	<b>30%</b>	59%	110%

Management Unit	forecast	Pre-season Forecast Return				
		p10	p25	p50	p75	p90
Early Summer (w/o RNT)	lower ref. pt. (w misc)	134,000	134,000	134,000	134,000	134,000
	upper ref. pt. (w misc)	384,000	384,000	384,000	384,000	384,000
	forecast (incl. misc)	236,000	424,000	837,000	1,603,000	2,963,000
	TAM Rule (%)	43%	65%	<b>65%</b>	65%	65%
	Escapement Target	134,000	148,400	<b>292,950</b>	561,050	1,037,050
	MA	68,300	75,700	<b>149,400</b>	286,100	528,900
	Esc. Target + MA	202,300	224,100	<b>442,350</b>	847,150	1,565,950
	LAER	10%	10%	<b>10%</b>	10%	10%
	ER at Return	14%	47%	<b>47%</b>	47%	47%
	Allowable ER	14%	47%	<b>47%</b>	47%	47%
	available harvest	33,700	199,900	<b>394,650</b>	755,850	1,397,050

#### 2015 Performance

Projected S (after MA)	134,000	148,000	<b>293,000</b>	561,000	1,037,000
BY Spawners	219,800	219,800	<b>219,800</b>	219,800	219,800
Proj. S as % BY S	61%	67%	<b>133%</b>	255%	472%
cycle avg S	150,647	150,647	<b>150,647</b>	150,647	150,647
Proj. S as % cycle S	89%	98%	<b>194%</b>	372%	688%

Management		Pre-season Forecast Return				
Unit		p10	p25	p50	p75	p90
Summer	<i>lower ref. pt. (w misc)</i>	782,000	782,000	<b>782,000</b>	782,000	782,000
(w. RNT & Har)	<i>upper ref. pt. (w misc)</i>	2,235,000	2,235,000	<b>2,235,000</b>	2,235,000	2,235,000
	forecast	1,701,000	2,681,000	<b>4,675,000</b>	8,764,000	16,511,000
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	TAM Rule (%)	54%	65%	<b>65%</b>	65%	65%
	Escapement Target	782,000	938,350	<b>1,636,250</b>	3,067,400	5,778,850
	MA	141,100	169,300	<b>295,300</b>	553,500	1,042,900
	Esc. Target + MA	923,100	1,107,650	<b>1,931,550</b>	3,620,900	6,821,750
	LAER	10%	10%	<b>10%</b>	10%	10%
	ER at Return	46%	59%	<b>59%</b>	59%	59%
	Allowable ER	46%	59%	<b>59%</b>	59%	59%
	available harvest	777,900	1,573,350	<b>2,743,450</b>	5,143,100	9,689,250
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<u>2015 Performance</u>						
	Projected S (after MA)	782,000	938,000	<b>1,636,000</b>	3,067,000	5,779,000
	BY Spawners	1,866,100	1,866,100	1,866,100	1,866,100	1,866,100
	Proj. S as % BY S	42%	50%	<b>88%</b>	164%	310%
	cycle avg S	778,300	778,300	<b>778,300</b>	778,300	778,300
	Proj. S as % cycle S	100%	121%	<b>210%</b>	394%	743%
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Management		Pre-season Forecast Return				
Unit		p10	p25	p50	p75	p90
Late	<i>lower ref. pt. (w misc)</i>	315,000	315,000	<b>315,000</b>	315,000	315,000
(w/o Har)	<i>upper ref. pt. (w misc)</i>	901,000	901,000	<b>901,000</b>	901,000	901,000
	forecast	419,000	703,000	<b>1,236,000</b>	2,210,000	3,998,000
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	TAM Rule (%)	25%	55%	<b>65%</b>	65%	65%
	Escapement Target	315,000	315,000	<b>432,600</b>	773,500	1,399,300
	MA	359,100	359,100	<b>493,200</b>	881,800	1,595,200
	Esc. Target + MA	674,100	674,100	<b>925,800</b>	1,655,300	2,994,500
	LAER	20%	20%	<b>20%</b>	30%	30%
	ER at Return	0%	4%	<b>25%</b>	25%	25%
	Allowable ER	20%	20%	<b>25%</b>	30%	30%
	available harvest	83,800	140,600	<b>310,200</b>	663,000	1,199,400
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<u>2015 Performance</u>						
	Projected S (after MA)	157,000	263,000	<b>433,000</b>	723,000	1,308,000
	BY Spawners	493,200	493,200	493,200	493,200	493,200
	Proj. S as % BY S	32%	53%	<b>88%</b>	147%	265%
	cycle avg S	524,000	524,000	<b>524,000</b>	524,000	524,000
	Proj. S as % cycle S	30%	50%	<b>83%</b>	138%	250%
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	Available Harvest (TF, US, CDN)	896,200	1,915,450	<b>3,451,300</b>	6,567,750	12,296,500
	Total projected spawners	1,077,000	1,358,000	<b>2,378,000</b>	4,382,000	8,182,000
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	total escapement goal	1,239,000	1,417,750	2,391,800	4,459,950	8,323,200

# 2015 Projected Total Escapement

Option 2

Run timing group Stocks	Total Escapement		Projected esc. across range of run size forecasts at spec					comparisons @p50	
	cycle yr	brood yr	10%	25%	50%	75%	90%	to cycle	to BY
<b>Early Stuart</b>	<b>52,800</b>	<b>800</b>	<b>4,000</b>	<b>9,000</b>	<b>16,000</b>	<b>31,000</b>	<b>58,000</b>	30%	2000%
<b>Early Summer</b>			134,000	148,000	293,000	561,000	1,037,000		
<b>(total excluding misc.)</b>	<b>133,500</b>	<b>185,900</b>	<b>109,000</b>	<b>113,400</b>	<b>218,400</b>	<b>439,600</b>	<b>819,700</b>		
Bowron	17,600	4,100	3,400	3,800	7,400	14,000	25,200	42%	180%
Fennell (cycle avg since 1974)	10,900	9,900	5,700	5,600	9,500	16,500	27,300	87%	96%
Gates	7,800	55,900	26,100	27,600	49,400	98,000	175,700	633%	88%
Nadina	19,000	10,100		5,200	10,900	22,800	44,100	57%	108%
Pitt	28,000	56,000	18,700	17,800	27,700	42,000	66,500	99%	49%
Scotch (cycle avg since 1983)	9,800	33,800	27,300	29,700	64,800	150,500	295,800	661%	192%
Seymour	40,400	16,100	23,300	23,700	49,000	95,900	185,200	121%	304%
Misc (EShu & Taseko)									
Misc (Chilliwack)									
Misc (Nahatlatch)									
<b>Summer</b>			782,000	938,000	1,636,000	3,067,000	5,779,000		
<b>(tl excl. NThmisc, incl. Har)</b>	<b>778,300</b>	<b>1,866,100</b>	<b>778,300</b>	<b>932,800</b>	<b>1,626,600</b>	<b>3,048,100</b>	<b>5,742,200</b>		
Chilko g	502,500	916,600	513,500	555,300	835,300	1,334,400	2,090,200	166%	91%
Late Stuart	19,900	3,800	5,500	8,700	18,900	41,300	85,800	95%	497%
Quesnel	58,400	45,500	49,600	68,900	128,400	239,400	497,400	220%	282%
Stellako	117,500	85,400	85,500	91,300	136,500	193,200	288,100	116%	160%
Raft h	5,100	9,200	6,900	8,000	12,600	19,600	30,500	247%	137%
Harrison	74,900	805,600	117,200	200,500	494,800	1,220,300	2,750,300	661%	61%
Misc (N. Thomp. Tribs)									
Misc (N. Thomp River)									
<b>Late</b>			157,000	263,000	433,000	723,000	1,308,000		
<b>(total excluding misc.)</b>	<b>518,000</b>	<b>474,000</b>	<b>149,900</b>	<b>251,000</b>	<b>412,000</b>	<b>688,000</b>	<b>1,246,200</b>		
Cultus (high hatchery contrib.)	18,300	6,900	400	1,100	2,100	3,900	7,200	11%	30%
Late Shuswap	361,600	165,700	63,000	109,600	181,100	302,300	575,200	50%	109%
Portage	4,100	1,100	400	1,100	2,800	6,200	18,000	68%	255%
Weaver	34,100	72,600	41,200	70,700	121,200	207,700	358,300	355%	167%
Birkenhead	99,900	227,700	45,000	68,500	104,800	167,800	287,600	105%	46%

greater than 125%

less than 75%