

## **Final Report PSC Northern Fund 2016**

### **Sockeye Salmon Enhancement Workshop**

**Proponents' names: Ron Josephson (Alaska) and Sandie MacLaurin (British Columbia)**

Our proposal was to conduct a workshop specific to sockeye salmon enhancement. We wanted to bring together a diverse group of persons from the Pacific Northwest to present their projects or a specific component of their work that is significant in its application to sockeye salmon fish culture or biology. Some of these projects have been supported by the Northern Fund and others through other sources, but all are endeavoring to improve culture and production of sockeye salmon. This species has unique attributes that can make fish culture and handling challenging, yet it is one of the most desired salmon for harvest and First Nation subsistence fisheries.

The problem being addressed is the challenge of sharing experiences and techniques. Fish culturists largely work independently, in isolated locations, but, being innovative, come up with unique methods to address diverse challenges. They rarely get the opportunity to share their approaches with others in the same discipline. One of the keys to Alaska's success with hatchery production is fish culture workshops which are held every year or two, and a fair amount of movement of personnel between hatcheries. This is not the case with sockeye programs where the projects are distant and through a wide range of disparate agencies. This workshop was proposed to facilitate an exchange of knowledge.

The workshop was held in Harrison Hot Springs, British Columbia on February 21 and 22, 2017. In our initial proposal we hoped to get at least 50 attendees, however approximately 100 persons attended the workshop from Alaska, Yukon, B.C., Idaho, Washington, and Oregon. A field trip took place on February 23 to Weaver Creek Spawning Channel, Chehalis Hatchery, Inch Creek Hatchery, and Cultus Lake Research Lab. Approximately 50 persons participated in some aspect of the field trip.

There were 39 presentations as well as a facilitated question and answer session at the end of the workshop. In addition there was an evening poster session and mixer to provide opportunity for further interaction. The workshop was live streamed and recorded and the presentations are available for viewing via YouTube at <http://sockeye.pskf.ca/>.

With the Northern Boundary and Transboundary Rivers Restoration and Enhancement Fund support from the Pacific Salmon Commission, and our organizing committee's effort to keep costs down, we provided an event without registration fees and no cost to attend the conference sessions. The organizers felt this aided in participation. As mentioned in the proposal, travel support was provided to some invited presenters. In total, support was provided to 8 presenters who in aggregate, made 13 presentations.

There was a lot of appreciation for the workshop and considerable discussion about doing another one in two or three years.

The organizing committee consisted of the following members:

Ron Josephson	ADF&G
Sandie MacLaurin	Retired DFO
Don MacKinlay	CDFO

Lorraine Vercessi	ADF&G
Lana Miller	CDFO
Eric Prestegard	DIPAC
Catherine McClean	CDFO
Ian Douglas	CDFO

Committee members represented an array of experience and expertise in sockeye salmon enhancement as well as organization of workshops and other events. We first focused on themes for the presentations and identification of persons that we wanted to present. The intent was for these persons to present their projects or a specific component of their work that is significant.

A venue in the Fraser River Valley was desired to make travel the simplest for the largest number of participants. While this location was quite distant from Alaska, even a meeting in Alaska would have required most Alaska participants to fly; and a trip to Vancouver, while not cheap, was the best compromise.

Sockeye enhancement is a key component of the transboundary river chapter of the treaty and sockeye salmon are a key fish in the treaty process. There are enhancement projects for sockeye from as far north as Nome, Alaska, through the length of the West Coast of Canada and south to the Columbia River basin.

Sockeye have been the focus of several recovery plans (River’s and Smith Inlets, Sackinaw, Lakelse, Atnarko River) and are at the core of a commission looking into issues with Fraser River stocks (Cohen Commission).


The last sockeye enhancement workshop was held 10 years ago in Ketchikan, Alaska and much has happened in the interim that would warrant this meeting. The intent was to have:

- some “big picture” presentations
- many case studies highlighting methods and strategies
- a poster session
- forums to discuss and explore best practices
- share and learn about common challenges
- talk about future expectations

As can be seen from the schedule and range of talks, the workshop was successful in meeting the goals. The presenters and practitioners covered a broad spectrum of experience from Alaska, Idaho, Oregon, Washington, British Columbia, and the Yukon.

**Tuesday,  
February 21**

**SCHEDULE of TALKS**

08:00 – 08:20	<b>Opening Remarks: Welcome</b>	Ron Josephson, ADF&G Sandie MacLaurin, DFO
	<b>THE BIG PICTURE OF SOCKEYE ENHANCEMENT</b>	
8:20 – 8:40	Sockeye Life History and Biological Imperative	John Burke, ADF&G
8:40 – 9:00	Migration Limits to Sockeye Abundance	Dave Patterson, SFU/DFO
9:00 - 9:20	Sockeye Freshwater Residence	Dan Selbie, Cultus Lab

9:20 - 9:40	International Year of the Salmon and Potential Marine Enhancement Effects	Jim Irvine, Pacific Biological Station
9:40 - 10:00	History of Sockeye Enhancement in B.C.	Don MacKinlay, SEP/DFO

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10:00 – 10:20 **Coffee/Tea Break**

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10:20 - 10:40	Lake Enrichment - Progress and Promise	Dana Schmidt, Golder Assoc.
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**FISH HEALTH**

10:40 – 11:00	Snake River Sockeye Salmon Emergency Trap and Haul	Dan Baker, IDFG
11:00 – 11:20	IHNV Infection of Steelhead and Chinook at Robertson Creek Hatchery	Christine MacWilliams, SEP/PBS/DFO
11:20 – 11:40	Molecular Biomarkers for Salmon: FIT-CHIPS	Aimee Houde, PBS

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11:40 - 13:20 **Lunch**



**SOCKEYE ENHANCEMENT CASE STUDIES**

13:20 - 13:40	Kitwanga Sockeye Salmon Enhancement, Habitat Improvements and Nursery Lake Production	Mark Cleveland, Gitanyow FN
13:40 - 14:00	Dworshak Reservoir Nutrient Restoration	Sean Wilson, IDFG
14:00 - 14:20	Fitness Study of Hatchery Produced Sockeye in Auke Lake	John Joyce, NOAA
14:20 - 14:40	Broodstock Capture, Transport, and Holding at Tatsamenie Lake	Brian Mercer, Metla Environmental
14:40 - 15:00	Comparison of Cultus Sockeye Captive Brood versus Pitt Sockeye Enhancement Programs	Cathy McClean, SEP/DFO

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15:00 - 15:20 **Stretch Break**

15:20 – 15:40	Main Bay Hatchery Overwinter Rearing and Dormancy	Jason Myhrer, PWSAC
15:40 - 16:00	Spawning - Egg Collection Methods at Tahltan Lake	Cheri Frocklage, Tahltan Fisheries
16:00 - 16:20	Spawning - Remote Egg Takes	Al Seale, KRAA
16:20 - 16:40	Release Strategies- Snettisham Experiments	Kevin Steck, DIPAC

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16:40 – 19:00 **Dinner Break**

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19:00 - 22:00 **POSTER SESSION SOCIAL – No-Host Bar**

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**Wednesday, February 22**



**SOCKEYE ENHANCEMENT CASE STUDIES**

8:00 - 8:20	BC Spawning Channels	Doug Lofthouse, SEP/DFO (Presented by Corino Salomi)
8:20 - 8:40	Okanagan Sockeye Reintroduction Program	Ryan Benson, ONA
8:40 - 9:00	Sockeye Reintroductions to Cle Elum Lake	Brian Saluskin, YNF
9:00 - 9:20	Sockeye Reintroductions to Deschutes River	Andrew Matala, CRITFC

9:20 - 9:40	Springfield Fish Hatchery Construction and Start-up, Lessons Learned	Doug Engemann, IDFG
9:40 - 10:00	Spiridon Lake Enhancement Strategies – A Success Story	Trent Dodson, KRAA

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10:00-10:20 **Coffee/Tea Break**

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10:20 - 10:40	Eagle Fish Hatchery Captive Broodstock Program	Dan Baker, IDFG
10:40 - 11:00	Alaska Hatcheries - Gulkana Incubation in Gravel and -50 Temperatures	Geoff Clark, PWSAC
11:00 - 11:20	Fishway Design and Operation - Karluk Lake Fish Passage	Trent Dodson, KRAA
11:20 – 11:40	Evaluating Reintroduction Strategies for Endangered Snake River Sockeye Salmon	Eric Johnson, IDFG
11:40 - 12:00	Alaska’s Cook Inlet Hatchery Program	Caroline Cherry, CIAA

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12:00 – 13:20 **Lunch**

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13:20 - 13:40	Marking and Evaluation -Dry Incubation Otolith Marking	Al Seale, KRAA
13:40 - 14:00	Marking and Evaluation - Mark/Recapture smolt enumeration at Tatsamenie Lake	Brian Mercer, Metla Environmental
14:00 – 14:20	Alouette/Coquitlam Sockeye Re-introduction	Elmar Plate, LGL
14:20 – 14:40	IHNV Free Rearing at Tatsamenie Lake	Brian Mercer, Metla Environmental

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14:40 – 15:00 **Stretch Break**



**SOCKEYE ENHANCEMENT GUIDELINES PANEL**

15:00 – 15:20	American Fisheries Society Guidelines	Don MacKinlay, DFO
15:20 - 15:30	Alaskan Sockeye Culture and Regulatory Guidelines	John Burke
15:30 - 15:40	BC Sockeye Guidelines and Aquaculture Regulations	Chris MacWilliams, DFO
15:40 - 15:50	Idaho Regulations and Guidelines	Doug Munson, IDFG
15:50 – 16:20	Panel and Audience Discussion	All



**WRAP UP**

Ron Josephson  
Sandie MacLaurin