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## BAKER RIVER PROJECT LICENSE IMPLEMENTATION

### Aquatic Resources Group

July 10, 2007

9:00 a.m. – 2:00 p.m.

USFS Supervisor's Office

21905 64<sup>th</sup> Avenue W.

Mountlake Terrace, WA

(425) 775-9702

#### Conference Call Procedures-Dial In Info:

1-888-228-0484 (call automatically charged to PSE)-Dial in at the designated date and time –

Conference ID: 6058

Conference Password: 12345

#### DRAFT AGENDA

1. Review Agenda, Notes, Actions	9:00 – 9:30
2. Updates Fish Facilities Operations Topics <ul style="list-style-type: none"><li>• Juvenile Fish Passage Facilities Operations (Bruland)</li><li>• Sockeye Spawning Beach 3 &amp; 4 Operations (WDFW)</li><li>• Artificial Incubation Operations (WDFW)</li><li>• Fish Rearing Inventories &amp; Releases (Bruland)</li><li>• Adult Trap Protocol Update or Changes</li></ul> <i>Break at 9:30</i>	9:30 – 10:30
3. A-09 Draft Instream Flow Summary Report Q & A (R2-Phil)	10:30 - 11:30
4. Hatchery Design Update (PSE-Jenness)	11:30 - 12:00
<i>Lunch (provided)</i>	<i>12:00 – 12:30</i>
5. Fish Passage Technical WG Update (PSE-Verretto)	12:30 - 1:00
6. Update on License/ Implementation Activities	1:00 - 1:30
7. Confirm Date & Agenda for Next Meeting (tent. Aug 28 U. Baker Lodge), Mtg Evaluation	1:30 - 2:00

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## **Baker River Project License Implementation**

### **Aquatics Resource Group Meeting Final Meeting Notes**

#### **FINAL MEETING NOTES**

July 10, 2007 ~ 9:00 am - 2:00 pm

USFS Office, Mtlk Terrace, WA

**Team Leader: Arnie Aspelund, PSE, (arnie.aspelund@pse.com)**

#### **PRESENT**

Jacob Venard, Cary Feldmann, Doug Bruland, and Dave Jenness (PSE); Phil Hilgert (R2); Ted Thygesen, Brett Barkdull, Rich Johnson, and Kevin Kurras (WDFW); Bob Helton (Citizen); Craig Olson (NW Indian Fish Commission); Chuck Ebel (USACE); Stan Walsh (SRSC); and Lyn Wiltse, Candace Wilson and Jamie Riche (PDSA Consulting, Inc)

**2007 MEETING DATES:** Aug. 28/29 (hold both, location and schedule TBD- will include a site visit at Baker); Sept. 11, Oct. 9, Nov. 13, Dec. 11

#### **NEW ACTION ITEMS**

- All - Note August meeting dates and locations (changed from previous notes)
- Doug - Research why our LB recovery numbers were so good
- All - Review Instream Flow report, send comments or questions to Arnie by 9/11
- Jacob - Ask Arnie/Nick about date and logistics for next ARG / FPTWG meeting

#### **OLD (STILL PERTINENT) ACTION ITEMS**

- Cary & Dave – Contact Ernie Brannon re: outside review of hatchery design
- Cary - Bring DVD copies of the FSC film for distribution at the next ARG meeting
- Cary - Check on the status of “The Baker Story”
- Jacob - Send out an “all call” for interested parties re: gravel plan

#### **New Location for FPTWG**

The July 17<sup>th</sup> FPTWG meeting will be held at the FSC, *not* Sea-Tac as listed on the schedule.

#### **FSC Video**

Cary shared that the FSC video will be posted shortly to the PSE website. He will still have DVDs available for participants who request it.

## **FISH FACILITIES OPERATIONAL TOPICS**

### **Juvenile Fish Passage Facilities Operations**

Doug walked the group through the current juvenile fish passage numbers. This was not a big year for sockeye (especially compared to last year). Upper Baker: We had about 81k no-mark sockeye return, and an additional 30k fall released ad-clipped sockeye. At Lower Baker we recovered 18k fall no mark sockeye from Lower Baker. Branded groups percent recovery is pretty good. At UB 50.8% Left V brand Coho and 47 % Right V brand Coho were recovered so far. 4.9 % of the branded fish released at Upper Baker were recovered at Lower Baker. We had 33.5% recovery of the freeze-branded fish released in Lake Shannon, which is the best percent recovery we've seen at Lower Baker in the last six years.

We should be getting a better idea of what a migrant is as a result of the biological data (currently being analyzed in Oregon). These data will be released to R2 for processing / analysis.

Juvenile Chinook numbers are down. Also we are not getting the numbers of sockeye fry; they are coming later and the numbers are low. We noted that there are many variables that may contribute to this, and speculated that when the new FSC is up and running, the screens will be better able to collect fry (keeping them from going through pumps).

We are continuing to fish the juvenile trap through July. There is no gravity flow through it at this point, are using pumps. Everything we see today should be different next year: new guide nets, new trap, new FSC!

### **Sockeye Spawning Beaches 3 & 4, and Artificial Incubation Ops**

Kevin noted that we still can't get to Beach 3. The access road is impassable with anything but a tracked vehicle. The Forest Service has made some road material available.

Beach 4 disinfection went well, gravel was clean, and we're back online. There were two counter head failures (not repairable); these will be replaced in advance of this year's out-migration. As of July 9, we've had 875 adult Sockeye return. We are at the mid-season point and the updated prediction for this year is between 4,800 and 6,000.

### **Artificial Incubation**

The co-managers agreed to fill up everything except the coho stacks. Looks like we have the capacity for between 1.8 and 2 million eyed eggs (if we get the fish). Kevin shared that he's been sitting in on the hatchery meetings, is coordinating between PSE and Fish Pro, and reported that process is moving along well. He is also working with Scott Lentz to figure out how to access Channel Creek for fry release.

### **Fish Rearing Inventories and Releases**

Doug walked us through the trout planting and salmon planting history handouts. Rainbow trout, coho and sockeye are released in stages. There is a new brood stock at the hatchery now. Trout: We get 21k fish, first 1,000 went to the tribes, we then released the rest of last year's fish into Depression Lake. PSE's annual Troutfest occurred June 9; good event, well attended. We have 350 rainbow trout left, being retained at this point for Cascade Days and the Eagle Club fishing derbies.

Released coho at Skagit River. All freeze brand, ad-clipped and study group fish were released. The Baker project fish inventory handout detailed the sockeye, coho and rainbow releases. 65k Sockeye will be ad-clipped in September and released in October. Remaining fish will be marked for studies. 60k coho – which is enough for our program. Rainbow trout were received in June, are now split into three circular ponds and will be reared throughout the year (release some in the fall, save others for studies, release the rest in the spring). If we start the construction at the hatchery next year, some of these fish will be on site. We'll need to decide when to release these fish and how to handle next year's brood during the construction phase.

### **Adult Trap Protocol**

No changes at this time.

### **BRICC / LICENSING UPDATE**

USFW submitted their Biological Opinion (BiOp) a couple weeks ago; still awaiting the BiOp from NMFS. FERC will not issue the license until they receive that BiOp. We are now thinking it may be the end of October before they issue the new license. In the meantime, early implementation activities are continuing in order to be ready when the license is issued. (Ex: the terrestrial group is working on acquiring elk property).

The Town of Concrete issued a construction permit. The Department of Ecology has issued the 401 and CZMA consistency plan. Concrete's permitting process, as well as the 401, was appealed by Diking Districts 2 and 12, and the cities of Burlington and Mt. Vernon. The court date is set for November; these legal proceedings should not affect license issuance.

The June Baker River Interim Coordinating Committee (BRICC) was cancelled. The next meeting is currently scheduled for August 22 in Mountlake Terrace.

### **INSTREAM FLOW REPORT**

Phil presented the long-awaited report at the ARG's May meeting. Arnie and Phil asked folks to review and provide feedback, and Phil shared that his first bit of feedback came in this morning. It is a hefty report and many participants noted that they haven't had time to review it in detail. We asked that attendees send any questions or comments to Phil via Arnie, and agreed to set the cut-off date for review and input at September 11, 2007.

***All agreed upon the value of the data in this report. One attendee noted: "This plus the scenarios we ran through HYDROPS are what got us to settlement."***

It was suggested we add a blurb to the report acknowledging potential flow changes as a result of climate change (reference to the report from the Intergovernmental Panel on Climate Change). Any changes are more likely to result in timing differences than flow volumes. We noted that the flow agreement includes contingencies for high and low flows and outlines resulting procedural changes. Phil pointed out that section 7.3.4 of the report addresses what PSE's response would be to various changes to reservoir inflow. We have built buffers into the reservoir pool levels far beyond what we would expect to need, including

results of minor climate change. Any catastrophic climate changes would be dealt with through adaptive management.

Other suggestions included to clarify the aim of the report in the executive summary and add a list of acronyms.

### **HATCHERY DESIGN UPDATE**

Dave J. (project manager, PSE) gave the group an update of progress on the hatchery project. We are expecting final design from HDR shortly, and will be issuing the RFP early next week. PSE is planning to engage in a design/build contract. They sent out a request for qualifications and had four well-qualified teams respond: MWH, McDougal (FSC builders), KCM/Tetratek, and ESM. These firms all have experience with sockeye hatcheries. They would also prefer the contractor have hatchery experience. Work plans should impede current fish operations as little as possible. Should get proposals back by the end of August and be able to select a contractor in early September (hopefully in time for the Sept. 11 meeting).

Dave estimates the 30% design to be available November/December 2007 and 60% design by the end of 2007. We'll have another Value Engineering (VE) session at that point, and the ARG requested an opportunity to review the design and provide input both before and after that process (at the 30% and after the VE review). We will aim to extend the November 13 ARG meeting to all-day to allow for hatchery design review and discussion. We will do the same at our Jan/Feb 2008 ARG meeting to allow for a review of the 60% post-VE design.

We should be at 90% design by February 2008. Construction would then be able to start in March or April 2008, pending issuance of the license from FERC and special use permit from USFS. The aim would be to have the adult raceways up and running by spring 2009; and we should have a fully operational facility by 2010. Dave shared the current site plan and noted that the design has changed very little since the last report to this group.

We discussed timing issues relative to operations and contingency planning, such as keeping eggs separated, using alternate methods, and ensuring that construction phases align with (don't negatively impact) fish operations.

Next steps: getting a Hydraulic Project Approval (HPA) from WDFW and other permits from Whatcom County.

### **FISH PASSAGE TECHNICAL WORKING GROUP UPDATE**

Jacob reported that the FSC construction is proceeding on schedule. The July 17<sup>th</sup> FPTWG meeting has been moved to the FSC (originally scheduled in Sea-Tac) to allow the team to see how the screens fit, etc.

### **HANDOUTS**

- Agenda & Notes
- ARG Baker River Project Long Term Planning Schedule (July 2007)
- ARG Baker River Project Long Term Planning Schedule (June 18, 2007)

- Baker Beaches Arrival and Disposition
- Trout Planting History
- ARG Status Report: Baker Fish Operation Topics, Relicensing, and Implementation Activities (June 12, 2007)
- Baker Project Fish Inventory (July 9, 2007)
- PSE Baker Project Salmon Planting History (1983 – 2007)
- 2007 Upper Baker Available Fish Trap Data 2007
- 2007 Lower Baker Juvenile Fish Trap Data 2007
- Little Park out-migrants 2002
- Baker Fish Hatchery Renovation Overall Site Plan (June 19, 2007)

## **MEETING EVALUATION**

### **What Went Well**

- Got out early
- Adequate facilitation
- Very pun-ny!

### **What to Do Differently**

- Need crackers
- Unprepared for discussion on Instream Flow Report
- Many participants (NMFS and USFWS) missing
- No analogies :(

## **AGENDA FOR NEXT ARG MEETING**

### **Date and location TBD**

1. Welcome, review notes, action items, agenda
2. Fish Facilities Operational Topics
3. Update on License / Implementation Activities
4. Q & A – Instream Flow Report
5. Evaluate meeting, set next meeting agenda & location

**Aquatic Resources Group  
Baker River Project, FERC 2150**

**Status Report: Baker Fish Operation Topics, Relicensing and Implementation  
Activities**

**Baker Fish Operation Activities**

**In-Season Juvenile Passage Summary:** To date, we have captured over 146,300 total juvenile fish (81,100 unmarked sockeye; 33,700 marked sockeye; 23,900 unmarked coho; 7,300 marked coho; 300 other fish) at the Upper Baker gulper/trap. We seem to have passed the peak time as the numbers have dropped down considerably, but we will continue to capture fish until the first week in August. Summarizing the migration test groups; through early June, 50.5 % of the freeze branded Coho released at Blue tarp fish release site (located at the upper end of Baker Lake) and 45.8% of the freezebranded Coho released at West Pass Dike (lower end) have been captured at the Upper Baker juvenile trap, and 41.8% of the freeze branded Sockeye smolts released at Blue tarp have been captured at the Upper Baker trap.

PSE has also been sampling the Little Park juvenile smolt trap. So far, 3,200 Coho smolts have been captured in the Little Park Creek trap. Most had a portion of their top caudal fin removed for monitoring recapture at the Upper Baker gulper/trap. In-season recapture data is preliminary and estimated over 35%. The Little Park smolt trap is scheduled for removal shortly after Coho numbers drop off, expected to be after mid-June.

To date, we have captured about 28,700 total juvenile fish (18,700 unmarked sockeye; 1,900 marked sockeye; 6,100 unmarked coho; 1,900 marked coho; 100 other fish) at the Lower Baker gulper/trap. Approximately, 31.5% of the freeze branded Coho (these are released at the upper end of Lake Shannon) have been captured; as well as 4.1 % of the Baker released freeze branded Coho and 7% of the Baker released branded Sockeye. These are higher levels of freeze branded Baker Lake fish captured at Lower Baker; we are uncertain why. FSC construction work is being conducted in the UB forebay, requiring frequent short term lowering of the guide net to allow equipment to be transported to the dam.

Draft daily records are available by contacting Doug Bruland (360-853-8341, ext.3020). The final data sheets will be presented to the ARG at the end of the 2007 migration season.

**In-Season Biological Studies Progress:** This study effort is in coordination with the Fish Passage Technical Working Group and is in its 2<sup>nd</sup> year of supporting development of techniques for assessing future FSC performance. Test fish groups have been released during the migration season. On June 6<sup>th</sup>, PSE released the 7<sup>th</sup> group of PIT tagged Coho and Sockeye from our net pens to the upper forebay. That is our last large scheduled release for the biological study this spring. We will continue to collect weekly samples of gill tissue from net pen controls through July in addition to the normal gill tissue and other data collected from recaptured study. Gill tissues are sent off to Oregon for analysis. Preliminary study results are not available at this time. Results of this study are being discussed at FPTWG meetings, the next on July 17<sup>th</sup>.

**Sockeye Spawning Beach Final Fry Counts:** Kevin Kurras (WDFW) provided this summary along with the data attachments included with this update:

**Fry Information**

Final fry numbers follow:

4A	222,175	
4B	498,792	
4C	905,245	
4D	45,368	
Hopper (number used for plants reports)		1,990,063

*As you can see from the “fry production spreadsheet”, we had questionable counts. I am working with Smith-Root to try to resolve this issue. Apparently, the counting tunnels degrade over time in this water and give erroneous data. I believe that we planted more than the hopper number but I am not able to quantify the true amount. The counter and the tunnel from 4D are at the manufacturer now and I am waiting for the disposition. We do have a loaner tunnel and we may purchase one other to try to fix the situation. I have also included the “Sockeye Data Sheet” which gives a breakdown by section of adults, spawners and other info.*

**Sockeye Spawning Beach Operations and Maintenance:** Kevin Kurras (WDFW) provided this summary of recent news and maintenance conducted during the traditional shutdown period at the spawning beach:

***Beach 4** -Maintenance is proceeding and no major problems have been observed. There is a hole in the curtain between sections C and D that we will try to repair again this year. Before going back online, we will flush the cages at the headworks, but we will wait until after “Trout Fest” and the remaining rainbow are consolidated.*

***Beach 3** -The road is open to the gate into beach 3, however the road beyond the gate is in very poor condition. Several hundred yards was washed away and in several places the road bed is gone. I had Doug Koens look at it and in his opinion it will require some major cat work along with some 4-6 inch rock and a like amount of 1 1/4 inch gravel to cover. We can get a close estimate when we need it. There is no visible damage to the headworks, the buildings, or beach #3. At this point there is no vehicle access into the beach. The main river channel looks to still be on the east side of the delta with a small side channel carrying two to three inches of flow along the rip rap by the road. Did I mention mosquitoes?*

***Coho**- It was agreed that the “surplus” coho fry will be released into Lake Shannon when temperatures are acceptable. I informed Doug Bruland.*

**2007 Sockeye Beach Loading and Artificial Incubation:** Kevin Kurras (WDFW) provided this update:

**Beach Loadings**

*At this time the co-managers are still discussing the loadings for this year. I will contact Arnie with the loading plan when it becomes available.*

**Fish Rearing Inventory:** Doug provided this table on the fish inventory at the Upper Baker Rearing Facility:



BAKER PROJECT FISH INVENTORY  
Inventory date: June 8th, 2007

location	Species	brood year	population	fish/lb	Pounds	planned release date and location	comments
Raceway 1	Sock	2006	126,786	315	402	67,786 to be released @ Baker Lake ( Blue tarp ) by mid June 2007. We will retain 64,986 for October 2007 release and study fish for release in spring 2008.	Currently unmarked. Fish held over will be ad-clipped in September
Raceway 2	Coho	2006	72,685	266	273	Will retain 60,000 for spring release, freeze branding and PIT tagging ( Bio study ). The remaining fish ( 12,685 ) will be released to Lk. Shannon @ Sulphur Creek by mid June 2007	Currently unmarked. Fish held over will be ad-clipped in September
( fry trough 1, 2,3) Raceway 3							
( fry trough 4,5,6) Raceway 4					0		
Raceway 5 temporary container					0		
Trout pond	Rainbow	2005	1,000	1.5	666	Held for Troutfest derby June 9th. Remaining fish held for charity events in summer or released to Depression Lake.	Charity fish will be moved to circ 4. Trout pond will be drained, disinfected and brought back to service for collection of Sockeye broodstock by mid June 2007.
Circular 0							Will receive 20,000 rainbow from Arlington hatchery by late June 2007.
Circular 1							
Circular 2							
Circular 3							
Circular 4							
Circular 5							
Vault							
Sockeye Incubation							
Coho Incubation							
Total Juvenile Coho			72,685		0		
Total Juvenile Sockeye			126,786		0		
Total Rainbow			1,000		666		
Total Facility (excluding adults)			200,471		1,341		

**Adult Trap Protocol Update or Changes:** The Fisheries Co-managers are developing an in-season Sockeye terminal test fishery update model to manage fisheries in the future. They are proposing to run a pilot study in 2007, involving monitoring the adult trap for tagged sockeye that are part of the tag and release fishery conducted in the Skagit River. Questions about the study can be addressed by contacting Jon-Paul Shannahan of the Upper Skagit Tribe (360-854-7089).

#### **Adult trap maintenance**

Adult trap annual maintenance was conducted from April 18<sup>th</sup> to May 1<sup>st</sup> 2007. During this time the trap was drained, pressure washed, fittings were greased, rocks removed from the entrance weir, and minor repairs were performed where needed. No major repairs were necessary.

#### **Baker Relicense Activities**

**Draft A-09 Instream Flow Summary Report:** The Draft report was distributed at the May 8, 2007 ARG meeting and feedback was requested in the next 60 days. Comments can be submitted to Arnie. Phil Hilgert discussed how the report was organized and how it documents the process and thinking behind the flow plan agreed in the Settlement Agreement. So far, we have not received any comments on the draft report. We are anticipating having time at the July ARG meeting for discussing comments.

#### **Baker Implementation Activities**

**SA Article 101 Hatchery:** Design of the hatchery will be continuing to a near final stage this fall and early winter under the arrangement of a design-build contractor. Request for proposals from four potential design/build contractors have been developed. For reasons similar to the adult trap, the start date for hatchery construction has been pushed back one year from the original accelerated schedule. The Upper Baker Hatchery request for proposals will go out the end of June to the following design build teams: McDougal/McMillen, MWH, ESC/Dahlgren, TetraTech/KCM/PCL. The responses will be due mid August. PSE will issue notice to proceed on the design in September and ask that 30% be due October 12 with two weeks for review. Then 60% design will be due December 14 with comments due 2<sup>nd</sup> week of January. And 90% will be due the end of February. The notice to proceed on construction will be issued April 2008 depending on License issuance and Forest Service SUP.

**SA Article 103 Adult Trap:** Design of the adult trap is continuing. The 60% design (some elements of the design are in fact more advanced than 60%) is under review and comments are being discussed. R2 Resources is developing the design to 100%, projected to be at that level by the end of November 2007. Contract for construction is being developed. Beginning of construction is planned for August 2008.

**SA Article 104 Native Char Investigations:** Presently on hold pending results of USFWS genetic analysis of juvenile char samples collected from the Upper Baker River and Sulphur Creek. This study is now being tracked by the Fish Passage Technical Workgroup to support SA Article 104. The 2006 field results were summarized at the January 9, 2007 ARG meeting (notes & handouts).

**SA Article 105 FSC:** Field construction/assembly of the Upper Baker FSC began last February. The majority of the structural work is complete. The reservoir has raised and is near full pool and the FSC has been floating for several weeks and is secured to the end of the craneway pier. The

primary pumps have arrived and are being moved to the site for test fitting and installation will occur later. The fish channel structure is being installed and should be completed in another two weeks. Screens installation should begin in mid-July. NTS construction will begin within the next two weeks on a series of rails of which it will be launched when complete as a whole unit. The forebay mooring and guide net anchors are complete. The stairway structure tower on the dam is complete and pouring of the concrete pad will occur next week. Additional detailed update of construction progress will be provided at the next Fish Passage Technical WG meeting on July 17<sup>th</sup>. The Biological Evaluation Study is presently underway, status of/or preliminary results are to be discussed at the next FPTWG meeting on July 17<sup>th</sup>.

**Other Aquatic SA Articles:** Working Group activities on Settlement Articles 108, 109, 110 and 505 are on hold until license issuance or at least until a relatively confident date is determined for issuance. PSE has begun to develop conceptual outlines of management plans for Articles 109 (Large Woody Debris) and 505 (Aquatic Riparian Habitat). A conceptual draft outline for 505 was presented for discussion purposes to the Aquatic Riparian teamlet in February, comments were incorporated into the outline. If your interested in joining this group contact PSE's Jacob Venard (425-462-3771). The Article 109 conceptual outline will be presented to the ARG when it is further developed.

**Attachments: (from Kevin Kurras WDFW)**

FRY PRODUCTION BEACH #4

DATE	POND 4A	SAMP 4A	POND 4B	SAMP 4B	POND 4C	SAMP 4C	POND 4D	SAMP 4D	HOPPER COUNTER	SAMP/ MORTS	TOTAL PLANTED	TOTAL FISH	COMMENTS
02/01/07										0	0		
02/02/07													
02/03/07													
02/04/07													
02/05/07													
02/06/07													
02/07/07													
02/08/07	5		1		17		0		8				counters in
02/09/07	0		19		13		3		33		41	41	1, first plant
02/10/07													
02/11/07													
02/12/07	66		199		34		60		434		434	434	1
02/13/07	43		613		102		2		700			0	
02/14/07	34		159		6		6		770			0	
02/15/07	71		9,216		156		0		825			0	
02/16/07	90		1,644		244		4		1,760		4,055	4,055	1
02/17/07			0									0	
02/18/07												0	
02/19/07												0	
02/20/07	1,629		4,225		11,959		161		6,292		6,292	6,292	1
02/21/07												0	
02/22/07	1,950		5,936		7,550		121		10,176			0	
02/23/07	720		1,252		2,037		59		9,055		19,231	19,231	2
02/24/07													
02/25/07													
02/26/07	1,832	60	14,070	60	17,125	60	537	60	31,947		31,947	32,187	2
02/27/07	1,312		1,198		9,773		49		13,469				
02/28/07	226		2,464		8,485		59		8,262		21,731	21,731	1
02/29/07													
02/30/07													
MONTH TOT	7,978	60	40,976	60	57,598	60	1,061	60	83,731	0	83,731	83,971	
CUM TOT	7,978	60	40,976	60	57,598	60	1,061	60	83,731	0	83,731	83,971	

FRY PRODUCTION BEACH #4

DATE	POND 4A	SAMP 4A	POND 4B	SAMP 4B	POND 4C	SAMP 4C	POND 4D	SAMP 4D	HOPPER COUNTER	SAMP/ MORTS	TOTAL PLANTED	TOTAL FISH	COMMENTS
03/01/07			1,738		11,129		108		7,565		0	0	
03/02/07	548		3,468		5,908		186		10,234		17,799	17,799	1
03/03/07	187		387		1,471		28		7,458			0	
03/04/07												0	
03/05/07	768	60	2,990	60	15,373	60	579	60	17,623		25,081	25,321	
03/06/07	470		950		13,274		9		9,305			0	
03/07/07	633		3,386		20,683		513		12,980		22,285	22,285	1
03/08/07	448				15,042		31		13,647			0	
03/09/07	2,703		6,557		38,865		4,727		11,634		25,281	25,281	1
03/10/07	1,781		8,039		13,016		985		23,408		23,408	23,408	1
03/11/07	2,843		4,013		25,586		482		25,985			0	
03/12/07	6,168		8,580		4,769		532		21,302		47,287	47,527	1
03/13/07	1,429	60	2,812	60	2,048	60	1,118	60	26,971			0	switch crnter 4c and hopp.
03/14/07	6,957		13,816		5,395		117		24,001		50,972	50,972	1
03/15/07	1,844		13,759		2,234		931		21,931		21,931	21,931	1
03/16/07	3,597		9,768		9,999		76		17,340		17,340	17,340	1
03/17/07	3,029		13,491		4,511		195		6,567		6,567	6,567	1
03/18/07	4,827		9,236		22,357		818		8,462		8,462	8,462	1
03/19/07	5,060		15,484		11,663		520		46,506		46,506	46,506	1
03/20/07	2,456		8,987		23,755		1,040		33,365			0	
03/21/07	1,617		7,363		12,686		215		26,862		60,217	60,217	1
03/22/07	6,547		22,986		22,329		826		28,085		28,085	28,085	1
03/23/07	7,611		10,763		18,307		102		34,342		34,342	34,342	1
03/24/07	4,540		9,375		24,035		479		39,432		39,432	39,432	1
03/25/07	8,651		13,471		24,101		430		46,653		46,653	46,653	1
03/26/07	4,212		12,814		16,807		653		28,278		28,278	28,278	1
03/27/07	2,603		12,529	60	22,152	60	296	60	8,480		8,480	8,720	1
03/28/07	3,278		11,060		20,726		394		20,197		20,197	20,197	1
03/29/07	3,103		8,836		13,142		590		3,744		3,744	3,744	1
03/30/07	4,794		6,418		15,538		273		33,080		33,080	33,080	1
03/31/07	2,298		9,601		15,744		195		30,992		30,992	30,992	1
MONTH TOT	96,029	180	293,065	180	453,614	180	17,718	180	646,419	0	646,419	647,139	
CUM TOT	104,007	240	294,031	240	511,212	240	18,779	240	730,150	0	730,150	731,110	

FRY PRODUCTION BEACH #4

DATE	POND 4A	SAMP 4A	POND 4B	SAMP 4B	POND 4C	SAMP 4C	POND 4D	SAMP 4D	HOPPER COUNTER	SAMP/ MORTS	TOTAL PLANTED	TOTAL FISH	COMMENTS
04/01/07	4,922		12,123		25,893		311		11,547		11,547	11,547	1
04/02/07	3,753		13,381		17,810		223		10,217		10,217	10,217	1
04/03/07	4,022		8,875		22,369		1,142		18,807		18,807	18,807	1
04/04/07	7,097		16,592		23,931		3,149		26,097		26,097	26,097	1
04/05/07	5,897		14,570		20,816		1,252		54,139		54,139	54,139	1
04/06/07	5,479		8,821		23,262		1,857		68,950		68,950	68,950	1
04/07/07	5,591		13,255		18,633		1,321		38,800		38,800	38,800	1
04/08/07	7,132		8,302		20,191		1,047		51,070		51,070	51,070	1
04/09/07	10,452	60	8,887	60	23,520	60	593	60	61,590		61,590	61,830	1
04/10/07	9,433		8,631		24,630		800		50,236		50,236	50,236	1
04/11/07	5,105		2,727		17,238		536		62,516			0	no haul
04/12/07	2,349		6,047		18,705		448		30,636		92,952	92,952	1
04/13/07	2,611		7,187		15,944		396		35,927			0	no haul
04/14/07	4,022		6,468		14,591		1,300		8,001		43,928	43,928	1
04/15/07	2,113		2,054		3,364		81		81,186		81,186	81,186	1
04/16/07	2,659		3,957		17,096		293		37,184		37,184	37,184	1
04/17/07	3,143		4,888		9,374		99		36,326		36,326	36,326	1
04/18/07	2,287		6,763		4,907		2,064		35,294		35,294	35,294	1
04/19/07	4,423		5,501		14,199		746		68,563		68,563	68,563	1
04/20/07	4,837		7,206		10,070		644		45,903		45,903	45,903	1
04/21/07	2,261		4,846		13,397		934		49,368		49,368	49,368	1
04/22/07	2,297		5,225		8,237		1,165		34,567			0	no haul
04/23/07	3,619		4,700		4,475		764		20,993	120	55,560	55,680	1
04/24/07	3,095		2,773		2,997		736		35,090		35,090	35,090	1
04/25/07	2,228		4,424		3,963		816		26,925		26,925	26,925	1
04/26/07	1,258		1,193		1,127		593		22,386		22,386	22,386	1
04/27/07	2,122		5,863		1,242		1,032		68,792		68,792	68,792	1
04/28/07	852		1,600		26		479		27,790			0	no haul
04/29/07	883		449		1		74		9,705			0	no haul
04/30/07	534		1,298		248		714		11,672		49,167	49,167	1
MONTH TOT	116,476	60	198,658	60	379,961	60	25,664	60	1,140,057	120	1,140,057	1,140,417	
CUM TOT	220,483	300	492,689	300	891,173	300	44,443	300	1,870,207	120	1,870,207	1,871,527	

FRY PRODUCTION BEACH #4

DATE	POND 4A	SAMP 4A	POND 4B	SAMP 4B	POND 4C	SAMP 4C	POND 4D	SAMP 4D	HOPPER COUNTER	SAMP/ MORTS	TOTAL PLANTED	TOTAL FISH	COMMENTS
05/01/07	26		594		38		68		21,494				0 no haul
05/02/07	367		348		780		291		9,955		30,449	30,449	0 no haul
05/03/07	439		259		19		40		9,453				0 no haul
05/04/07	191		816		429		31		12,024		21,477	21,477	0 no haul
05/05/07	137		640		424		74		6,552				0 no haul
05/06/07	76		483		163		51		6,381				0 no haul
05/07/07	55		461		88		65		3,818	120	16,631	16,751	0
05/08/07	97		155		224		68		4,174				0
05/09/07	12		49		300		12		4,397		8,571	8,571	0
05/10/07	23		1,050		783		16		6,487		6,487	6,487	0
05/11/07													0 NOT CHECKED
05/12/07	136		582		532		26		5,117				0 no haul
05/13/07	107		524		20		20		4,540				0 no haul
05/14/07	7		96		1,951		3		2,377		12,034	12,034	0 no haul
05/15/07	9		338		2,265		132		2,501				0 no haul
05/16/07	4		31		452		10		1,651		4,152	4,152	0 no haul
05/17/07	5		281		5,100		18		2,545				0 no haul, pull cntrs a-d
05/18/07	6		1,491						5,149		4,436	4,436	0 no haul
05/19/07													0 no haul
05/20/07									5,379	120	10,528	10,648	0 no haul
05/21/07									2,842				0 no haul
05/22/07									1,295				0 no haul
05/23/07									954		5,091	5,091	0
05/24/07													0
05/25/07													0
05/26/07													0
05/27/07													0
05/28/07													0
05/29/07													0
05/30/07													0
05/31/07													0
MONTH TOTAL	1,692	0	6,103	0	14,072	0	925	0	119,976	240	119,856	120,096	0
CUMULATIVE	222,175	300	498,732	300	905,235	300	45,368	300	1,990,183	390	1,990,063	1,991,623	0

Sockeye Data Sheet

BROOD YEAR	1992	1993	1994	1995	1996	1997	1998	1999
Adults to Trap			16,000	4,000	5,000	7,099	13,187	4,622
Adults to Lake						3,333	7,975	1,072
Adults to CO-OP						653	2,145	
Adults in #3					768	738	796	450
Males in #3					340	353	402	229
Spawn females #3					409	362	-	203
non spawn females #3					19	23	394	18
Adults in #4A					771	357	417	754
Males in #4A					343	193	190	396
Spawn females #4A					400	160	212	252
non spawn females #4A					28	4	15	106
Adults in #4B					763	378	414	767
Males in #4B					327	192	206	400
Spawn females #4B					410	182	203	314
non spawn females #4B					26	4	5	53
Adults in #4C					764	762	785	780
Males in #4C					318	378	372	372
Spawn females #4C					415	370	375	321
non spawn females #4C					31	14	38	87
Adults in #4D					786	745	752	765
Males in #4D					318	392	356	392
Spawn females #4D					443	339	369	303
non spawn females #4D					25	14	27	70
Pull adults #4A					no	no	12/8/1998	11/29/1999
Pull adults #4B					no	no	no	no
Pull adults #4C					no	no	no	12/10/1999
Pull adults #4D					no	no	12/8/1998	12/10/1999
Total Fry #4					1,012,656	1,913,526	1,362,648	1,856,639
Total Spawners #4	-	-	-	-	1,668	1,051	1,159	1,190
Fry out #4A						286,077	347,412	906,431
Fry out #4B						315,195	383,066	401,406
Fry out #4C						392,299	419,223	410,834
Fry out #4D						548,006	725,210	599,116
IHNIV #4A		clean	broke	clean	clean	clean	clean	clean
IHNIV #4B			in beach		broke		3/12/1999	4/8/2000
IHNIV #4C					broke		4/14/1999	clean
IHNIV #4D			#4		broke		clean	clean
Smolts out UB			146,080	150,286	167,370	105,670	48,800	173,882
Smolts out LB			451	816	23,000	14,706	43,532	8,327
Total smolts out	89,049	24,470	146,531	151,102	190,370	120,376	92,332	183,209
BROOD YEAR	1992	1993	1994	1995	1996	1997	1998	1999

Fry into lake is one year behind  
Brood year 1997's fry enters  
Lake in calendar year 1998

BROOD YEAR	2000	2001	2002	2003	2004	2005	2006	2007
Adults to Trap	10,493	4,942	4,023	20,236	9,106	3,188	8,323	
Adults to Lake	5,176	2,394	-	11,086	2,764	-	2,876	
Adults to CO-OP	1,029	-	-	3,617	609	-	595	
Adults in #3	592	423	558	516	519	0	550*	
Males in #3	288	200	248	219	283	-	-	
Spawn females #3	296	208	296	282	219	-	-	
non spawn females #3	8	8	9	15	17	-	-	
Adults in #4A	838	537	723	823	818	492	836	
Males in #4A	385	271	304	373	428	223	366	
Spawn females #4A	358	201	337	356	323	228	426	
non spawn females #4A	95	50	58	94	67	41	44	
Adults in #4B	885	539	724	820	795	478	809	
Males in #4B	389	288	285	348	433	206	355	
Spawn females #4B	381	195	371	369	310	245	427	
non spawn females #4B	115	58	41	103	52	27	27	
Adults in #4C	891	506	731	1,170	1,169	688	1,010	
Males in #4C	408	270	319	557	579	329	443	
Spawn females #4C	357	183	336	476	496	309	522	
non spawn females #4C	126	64	50	137	94	50	45	
Adults in #4D	851	552	723	845	838	504	848	
Males in #4D	378	252	326	380	420	257	374	
Spawn females #4D	378	230	337	371	314	189	432	
non spawn females #4D	95	73	43	110	104	58	42	
Pull adults #4A	11/28/2000	11/26/2001	12/9/2003	12/1/2003	12/6/2004	11/28/2005	12/5/2006	
Pull adults #4B	11/27/2000	11/27/2001	12/9/2003	12/1/2003	12/6/2004	11/28/2005	12/5/2006	
Pull adults #4C	11/27/2000	11/26/2001	12/9/2003	12/1/2003	12/6/2004	11/28/2005	12/5/2006	
Pull adults #4D	11/27/2000	11/26/2001	12/10/2003	12/1/2003	12/6/2004	11/28,29/2005	12/5/2006	
Total Fry #4	3,281,896	1,316,042	1,537,065	2,089,175	1,638,138	1,656,858	1,990,183	
Total Spawners #4	1,474	809	1,381	1,572	1,443	971	1,807	-
Fry out #4A	1,241,727	226,672	733,854	637,518	66893 *	62,045	222,175	
Fry out #4B	776,659	325,776	770,418	568,563	448,574	447,570	498,792	
Fry out #4C	294,229	308,108	588,514	495,439	315,812	296,377	905,245	
Fry out #4D	854,826	667,097	430,500	788,887	540,311	269,121	45368**	
IHNIV #4A	clean	clean	clean	clean	clean	clean	clean	
IHNIV #4B	clean	clean	2/28/2003	clean	clean	clean	clean	
IHNIV #4C	clean	clean	clean	clean	clean	clean	clean	
IHNIV #4D	clean	clean	clean	clean	clean	clean	clean	
Incubation males			249	334	637	893	558	
Inc females spawned			228	348	438	490	476	
Inc green females			87	112	197	42	244	
Inc fry to Baker			264,475	443,884*	777,764	1,004,742	794,356	
Inc fry to Shannon			264,475	185,060	263,760	0	300,000	
Inc fry to raceways			135,000	130,000*	147,000	130,000	130,000	
Total Incubation Fry			663,950	185,060	1,188,524	1,134,742	1,224,356	0
Smolts out UB	26,845	194,452	133,689	67,245	166,644	264,121		
Smolts out LB	902	416	9,250	397	4,122	4,791		
Total smolts out	27,747	194,868	142,939	67,642	170,766	268,912		
BROOD YEAR	2000	2001	2002	2003	2004	2005	2006	2007

\*Calcline marked

\*counter failed

\* 550 adults  
to Baker L.

9/7/2006

\*\* counter issues