Skeena Sockeye Test Fishery DNA (2015): Report to PSC. March 4, 2016

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Introduction

The Tyee gill-net test fishery at the mouth of the Skeena River provides daily estimates of the number of sockeye entering (escaping) into the Skeena River each year from mid-June through August. The annual escapement is comprised of numerous sockeye sub-stocks each with its own entry timing (early, mid, late etc). A key component of Skeena sockeye management is estimating annual abundance and harvest/exploitation rates on sub-stocks so that fisheries can be managed with consideration for sub-stock structure rather than just simple aggregate-stock abundance. Currently, estimating catch and escapement for each stock is very difficult as visual escapement assessments are of variable quality and estimates of the catch by stock in various fisheries are not complete. An alternative strategy is to sample (proportionate to abundance) sockeye captured at the test fishing site and determine their stock of origin using microsatelite DNA stock identification techniques (Beacham et al, 2014). Given escapement counts of known accuracy for several Skeena tributary systems, and known proportions of these stocks in the escapement samples from Tyee, allows estimation of escapement to each specific sockeye stock within the Skeena River drainage. As well, stock composition estimates from the Tyee test fishery allow for stock-specific run-reconstruction back through mixed-stock marine fisheries in the Canada and S.S.E Alaskan PSC Northern Boundary Area approach waters. These analyses provide reconstructed run-timing distributions, catch estimates, and harvest rates by sub-stock which are vital to understanding migration routes, timing, and impacts by specific fisheries. To date, sockeye DNA analysis for the Tyee test fishery includes the years 2000-2015…continuation of this program through 2016 is scheduled.

Methods

Sockeye tissue samples (tissues on Whatman paper) were collected proportionate to abundance from fish captured at the Tyee Test Fishery in 2015 following previously established sampling protocols. The tissue samples were shipped to the PBS lab in Nanaimo for analysis (Terry Beacham/John Candy, DFO, Nanaimo). A complete overview of the analytical process followed for Tyee Test Fishery DNA analysis can in the attached references, with their citation lists summarizing relevant methodologies and processing logistics.

Results

Table1 shows the weekly numbers of sockeye samples run for genetic analysis for samples collected at Tyee in 2015. Table 2 summarizes the weekly stock proportions for sockeye sampled at the Tyee test fishery in 2015, Table 3 shows the regional summary by week; ~500 samples, sub-sampled from the total collected in 2015, were run for analysis. An assessment of all the 2000-2015 Tyee test fishery data is now being made to determine annual variability in stock-specific run-timing and abundance patterns.

References

Beacham, T. D., and C. E. Withler, and K. M. Miller. 2000. Application of microsatellite DNA variation to estimation of stock composition and escapement of Skeena River sockeye salmon (Oncorhynchus nerka). . North Pacific Anadromous Fish Commission Bulletin 2: 263-276.

Terry D. Beacham, Steven Cox-Rogers, Cathy MacConnachie, Brenda McIntosh & Colin G. Wallace (2014) Population Structure and Run Timing of Sockeye Salmon in the Skeena River, British Columbia, North American Journal of Fisheries Management, 34:2, 335-348

Table 1. Weekly selected samples for sockeye sampled at the Tyee test fishery in 2015.

Species = Sockeye Number of populations = 25 Baseline Description = All_Pacific_161014 Number of loci = 14 Max missing loci = 5							
Number of chains = 10 Number of Reps = 20000 Reps Kept = 1000							
Sample	Vial ID	Year	Gear	Area	Mix Date	N	Excluded
1	161-167	2015	gill	SkeenaTest	'Jun10-16	2	0
2	168-174	2015	gill	SkeenaTest	'Jun17-23	4	0
3	175-181	2015	gill	SkeenaTest	'Jun24-30	9	0
4	182-187	2015	gill	SkeenaTest	'July1-7	21	0
5	188-195	2015	gill	SkeenaTest	'July8-14	42	0
6	196-202	2015	gill	SkeenaTest	'July15-21	72	0
7	203-209	2015	gill	SkeenaTest	'July22-28	73	0
8	210-215	2015	gill	SkeenaTest	'July29-Aug	59	0
9	216-223	2015	gill	SkeenaTest	'Aug5-11	74	0
10	224-230	2015	gill	SkeenaTest	'Aug12-18	44	0
11	231-237	2015	gill	SkeenaTest	'Aug19-25	48	0
12	238-244	2015	gill	SkeenaTest	'Aug26-Sep	27	0
13	245-251	2015	gill	SkeenaTest	'Sept2-8	11	0
14	252-258	2015	gill	SkeenaTest	'Sept9-15	7	0
15	161-258	2015	gill	SkeenaTest	'Jun10-Sept	493	0

Table 2. Weekly stock proportions for sockeye sampled at the Tyee test fishery in 2015.

		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest	
		StatWk62		StatWk63		StatWk64		StatWk71		StatWk72		StatWk73		StatWk74		StatWk75		StatWk81		StatWk82		StatWk83		StatWk84		StatWk91		StatWk92		StatWk62-92	
		'Jun10-16		'Jun17-23		'Jun24-30		'July1-7		'July8-14		'July15-21		'July22-28		'July29-Aug4		'Aug5-11		'Aug12-18		'Aug19-25		'Aug26-Sept1		'Sept2-8		'Sept9-15		'Jun10-Sept1	
		2(0)		4(0)		9(0)		21(0)		42(0)		72(0)		73(0)		59(0)		74(0)		44(0)		48(0)		27(0)		11(0)		7(0)		493(0)	
Code	Stock	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD
79	Alastair	50.0	(23.2)	25.1	(16.6)	0.0	(1.6)	4.8	(4.4)	7.2	(3.8)	1.4	(1.4)	0.0	(0.2)	0.1	(0.7)	0.0	(0.2)	2.2	(2.2)	2.2	(2.1)	0.0	(0.7)	8.7	(7.5)	0.0	(2.1)	2.2	(0.7)
82	Kalum	0.0	(4.6)	0.0	(3.4)	1.8	(5.1)	0.6	(1.9)	0.8	(2.3)	1.2	(1.5)	0.0	(0.4)	0.0	(0.3)	3.3	(2.2)	0.0	(0.4)	0.7	(1.6)	0.0	(0.6)	0.5	(3.2)	0.0	(2.1)	1.1	(0.8)
436	Kalum_lake	0.0	(5.3)	0.0	(3.5)	2.2	(5.7)	4.2	(4.5)	2.7	(3.0)	0.1	(0.6)	0.0	(0.2)	0.0	(0.3)	0.1	(0.7)	0.0	(0.4)	0.9	(1.7)	0.0	(0.7)	0.3	(3.2)	0.0	(2.6)	0.4	(0.6)
80	Kitwanga	0.0	(6.3)	0.0	(3.2)	0.0	(1.9)	0.0	(0.7)	2.4	(2.3)	0.0	(0.3)	0.0	(0.3)	0.0	(0.3)	0.0	(0.3)	2.1	(2.3)	0.0	(0.3)	3.7	(3.3)	0.0	(1.7)	0.0	(1.9)	0.6	(0.4)
65	McDonnell	45.5	(24.7)	0.0	(3.4)	0.0	(2.0)	0.0	(0.6)	1.9	(2.2)	0.0	(0.3)	2.7	(1.9)	0.0	(0.3)	4.0	(2.3)	0.0	(0.4)	0.1	(0.6)	0.0	(0.7)	0.0	(1.4)	0.0	(2.6)	1.5	(0.6)
76	Schulbuckhand	0.0	(5.7)	0.0	(3.6)	0.0	(1.7)	0.6	(2.2)	4.6	(3.2)	1.4	(2.6)	0.3	(0.9)	0.0	(0.3)	0.0	(0.2)	0.0	(0.4)	0.0	(0.3)	0.0	(0.6)	0.0	(1.8)	0.0	(2.6)	0.6	(0.7)
289	Stephens_Kispox	0.0	(4.4)	0.0	(3.0)	0.0	(2.1)	3.5	(4.2)	2.4	(2.5)	2.2	(2.0)	0.0	(0.2)	0.5	(1.2)	0.0	(0.2)	0.0	(0.5)	0.0	(0.4)	0.0	(0.5)	0.0	(1.7)	0.0	(2.4)	1.0	(0.5)
68	Swan_Kispox	0.0	(5.0)	0.0	(3.4)	0.0	(1.3)	0.6	(2.2)	0.2	(1.2)	0.5	(1.2)	0.0	(0.3)	0.8	(1.3)	0.0	(0.2)	0.0	(0.6)	0.0	(0.4)	0.0	(0.5)	0.0	(1.4)	0.0	(2.0)	0.0	(0.1)
75	Williams	0.0	(6.4)	0.0	(2.6)	0.0	(1.6)	4.2	(4.3)	0.2	(1.0)	4.2	(3.1)	1.0	(1.3)	0.0	(0.3)	0.0	(0.3)	0.0	(0.4)	0.0	(0.3)	0.0	(0.6)	0.0	(1.2)	0.0	(2.2)	1.1	(0.8)
465	Damshilqwit	0.0	(5.1)	0.0	(3.9)	0.0	(2.0)	0.4	(2.3)	0.0	(0.4)	0.5	(1.2)	0.0	(0.4)	0.0	(0.4)	0.0	(0.2)	1.3	(2.0)	1.1	(2.0)	0.0	(0.7)	0.0	(1.5)	0.0	(2.9)	0.1	(0.2)
66	Motase	0.0	(5.3)	0.0	(3.6)	0.0	(2.0)	0.0	(1.0)	0.0	(0.4)	0.0	(0.2)	0.0	(0.3)	0.0	(0.3)	0.0	(0.2)	0.0	(0.4)	0.0	(0.5)	0.0	(0.5)	0.0	(1.5)	0.0	(1.6)	0.0	(0.1)
78	SalixBear	0.0	(5.4)	0.0	(4.0)	0.0	(2.0)	4.5	(4.9)	0.9	(1.9)	5.8	(2.9)	0.5	(1.1)	1.5	(1.8)	0.0	(0.2)	0.4	(1.4)	0.8	(2.1)	0.0	(0.7)	0.0	(1.6)	0.0	(2.1)	2.3	(0.7)
470	Slamgeesh	0.0	(5.3)	0.0	(2.5)	0.0	(2.4)	0.1	(1.0)	0.0	(0.5)	0.1	(0.6)	0.0	(0.4)	0.1	(0.6)	0.0	(0.3)	0.7	(1.6)	0.8	(1.8)	0.0	(0.6)	0.0	(1.4)	0.0	(2.5)	0.0	(0.1)
173	Sustut	0.0	(6.0)	0.0	(4.3)	0.0	(2.3)	0.0	(0.8)	0.0	(0.4)	1.4	(1.4)	0.0	(0.2)	0.0	(0.4)	0.0	(0.2)	0.0	(0.4)	0.0	(0.4)	0.0	(0.6)	0.0	(1.8)	0.0	(2.0)	0.2	(0.2)
73	Nanika	0.0	(5.7)	0.0	(3.5)	10.9	(9.9)	0.0	(1.0)	0.0	(0.5)	7.0	(2.9)	2.5	(2.1)	0.0	(0.3)	1.4	(1.4)	0.0	(0.4)	2.1	(2.0)	0.0	(0.7)	0.0	(1.4)	0.0	(2.1)	1.9	(0.6)
123	Four_Mile	0.0	(6.4)	8.2	(15.3)	6.8	(15.7)	1.6	(6.4)	8.0	(11.2)	8.3	(10.4)	2.6	(5.2)	14.3	(11.9)	0.4	(1.8)	16.3	(12.0)	1.6	(4.1)	0.2	(1.6)	2.5	(6.7)	1.4	(6.8)	6.7	(4.1)
71	Fulton_L	0.0	(4.7)	3.3	(9.7)	25.5	(22.1)	0.7	(2.5)	24.6	(15.0)	31.7	(10.5)	29.8	(19.5)	20.3	(15.1)	34.5	(14.5)	49.2	(15.3)	8.3	(13.1)	4.1	(10.3)	45.1	(32.4)	2.1	(7.4)	22.0	(5.9)
72	L_Babine	0.0	(6.1)	2.0	(7.8)	0.6	(4.1)	0.1	(1.0)	8.1	(8.6)	0.1	(0.8)	9.5	(8.2)	1.2	(3.3)	0.4	(1.8)	0.8	(2.7)	13.3	(12.4)	0.5	(2.3)	2.0	(6.6)	57.4	(30.7)	1.3	(1.9)
74	Morrison	0.0	(5.6)	7.0	(16.1)	3.3	(10.0)	7.3	(12.4)	2.2	(6.1)	2.4	(5.8)	16.1	(17.6)	43.4	(13.4)	32.1	(12.2)	1.9	(6.6)	36.8	(16.4)	26.9	(21.4)	14.2	(21.0)	4.9	(12.0)	26.7	(6.2)
77	Pierre	0.0	(6.8)	5.2	(14.6)	12.4	(19.3)	64.2	(15.6)	12.7	(10.8)	28.4	(10.2)	11.2	(10.9)	1.0	(3.0)	0.5	(1.5)	4.7	(7.1)	0.2	(1.4)	48.7	(16.1)	20.3	(25.3)	5.5	(13.5)	10.9	(3.2)
70	Pinkut	0.0	(5.7)	18.9	(21.6)	1.5	(5.6)	0.4	(2.2)	3.5	(6.7)	0.4	(1.6)	3.1	(6.6)	12.0	(13.1)	2.2	(4.8)	0.4	(1.9)	2.7	(5.6)	6.5	(12.8)	0.6	(3.8)	2.1	(7.1)	5.3	(3.1)
67	Shass	0.0	(5.5)	1.5	(7.7)	31.7	(20.9)	0.6	(3.1)	7.9	(7.2)	0.2	(1.1)	7.1	(7.3)	0.5	(1.9)	0.6	(2.2)	0.3	(1.5)	0.3	(1.6)	2.6	(5.3)	0.2	(2.7)	3.0	(8.8)	2.1	(1.9)
125	Tahlo	0.0	(5.9)	25.9	(24.1)	0.5	(3.1)	0.8	(3.0)	0.2	(1.2)	1.2	(3.4)	9.3	(8.9)	1.0	(3.1)	5.7	(6.7)	5.2	(8.5)	1.3	(4.1)	0.3	(1.5)	0.4	(3.0)	7.9	(13.8)	2.7	(2.9)
118	Twain_Cr	0.0	(4.6)	0.9	(5.0)	1.7	(6.0)	0.1	(1.2)	6.0	(8.1)	0.0	(0.5)	0.1	(0.9)	0.1	(0.9)	0.0	(0.4)	0.1	(0.8)	0.2	(1.2)	1.7	(4.5)	0.4	(2.9)	2.1	(6.9)	0.0	(0.2)
69	U_Babine	0.0	(6.7)	2.0	(8.5)	0.6	(3.4)	0.3	(1.9)	2.6	(5.5)	1.4	(3.1)	3.8	(6.9)	2.5	(5.2)	14.7	(9.6)	14.5	(11.1)	25.7	(11.2)	0.6	(3.0)	4.2	(11.0)	13.1	(23.2)	9.3	(3.0)

Table 3. Regional weekly stock proportions for sockeye sampled at the Tyee test fishery in 2015.

Species = Sockeye Number of populations = 25 Baseline Description = All_Pacific_161014 Number of loci = 14 Max missing loci = 5																																	
Number of chains = 10 Number of Reps = 20000 Reps Kept = 1000																																	
		2015		2015		2015		2015		2015		2015		2015		2015		2015		2015		2015		2015		2015		2015		2015		2015		2015	
		161-167		168-174		175-181		182-187		188-195		196-202		203-209		210-215		216-223		224-230		231-237		238-244		245-251		252-258		161-258			
		gill		gill		gill		gill		gill		gill		gill		gill		gill		gill		gill		gill		gill		gill		gill			
		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest		SkeenaTest			
		StatWk62		StatWk63		StatWk64		StatWk71		StatWk72		StatWk73		StatWk74		StatWk75		StatWk81		StatWk82		StatWk83		StatWk84		StatWk91		StatWk92		StatWk62-92			
		'Jun10-16		'Jun17-23		'Jun24-30		'July1-7		'July8-14		'July15-21		'July22-28		'July29-Aug4		'Aug5-11		'Aug12-18		'Aug19-25		'Aug26-Sept1		'Sept2-8		'Sept9-15		'Jun10-Sept15			
		2(0)		4(0)		9(0)		21(0)		42(0)		72(0)		73(0)		59(0)		74(0)		44(0)		48(0)		27(0)		11(0)		7(0)		493(0)			
Code	Region1	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD	Estima	SD		
10	Lower Skeena	100.0	(21.5)	25.1	(18.2)	4.0	(8.7)	18.5	(8.2)	22.8	(6.5)	11.0	(3.7)	4.1	(2.4)	1.4	(2.0)	7.5	(3.2)	4.4	(3.5)	3.9	(3.1)	3.7	(3.8)	9.6	(8.8)	0.0	(7.1)	8.4	(1.3)		
11	Upper Skeena	0.0	(11.7)	0.0	(8.2)	0.0	(4.8)	4.9	(5.4)	1.0	(2.1)	7.8	(3.2)	0.6	(1.2)	1.6	(2.0)	0.0	(0.5)	2.4	(2.4)	2.8	(2.8)	0.0	(1.3)	0.0	(3.5)	0.0	(5.0)	2.6	(0.7)		
12	Bulkley	0.0	(5.7)	0.0	(3.5)	10.9	(9.9)	0.0	(1.0)	0.0	(0.5)	7.0	(2.9)	2.5	(2.1)	0.0	(0.3)	1.4	(1.4)	0.0	(0.4)	2.1	(2.0)	0.0	(0.7)	0.0	(1.4)	0.0	(2.1)	1.9	(0.6)		
13	Babine	0.0	(17.3)	74.8	(18.9)	84.6	(13.8)	76.1	(8.8)	75.9	(6.8)	74.1	(5.1)	92.8	(3.2)	96.3	(3.0)	91.1	(3.5)	93.2	(4.2)	90.6	(4.5)	92.3	(5.6)	89.9	(9.9)	99.7	(9.3)	87.0	(1.5)		
Code	Region2																																
1	Alastair Lake	50.0	(23.2)	25.1	(16.6)	0.0	(1.6)	4.8	(4.4)	7.2	(3.8)	1.4	(1.4)	0.0	(0.2)	0.1	(0.7)	0.0	(0.2)	2.2	(2.2)	2.2	(2.1)	0.0	(0.7)	8.7	(7.5)	0.0	(2.1)	2.2	(0.7)		
2	Lakelse Lake	0.0	(8.6)	0.0	(4.3)	0.0	(2.3)	4.8	(4.3)	4.8	(3.2)	5.6	(2.7)	1.4	(1.4)	0.0	(0.5)	0.0	(0.4)	0.0	(0.6)	0.0	(0.5)	0.0	(0.8)	0.0	(2.2)	0.0	(3.5)	1.6	(0.6)		
3	Zymoetz River	50.0	(23.7)	0.0	(5.3)	0.0	(2.6)	0.0	(1.0)	2.4	(2.3)	0.0	(0.3)	2.7	(1.9)	0.0	(0.6)	4.1	(2.3)	0.0	(0.7)	0.1	(0.8)	0.0	(1.0)	0.0	(2.0)	0.0	(3.3)	1.5	(0.6)		
4	Kitwanga Lake	0.0	(6.3)	0.0	(3.2)	0.0	(1.9)	0.0	(0.7)	2.4	(2.3)	0.0	(0.3)	0.0	(0.3)	0.0	(0.3)	0.0	(0.3)	2.1	(2.3)	0.0	(0.3)	3.7	(3.3)	0.0	(1.7)	0.0	(1.9)	0.6	(0.4)		
5	Kitsumkalum Lake	0.0	(7.0)	0.0	(4.9)	4.0	(7.2)	4.8	(4.5)	3.5	(3.2)	1.4	(1.5)	0.0	(0.4)	0.0	(0.4)	3.4	(2.2)	0.0	(0.6)	1.7	(2.0)	0.0	(0.9)	0.8	(4.4)	0.0	(3.3)	1.5	(0.6)		
6	Kispiox River-lake	0.0	(6.7)	0.0	(4.5)	0.0	(2.5)	4.2	(4.3)	2.6	(2.5)	2.7	(1.9)	0.0	(0.4)	1.2	(1.6)	0.0	(0.3)	0.0	(0.8)	0.0	(0.6)	0.0	(0.7)	0.0	(2.2)	0.0	(3.1)	1.0	(0.5)		
8	Motase Lake	0.0	(5.3)	0.0	(3.6)	0.0	(2.0)	0.0	(1.0)	0.0	(0.4)	0.0	(0.2)	0.0	(0.3)	0.0	(0.3)	0.0	(0.2)	0.0	(0.4)	0.0	(0.5)	0.0	(0.5)	0.0	(1.5)	0.0	(1.6)	0.0	(0.1)		
9	Morice Lake	0.0	(5.7)	0.0	(3.5)	10.9	(9.9)	0.0	(1.0)	0.0	(0.5)	7.0	(2.9)	2.5	(2.1)	0.0	(0.3)	1.4	(1.4)	0.0	(0.4)	2.1	(2.0)	0.0	(0.7)	0.0	(1.4)	0.0	(2.1)	1.9	(0.6)		
10	Bear Lake	0.0	(5.4)	0.0	(4.0)	0.0	(2.0)	4.5	(4.9)	0.9	(1.9)	5.8	(2.9)	0.5	(1.1)	1.5	(1.8)	0.0	(0.2)	0.4	(1.4)	0.8	(2.1)	0.0	(0.7)	0.0	(1.6)	0.0	(2.1)	2.3	(0.7)		
11	Sustut Lake	0.0	(6.0)	0.0	(4.3)	0.0	(2.3)	0.0	(0.8)	0.0	(0.4)	1.4	(1.4)	0.0	(0.2)	0.0	(0.4)	0.0	(0.2)	0.0	(0.4)	0.0	(0.4)	0.0	(0.6)	0.0	(1.8)	0.0	(2.0)	0.2	(0.2)		
12	Slamgeesh River	0.0	(7.3)	0.0	(4.6)	0.0	(3.1)	0.5	(2.5)	0.0	(0.7)	0.6	(1.4)	0.1	(0.5)	0.1	(0.7)	0.0	(0.4)	1.9	(2.3)	1.9	(2.3)	0.0	(0.9)	0.0	(2.1)	0.0	(3.8)	0.1	(0.2)		
13	Babine Lake	0.0	(17.3)	74.8	(18.9)	84.6	(13.8)	76.1	(8.8)	75.9	(6.8)	74.1	(5.1)	92.8	(3.2)	96.3	(3.0)	91.1	(3.5)	93.2	(4.2)	90.6	(4.5)	92.3	(5.6)	89.9	(9.9)	99.7	(9.3)	87.0	(1.5)		

Budgeting

Of the $21,600 CDN assigned to this project, $10,000 CDN was spent on the analysis. The remaining budget surplus of $11,600 will be returned to the fund. The underage spending in 2015 relates to the lower-than-anticipated run size for Skeena sockeye which resulted in fewer samples being collected and analyzed.

The DFO allocator account information for this work, current to March 4, 2016, is:

5G500 810 750 57365 10,000 (Source. T. Beacham)

Project Evaluation

DFO will complete an overall evaluation report at the end of the project and will consider such things as:

Project Evaluation

DFO will complete an overall evaluation report at the end of the project and will consider such things as: Answers: Yes to #1-5, No to #6

1. Did the intended activities take place within scope, within budget?
2. Were the resources allocated in the most efficient and effective manner, or given the results would a different allocation have been more appropriate, and if so will be considered for any potential future projects as applicable?
3. Were the milestones achieved?
4. Were the deliverables of the project delivered?

5. Did the collaboration achieve its purpose?
6. Were there any difficulties encountered within the performance of the project and if so, how were they managed to achieve resolution?

Budget Summary by Fiscal Year April 1, 2015 – March 31, 2016

Fiscal Year – 2015-2016	**PSC**	**DFO**	**Total**
Description	**Financial Contribution to DFO***	**Direct Share of Costs**	**Total**
Lab processing			
500 fish samples @	**10,000**		
$20.00/sample (CDN)			
Original projection	**($21,600)**		
Was 1080 samples			
Grand Total	**10,000**	**0**	**10,000**