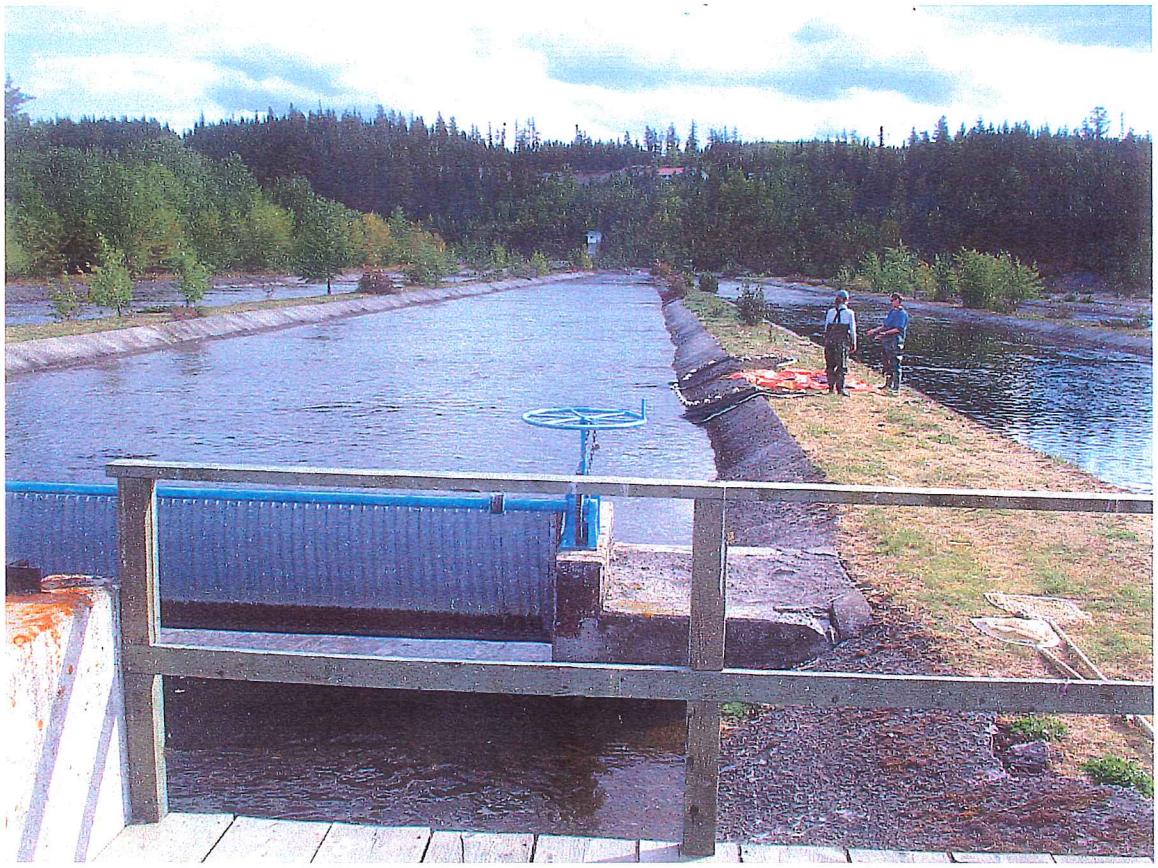
Sockeye Parasite Sampling Program : 2006
At Fulton, Pinkut and Nadina Spawning Channels and the Babine River Fence



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Introduction

A sockeye parasite sampling program was initiated in 1996 to monitor the infection rate of *Ichthyophthirius multifilis* (*Ich*) on Fulton, Pinkut and Nadina sockeye entering the spawning channels on each of those river systems. Annual parasite sampling is conducted to assist spawning channel managers in determining load rates into the channels. On-site sampling also assists spawning channel managers in determining if channels should be re-loaded due to high levels of parasite infection and resulting pre-spawn mortality.

Sockeye were selected at random, killed with a blow to the head, allowed to lie for about 10 minutes and then a gill sample was taken from each of the fish.

Each gill sample was examined for infection rate of *Ich* using a dissecting stereo - microscope. Other parasites were also identified i.e. *Loma salmonae*, copepods and the freshwater mussel Glocchidia.

The numbers of *Ich* and *Loma* were counted and infection levels were rated as Low (1 to 20 parasites), Moderate (21 to 50 parasites), Heavy (51 to 100 parasites) or Very Heavy (over 100 parasites).

Timing of sampling was as follows :

Location	Sample #1	Sample #2
Fulton River	Aug 28	Sept 22
Pinkut Cr	Aug 29	Sept 12
Babine River Fence	Aug 30	Sept 14
Nadina	Aug 31	Sept 20

Sockeye Parasite Sampling Results

Fulton River

There were 53 sockeye sampled at the Fulton River fence on August 28, 2006. Of the sockeye sampled none had *Ich* or *Loma* present on the gills. On August 28th, the water in the channels was not yet running and fish were not holding at high densities at the Fulton River counting fence. Approximately 22,000 sockeye had been enumerated through the fence into Fulton River.

A second round of sampling consisting of 94 sockeye was conducted on September 22nd. Low numbers of *Ich* were observed and *Loma* was present on some of the fish from low to very heavy in number. Approximately 110,000 sockeye had been enumerated into Channel #2, 15,000 were loaded into Channel #1 and 200,000 sockeye had been enumerated into Fulton River at this sampling time.

Results of the August 28th and September 22nd, 2006 samples are shown in Table 1 below. Refer to Appendix 1 to review the sampling record sheets.

Table 1 : Fulton River Spawning Channel Parasite Sampling Summary

Sample Date	Sample Size	Number Pos for Ich	Number Neg for Ich	% Positive for Ich			Total % Pos - Ich
				Low	Mod	Heavy	
August 28, 2006	53	0	53	0	0	0	0%
September 22, 2006	94	32	62	34%	0	0	34%

Although none of the sockeye sampled at the Fulton Spawning Channels showed heavy numbers of *Ich*, there were sections of the spawning channels where there were lethargic fish. Some pre-spawn mortality did occur but this mortality did not appear to be due to gill parasite infection.

Pinkut Creek

On August 29th, 2006, a total of 78 sockeye were sampled from Pinkut Creek. Of those fish 50 were captured at the fence and 28 fish were sampled from Leg #3 of the channels. Approximately 70,000 sockeye had been loaded into the spawning channels at the time of this sampling.

A second round of sampling was conducted on September 12th, 2006 and the infection rate of *Ich* was much higher as compared to the earlier sample date. There were lethargic fish in Legs #9 and #10 and some pre-spawn mortality occurring. It appeared to the author that two different life stages of *Ich* was present on the fish gills sampled (i.e. larger parasites that appeared to be the mature Trophont stage and smaller parasites that may

represent the newly infectious Theront stage). This may have represented a second or even third round of infection. This seems quite possible given that the conditions for the parasite were optimal with water temperatures remaining warm through the month of August (August Temp ≈ 16 C and September Temp ≈ 12 C). High densities of fish due to crowding, warm water temperatures and being in spawning condition all produce added stress to the fish.

At the time of the September 12th sample date, approximately 70,000 sockeye had been loaded into the channels, 40,000 sockeye had been transported upstream via helicopter and there were an estimated 80,000 sockeye holding downstream of the Pinkut Creek counting fence. Fish were holding at extremely high densities downstream of the counting fence.

A summary of the Pinkut Creek sampling is shown in Table 2. Refer to Appendix 1 to review the sampling record sheets.

Table 2 : Pinkut Creek Spawning Channel Parasite Sampling Summary

Sample Date	Sample Size	Number Pos for Ich	Number Neg for Ich	% Positive for Ich			Very Heavy	Total % Pos - Ic
				Low	Mod	Heavy		
29-Aug-06	78	9	69	12%	0%	0%	0%	12%
12-Sep-06	114	97	17	18%	12%	16%	39%	85%

Babine River Fence

On August 30th, 2006 a total of 50 sockeye (48 adults/2 jacks) were sampled of which 1 sockeye was a low positive for *Ich*. Approximately 900,500 adult sockeye and 20,600 jack sockeye had been enumerated through the Babine fence by this sample date.

An additional 30 sockeye were sampled on September 14th, 2006 and only 1 sockeye was found to be a low positive for *Ich*. The escapement through the Babine River fence was estimated at 1,391,700 adult sockeye.

Sample results are shown in Table 3 below. Refer to Appendix 1 to review the sampling record sheets.

Table 3 : Babine River Fence Sockeye Parasite Sampling Summary

Sample Date	Sample Size	Number Pos for Ich	Number Neg for Ich	% Positive for Ich Low	Mod	Heavy	Total % Pos - Ich
30-Aug-06	50	1	49	4	0	0	2%
14-Sep-06	30	1	29	1	0	0	3%

Nadina River

On August 31st, 2006 a total of 16 sockeye were sampled from the spawning channels of which 1 sockeye was a recently moribund fish. Approximately 31% of the fish sampled had a low infection of *Ich*. Approximately 3,000 sockeye had been enumerated into the spawning channels by August 31st, 2006.

A second sample was conducted on September 20th, 2006 of which 50% of the sockeye exhibited a low rate of parasite infection. It appeared that there had been a second round of infection as some of the *Ich* were very large and appeared to be at the Trophont stage and some of the *Ich* were extremely small, most likely at the Theront stage.

Low returns of sockeye (4,500 sockeye) in the Nadina Channels precluded crowding indicating that this was not a stress factor. Water temperature was 14.5 °C at the August 31st sample and 10 °C at the September 20th sample.

Sample results are shown in Table 4 below. Refer to Appendix 1 to review the sampling record sheets.

Table 4 : Nadina Spawning Channel Sockeye Parasite Sampling Summary

Sample Date	Sample Size	Number Pos for Ich	Number Neg for Ich	% Positive for Ich Low	Mod	Heavy	Total % Pos - Ich
31-Aug-06	16	5	11	31%	0	0	31%
20-Sep-06	16	8	8	50%	0	0	50%

Discussion

Comparison of 2005 and 2006 Parasite Sampling Programs

A comparison of the 2005 and 2006 parasite samples is shown in Table 5 below. It appears that the overall rate of infection of *Ich* was greater in 2006 as compared to 2005.

Water temperatures were somewhat different between years 2005 and 2006 as shown in Appendix 1.

Escapements were greater in 2006 as compared to 2005 at Fulton and Pinkut Channels and at the Babine River fence. The escapement at the Nadina Channel was lower in 2006 as compared to 2005.

Channel load rates were unavailable at time of this report so no channel load rate comparison has been made.

Pre-spawn mortality rates in 2005 were not significant at either facility, however, there was significant pre-spawn mortality at the Pinkut Creek spawning channels in 2006. The pre-spawn mortality at the Pinkut Creek channels appeared to be due to heavy parasite load in fish in the lower reaches of the spawning channels (Legs #9 and #10). Re-loading of the channel was attempted with limited success as sockeye that were loaded into the channel also experienced pre-spawning mortality.

Although pre-spawning mortality did occur at the Fulton River Channels, the infection rates of *Ich* were quite low indicating that parasite load was not a factor in the mortality encountered (infection rate was only 1 to 20 parasites/fish gill arch sampled). In comparison, 85% of sockeye examined at Pinkut Creek facility were infected with *Ich* and of those, over half had heavy to very heavy infections (more than 75 *Ich* parasites/gill arch sampled and up to 600/gill arch).

Anecdotal information on general condition of the sockeye at the Fulton Channels is included in Appendix 1. Five sockeye from Legs #15, #16 and #18 were examined internally and those results are reported in Appendix 1.

Pre-spawn mortality at the Nadina Channel was negligible.

Table 5 : Parasite Sampling Comparison in Years 2005 vs. 2006

Fulton River Spawning Channel

Sample Dates	Sample Size	% Pos. for Ich	% Pos. for Loma	% with Heavy to Very Heavy Ich	Water Temp©
30-Aug-05	96	3.1%	24.0%	0%	14.5
28-Aug-06	53	0%	0%	0%	16
23-Sep-05	178	3.9%	43.8%	0%	12.4
22-Sep-06	94	34.0%	20.2%	0%	13

Pinkut Creek Spawning Channel

Sample Dates	Sample Size	% Pos. for Ich	% Pos. for Loma	% with Heavy to Very Heavy Ich	Water Temp©
29-Aug-05	125	1.6%	28.8%	0%	14
29-Aug-06	78	11.5%	20.5%	0%	16
19-Sep-05	45	4.4%	40.0%	0%	11
12-Sep-06	114	85.1%	15.8%	55.3%	12

Babine River Fence

Sample Dates	Sample Size	% Pos. for Ich	% Pos. for Loma	% with Heavy to Very Heavy Ich	Water Temp©
01-Sep-05	50	0.0%	40%	0%	15
30-Aug-06	50	4.0%	8.0%	0%	14.3
no second sample					
14-Sep-06	30	3.3%	6.7%	0%	10

Table 5 Continued

Nadina Spawning Channel

Sample Dates	Sample Size	% Pos. for Ich	% Pos. for Loma	% with Heavy to Very Heavy Ich	Water Temp©
31-Aug-05	17	29.4%	na	0%	13.2
31-Aug-06	16	31.3%	0%	0%	14.5
21-Sep-05	41	41.5%	na	0%	11.4
20-Sep-06	16	50.0%	0%	0%	10

Spawning Channel Escapement Comparison

Escapements in 2005 and 2006 are shown in Table 6.

Table 6 : Escapement in 2005 vs 2006 at Fulton, Pinkut and Nadina Channels and Babine River Fence

Location	Year	Total Escapement
Fulton River	2005	327,000
	2006	532,800
Pinkut Creek	2005	149,000
	2006	198,500
Babine Fence	2005	709,000
	2006	1,391,700
Nadina River	2005	12,738
	2006	4,500

The on-site sockeye parasite sampling program was helpful to the spawning channel managers providing real time snap shot of infection rates of *Ich* and Loma. This information was used to assess the benefits of re-loading the spawning channels if a problem was anticipated. Knowledge of infection rates of *Ich* prior to loading of the spawning channels was also helpful.

It is assumed that infection rates of *Ich* at the Fulton and Nadina spawning channels did not directly cause pre-spawn mortality. However, heavy infection rates at the Pinkut spawning channels was most likely a factor in causing pre-spawn mortality.

Sampling was conducted by DFO staff out of the Smithers District office and all sampling equipment was supplied by OHEB Northcoast. The sampling crew was able to be called on short notice to conduct sampling as required and all sampling data was passed on to the spawning channel Managers within days of conducting the sampling.

Recommendations

1. Continue On-site Parasite Sampling Program for 2007

The parasite sampling program provides up-to-date data on infection rates of *Ich* throughout the spawning season. This data assists the spawning channel managers in determining load rates and/or re-load rates in the spawning channels.

2. Continue with having OHEB Northcoast staff from the Smithers District Office conduct the parasite sampling for 2007.

The Smithers OHEB staff was able to conduct the parasite sampling program at a reasonable cost and due to their close proximity to all sample locations were able to respond to sampling requests on short notice. These staff have now gained experience in the parasite sampling and do not require re-training for the 2007 program as new staff or a contractor may require. The majority of the support equipment was already available at the Smithers District office i.e. DFO truck, seine nets, dipnets, dissecting equipment, rain gear etc...

3. Purchase a dissecting stereo-microscope with proper lighting apparatus.

Purchase of a modern dissecting stereo microscope with protective case, appropriate lighting mechanism and adequate magnification that can be used for DFO Community Programs and the sockeye parasite sampling program is recommended. If the old stereo microscope at the Fulton River spawning channel can have the lighting system repaired, then having the use of two stereo microscopes would greatly increase the speed at which gill samples can be analyzed. This would allow sampling to occur in less time or sample size could be increased (i.e. more of the channel legs could be sampled with total sample size increasing).

APPENDIX 1

Contents of Appendix 1

Parasite Sampling Field Data

Sockeye Parasite Sampling Program : 2006

Sample Site	Fulton River just d/s of fence	**Samplers**	BD NN RF MH
Sample Date	28-Aug-06		
Atm. T©	16	**Water Temp ©**	15
Sockeye Count to date	22,000 in main river Channels not running yet		

Parasite Sampling Data

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
1	N	0	N	0	FEMALES
2	N	0	N	0	
3	N	0	N	0	
4	N	0	N	0	
5	N	0	N	0	
6	N	0	N	0	
7	N	0	N	0	
8	N	0	N	0	
9	N	0	N	0	
10	N	0	N	0	
11	N	0	N	0	
12	N	0	N	0	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
13	N	0	N	0	
14	N	0	N	0	
15	N	0	N	0	
16	N	0	N	0	
17	N	0	N	0	
18	N	0	N	0	
19	N	0	N	0	
20	N	0	N	0	
21	N	0	N	0	
22	N	0	N	0	
23	N	0	N	0	
24	N	0	N	0	
25	N	0	N	0	
26	N	0	N	0	
27	N	0	N	0	
28	N	0	N	0	
29	N	0	N	0	
30	N	0	N	0	
31	N	0	N	0	
32	N	0	N	0	MALES
33	N	0	N	0	
34	N	0	N	0	
35	N	0	N	0	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
36	N	0	N	0	
37	N	0	N	0	
38	N	0	N	0	
39	N	0	N	0	
40	N	0	N	0	
41	N	0	N	0	
42	N	0	N	0	
43	N	0	N	0	
44	N	0	N	0	
45	N	0	N	0	
46	N	0	N	0	
47	N	0	N	0	
48	N	0	N	0	
49	N	0	N	0	
50	N	0	N	0	
51	N	0	N	0	
52	N	0	N	0	
53	N	0	N	0	

Sockeye Parasite Sampling Program : 2006

Sample Site	Fulton River Spawning Channel	**Samplers**	BD, KK, RF
Sample Date	22-Sep-06		
Atm. T©	6 C	**Water Temp ©**	13 C

Sockeye Count to date

110K into Channel #2 (loaded by Sept 15/06)
200K into Fulton River
15K into Channel
#1

Parasite Sampling Data

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
1	N	0	N	0	The first 15 sockeye were from the Spawning
2	N	0	N	0	channel side of the fence (7 fem/8 males)
3	N	0	N	0	The next 15 sockeye were from the River side
4	N	0	N	0	of the fence (8 fem/7 males)
5	N	0	N	0	
6	N	0	N	0	
7	N	0	N	0	
8	N	0	N	0	
9	N	0	N	0	
10	N	0	N	0	
11	N	0	N	0	
12	N	0	N	0	
13	N	0	N	0	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
14	N	0	N	0	
15	N	0	N	0	
16	N	0	N	0	
17	N	0	N	0	
18	N	0	N	0	
19	Y	1	N	0	
20	N	0	Y	LOW	
21	N	0	Y	V. HEAVY	
22	N	0	N	0	
23	N	0	Y	V. HEAVY	
24	Y	4	Y	LOW	
25	N	0	N	0	
26	N	0	N	0	
27	Y	5	N	0	
28	Y	10	N	0	
29	N	0	N	0	
30	N	0	N	0	
31	Y	1	N	0	Sampled next 9 fish from just u/s of the
32	Y	1	Y	MOD	channel side of the fence where there were
33	Y	13	Y	LOW	some lethargic fish (samples #31 - #39 and
34	Y	6	N	0	consisted of 1 fem/7 males/1 jack)

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
35	N	0	N	0	
36	Y	10	N	0	
37	Y	1	Y	MOD	
38	N	0	N	0	
39	Y	1	Y	LOW	
40	N	0	N	0	Sampled 10 fem/10 males from Leg #16
41	Y	1	Y	LOW	of Channel #2 (fish #40 - 59)
42	Y	5	Y	LOW	
43	Y	1	N	0	
44	N	0	Y	MOD	
45	N	0	Y	LOW	
46	Y	12	N	0	
47	Y	3	Y	LOW	
48	N	0	N	0	
49	N	0	N	0	
50	Y	2	N	0	
51	Y	3	N	0	
52	N	0	N	0	
53	N	0	N	0	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
54	N	0	N	0	
55	N	0	N	0	
56	Y	3	N	0	
57	N	0	N	0	
58	Y	1	N	0	
59	N	0	N	0	
60	N	0	N	0	Sampled 11 fem/7 males from Leg #17 of
61	N	0	N	0	Channel #2 (fish # 60 - 77)
62	Y	1	N	0	
63	N	0	N	0	
64	N	0	N	0	
65	N	0	Y	LOW	
66	N	0	N	0	
67	N	0	N	0	
68	N	0	N	0	
69	N	0	N	0	
70	N	0	Y	LOW	
71	N	0	N	0	
72	N	0	N	0	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
73	N	0	N	0	
74	N	0	N	0	
75	N	0	N	0	
76	N	0	N	0	
77	Y	3	N	0	
78	N	0	N	0	Sampled 5 lethargic fish from Leg # 15 of
79	Y	1	Y	LOW	Channel #2 (results from internal
80	Y	6	Y	LOW	sampling are on a separate sheet)
81	N	0	Y	LOW	
82	N	0	N	0	
83	Y	2	N	0	Sampled 5 fem/8 males from top of Ch #1
84	N	0	N	0	
85	Y	3	N	0	
86	N	0	N	0	
87	N	0	N	0	
88	Y	7	N	0	
89	N	0	Y	HEAVY	
90	Y	9	N	0	
91	Y	2	N	0	
92	Y	2	N	0	
93	Y	1	N	0	
94	Y	1	N	0	

Sockeye Parasite Sampling Program : 2006

Sample Site	Pinkut Spawning Channel and Pinkut Creek just d/s of the fence	**Samplers**	Donas, Frisk Higgins, Newman
Sample Date	29-Aug-06		
Atm. T©	12 C	**Water Temp ©**	16 C
Sockeye Count to date	Approx. 70,000 sockeye counted into the channels		

Parasite Sampling Data

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
1	N	0	N	0	Sockeye #'s 1 - 50 were taken from Pinkut Cr
2	N	0	N	0	at the fence
3	N	0	N	0	
4	N	0	N	0	
5	N	0	N	0	
6	N	0	N	0	
7	N	0	N	0	
8	N	0	N	0	
9	N	0	N	0	
10	N	0	N	0	
11	N	0	N	0	
12	N	0	N	0	
13	N	0	N	0	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
14	N	0	N	0	
15	N	0	N	0	
16	N	0	N	0	
17	N	0	Y	1	
18	N	0	Y	3	
19	N	0	N	0	
20	N	0	N	0	
21	N	0	N	0	
22	N	0	N	0	
23	N	0	N	0	
24	N	0	N	0	
25	N	0	N	0	
26	N	0	Y	1	
27	N	0	N	0	
28	N	0	N	0	
29	N	0	N	0	
30	N	0	N	0	
31	N	0	N	0	
32	N	0	N	0	
33	N	0	N	0	
34	N	0	N	0	
35	N	0	Y	1	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
36	N	0	N	0	
37	N	0	N	0	
38	N	0	Y	Low	
39	N	0	N	0	
40	N	0	N	0	
41	N	0	Y	Low	
42	N	0	N	0	
43	N	0	N	0	
44	N	0	Y	Low	
45	N	0	N	0	
46	N	0	N	0	
47	N	0	N	0	
48	N	0	N	0	
49	Y	2	Y	Low	
50	N	0	N	0	
51	N	0	N	0	Sockeye #'s 51 - 78 from Leg #3 of channel
52	Y	1	N	0	
53	N	0	N	0	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
54	N	0	N		
55	Y	1	Y	Moderate	
56	N	0	N		
57	N	0	N		
58	N	0	N		
59	N	0	Y	Low	
60	N	0	N		
61	N	0	N		
62	N	0	N		
63	N	0	Y	Moderate	
64	N	0	Y	Low	
65	N	0	N		
66	N	0	Y	Low	
67	Y	1	N		
68	Y	1	Y	Low	
69	Y	1	Y	Low	
70	Y	1	N		
71	N	0	N		
72	N	0	N		

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
73	Y	4	Y	Low	
74	N	0	N	0	
75	N	0	N	0	
76	Y	1	N	0	
77	N	0	N	0	
78	N	0	N	0	

Sockeye Parasite Sampling Program : 2006 Page 1 of

Sample Site Pinkut Creek **Samplers** BD, NN, KK, RF

Sample Date 12-Sep-06

Atm. T© 11 C **Water Temp ©** 12 C

Sockeye Count to date 70K into channels, 40K transported by chopper above falls,
25K between fence and falls, below the fence est = 80K

Parasite Sampling Data

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
1	Y	10	N	0	30 fish sampled from Pinkut Cr d/s of fence
2	Y	40	N	0	
3	Y	4	N	0	
4	Y	4	N	0	
5	Y	3	N	0	
6	Y	2	N	0	
7	Y	1	N	0	
8	N	0	N	0	
9	Y	1	N	0	
10	Y	4	N	0	
11	N	0	N	0	
12	N	0	N	0	
13	N	0	N	0	
14	N	0	N	0	
15	N	0	N	0	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
16	N	0	N	0	Fish sampled from Pinkut Cr d/s of fence
17	N	0	N	0	
18	N	0	N	0	
19	N	0	N	0	
20	N	0	N	0	
21	N	0	N	0	
22	Y	5	Y	LOW	
23	Y	1	N	0	
24	N	0	N	0	
25	N	0	Y	LOW	
26	Y	1	Y	HEAVY	
27	N	0	N	0	
28	Y	2	N	0	
29	Y	1	Y	MOD	
30	Y	11	N	0	Last fish from Pinkut d/s of fence
31	Y	700	N	0	Begin samples from Leg 9 (15 fish sampled)
32	Y	100	N	0	30% of gill showing damage(grey, fungus)
33	Y	500	N	0	10% of gill showing damage
34	Y	300	N	0	10% of gill showing damage

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
35	Y	300	Y	LOW	Continuation of Leg #9 samples
36	Y	500	N	0	
37	Y	300	N	0	50% of gill showing damage
38	Y	300	N	0	
39	Y	500	N	0	5% of gill showing damage
40	Y	500	N	0	10% of gill showing damage
41	Y	500	N	0	
42	Y	500	N	0	
43	Y	300	N	0	10% of gill showing damage
44	Y	700	N	0	
45	Y	500	N	0	Last fish from Leg #9
46	Y	200	N	0	Beginning of samples from Leg #8 (10 fish)
47	Y	200	N	0	
48	Y	75	Y	HEAVY	
49	Y	200	N	0	
50	Y	300	N	0	
51	Y	325	N	0	
52	Y	400	N	0	
53	Y	400	N	0	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
54	Y	400	N	0	Leg #8 continued
55	Y	300	N	0	
56	Y	50	N	0	Begin sampling from Leg #6 (20 fish)
57	Y	300	N	0	Some fish from Leg #6 with copepods
58	Y	75	N	0	on the gills
59	Y	500	Y	V. HEAVY	
60	Y	200	N	0	
61	Y	200	N	0	
62	Y	150	N	0	
63	Y	200	N	0	
64	Y	500	N	0	
65	Y	100	N	0	
66	Y	500	N	0	Copepods on gills (light)
67	Y	50	Y	LOW	
68	Y	75	N	0	
69	Y	200	N	0	
70	Y	400	Y	LOW	
71	Y	300	N	0	
72	Y	200	Y	MOD	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
73	Y	100	N	0	Leg #6 continued
74	Y	400	N	0	
75	Y	600	N	0	
76	Y	400	N	0	Begin samples from Leg #4 (20 fish)
77	Y	50	N	0	
78	Y	50	N	0	
79	Y	200	N	0	
80	Y	200	N	0	
81	Y	50	N	0	
82	Y	80	N	0	
83	Y	200	N	0	
84	Y	100	N	0	
85	Y	50	Y	LOW	
86	Y	200	N	0	
87	Y	100	N	0	
88	Y	50	N	0	
89	Y	200	N	0	
90	Y	200	N	0	
91	Y	100	N	0	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
92	Y	100	N	0	Leg #4 continued
93	Y	200	N	0	
94	Y	100	N	0	
95	Y	50	N	0	
96	Y	100	N	0	Beginning of samples from Leg #2 (19 fish)
97	Y	40	N	0	
98	Y	20	Y	LOW	
99	Y	20	N	0	
100	Y	10	Y	V.HEAVY	
101	Y	100	N	0	
102	N	0	N	0	
103	N	0	N	0	
104	Y	100	N	0	
105	Y	40	N	0	
106	Y	20	N	0	
107	Y	40	N	0	
108	Y	100	Y	LOW	
109	Y	400	Y	LOW	
110	Y	50	Y	LOW	
111	Y	40	Y	LOW	
112	Y	30	N	0	
113	Y	2	N	0	
114	Y	4	N	0	

Sockeye Parasite Sampling Program : 2006

Sample Site	Babine River Fence	**Samplers**	Donas, Frisk Higgins, Newman
Sample Date	30-Aug-06		
Atm. T©	16 C	**Water Temp ©**	14.3 C

Sockeye Count to date

900,551 Adult Sockeye
20,624 Jack Sockeye

Parasite Sampling Data

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
1	N	0	N	0	
2	N	0	N	0	
3	N	0	N	0	
4	N	0	N	0	
5	N	0	Y	Low	
6	N	0	N	0	
7	N	0	Y	Low	
8	N	0	N	0	
9	N	0	N	0	
10	N	0	N	0	Glocchidia (Fresh water mussel larva)
11	N	0	N	0	Glocchidia (Fresh water mussel larva)
12	N	0	N	0	Glocchidia (Fresh water mussel larva)
13	N	0	N	0	
14	N	0	N	0	Glocchidia (Fresh water mussel larva)
15	N	0	N	0	Glocchidia (Fresh water mussel larva)

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
16	N	0	N	0	Glocchidia (Fresh water mussel larva)
17	N	0	N	0	
18	N	0	N	0	Glocchidia (Fresh water mussel larva)
19	N	0	N	0	Glocchidia (Fresh water mussel larva)
20	N	0	N	0	Glocchidia (Fresh water mussel larva)
21	N	0	N	0	
22	N	0	N	0	Glocchidia (Fresh water mussel larva)
23	N	0	N	0	Glocchidia (Fresh water mussel larva)
24	N	0	N	0	Glocchidia (Fresh water mussel larva)
25	N	0	N	0	Glocchidia (Fresh water mussel larva)
26	N	0	N	0	Glocchidia (Fresh water mussel larva)
27	Y	6	N	0	Glocchidia (Fresh water mussel larva)
28	N	0	N	0	
29	N	0	N	0	Glocchidia (Fresh water mussel larva)
30	N	0	N	0	Glocchidia (Fresh water mussel larva)
31	N	0	N	0	
32	N	0	N	0	Glocchidia (Fresh water mussel larva)
33	N	0	N	0	Glocchidia (Fresh water mussel larva)
34	N	0	N	0	Copepod egg sac visible
35	N	0	N	0	Glocchidia (Fresh water mussel larva)

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
36	N	0	Y	Low	Glocchidia (Fresh water mussel larva)
37	N	0	N	0	
38	N	0	N	0	
39	N	0	N	0	
40	N	0	Y	Low	Sockeye jack
41	N	0	N	0	Sockeye jack
42	N	0	Y	Low	
43	N	0	N	0	
44	N	0	N	0	Glocchidia (Fresh water mussel larva)
45	N	0	N	0	Glocchidia (Fresh water mussel larva)
46	N	0	N	0	
47	N	0	N	0	Glocchidia (Fresh water mussel larva)
48	N	0	N	0	Glocchidia (Fresh water mussel larva)
49	N	0	N	0	
50	N	0	N	0	

Sockeye Parasite Sampling Program : 2006

Sample Site	Babine River Fence	**Samplers**	BD, NN, KK
Sample Date	14-Sep-06		
Atm. T©	6 C	**Water Temp ©**	10 C
Sockeye Count to date	unknown		

Parasite Sampling Data

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
1	N	0	N	0	22 of 25 fish had white spots on the bodies
2	N	0	N	0	Gills look really good on all of these fish
3	N	0	N	0	
4	N	0	N	0	
5	N	0	N	0	
6	N	0	N	0	
7	N	0	N	0	
8	N	0	N	0	
9	N	0	Y	MOD	
10	N	0	N	0	
11	N	0	N	0	
12	Y	1	N	0	
13	N	0	N	0	
14	N	0	N	0	
15	N	0	N	0	

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
16	N	0	N	0	
17	N	0	N	0	
18	N	0	N	0	
19	N	0	N	0	
20	N	0	N	0	
21	N	0	N	0	
22	N	0	N	0	
23	N	0	N	0	
24	N	0	Y	LOW	
25	N	0	N	0	
26	N	0	N	0	
27	N	0	N	0	
28	N	0	N	0	
29	N	0	N	0	
30	N	0	N	0	

Sockeye Parasite Sampling Program : 2006

Sample Site	Nadina Spawning Channel	**Samplers**	Donas, Frisk Higgins, Newman
Sample Date	31-Aug-06		
Atm. T©	15 C	**Water Temp ©**	14.5 C
Sockeye Count to date	3,000 Sockeye in channel		

Parasite Sampling Data

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
1	N	0	N	0	
2	N	0	N	0	
3	N	0	N	0	
4	N	0	N	0	
5	N	0	N	0	
6	N	0	N	0	
7	N	0	N	0	
8	N	0	N	0	
9	Y	10	N	0	
10	Y	2	N	0	
11	Y	2	N	0	
12	Y	6	N	0	
13	N	0	N	0	
14	N	0	N	0	
15	N	0	N	0	
16	Y	7	N	0	Dead at the lower fence

Sockeye Parasite Sampling Program : 2006

Sample Site	Nadina Spawning Channel	**Samplers**	BD, NN, RF
Sample Date	20-Sep-06		
Atm. T©	6 C	**Water Temp ©**	10 C
Sockeye Count to date	4,500 loaded into the spawning channels		

Parasite Sampling Data

Fish Number	ICH (N or Y)	Number of ICH	Loma (N or Y)	Number of Loma	Comments/Other
1	Y	4	N	0	Small Ich - possible second round of infection
2	Y	2	N	0	patchy fungus on the gills
3	Y	15	N	0	
4	N	0	N	0	sampled 9 females and 7 males
5	N	0	N	0	
6	Y	1	N	0	
7	N	0	N	0	
8	N	0	N	0	
9	Y	3	N	0	
10	N	0	N	0	
11	Y	1	N	0	
12	Y	4	N	0	
13	Y	1	N	0	
14	N	0	N	0	
15	N	0	N	0	
16	N	0	N	0	

Internal Health Check on Five Sockeye from Fulton Spawning Channel #2
Legs # 15, 16 and 18

Date : **22-Sep-06**

Fish Number	Sex		Comments on Fish Health
1	Male	Ch #2 Leg #15	Liver parasites, mottled liver, internal parasites
2	Male	Ch #2 Leg #15	Internal parasites around digestive tract, liver and spleen Fluid in the heart cavity
3	Male	Ch #2 Leg #16	Liver dis-coloration, bloody fluid in heart cavity internal parasites around digestive tract, swim bladder
4	Female	Ch #2 Leg #16	Mottled liver, parasites on liver, internal parasites around digestive tract, some fluid in heart cavity
5	Female	Ch #2 Leg #18	Digestive tract parasites, parasites on liver, mottled liver, small amount of fluid in heart cavity