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1991 SOCKEYE CULTURE WORKSHOP



ALASKA DEPARTMENT OF FISH & GAME
Division of Fisheries Rehabilitation,
Enhancement, and Development*

*As of July 1, 1993, F.R.E.D. Division will be known as
Commercial Fisheries Management & Development Division

Proceedings of the 1991 Alaska Sockeye Salmon Enhancement Meeting

Sitka, Alaska

24 and 25 October 1991

The Annual Alaska Sockeye Salmon Enhancement Meeting is an informal forum for the exchange of information about sockeye salmon enhancement. The Proceedings from this meeting are informal records and are not to be interpreted or quoted as a juried publication. In order to make the information as timely and useful as possible, presentations were sometimes made from original data and field notes while others were project updates using preliminary or incomplete data from ongoing work. The contents of these proceedings are a combination of materials provided by the speakers as well as narrative reconstructed from notes (in italics) taken by Katherine Aschaffenburg, Terry Ellison, and John Burke.

Sockeye Enhancement Meeting Agenda

October 24; Sockeye Culture

- 8:00; Coffee
- 8:10; Welcome, Moderator, Terry Ellison
- 8:20; Keynote address, Robert Burkett

Yearling smolt production

- 8:40; Main Bay Hatchery update, John Burke
- 9:10; Pitt River Hatchery update, Dave Harding
- 9:30; Adult ripening at Main Bay Hatchery, Karen Robinette/Tony Carter
- 9:50; Yearling smolt and presmolt at Snettisham, John McNair
- 10:10; Break
- 10:25; Wenatchee River sockeye project update, Kathy Hopper/Mark Babiar

Underyearling Smolt

- 10:50; SSRAA underyearling smolt program update, Don Amend/Bill Halloran
- 11:20; Auke Creek underyearling smolt research update, Bill Heard/Jerry Taylor
- 11:40; Kodiak underyearling smolt programs, Lorne White/Steve Honnald
- 12:00; Lunch

Fry production

- 1:15; Snettisham CIF update (thermal tagging), Carol Coyle
- 1:40; In-Lake incubation of sockeye salmon ^{adults} at Redoubt Lake, Steve Reifenhohl
- 2:00; New spawning containers for isolation and disinfection, Jeff Hetrick
- 2:20; U.V. Disinfection, Mike Blake
- 2:40; Break

3:00; Open forum on sockeye culture, Ken Roberson

Sockeye bioenhancement, rehabilitation, life history, and IHNV

8:00; Coffee

8:15; Introduction to Day 2, Terry Ellison

8:25; Snake River sockeye rehabilitation, Keith Johnson

8:55; Current status of Cedar River sockeye enhancement, Bob Gerke

9:25; IHN update for Alaska (Chenik Lake), Jill Follett

9:45; IHN, recent developments, overview, Ted Meyers

10:05; Break

10:20; Early marine life history of sockeye (Auke Bay), Joe Orsi

Case Histories

10:40; Hugh Smith Lake, enhancement and management, Doug Mecum/Phil Dougherty

11:00; Big Lake, sockeye coho interactions, Larry Peltz

11:25; Virginia Lake, fry plant timing and consequences, Mike Haddix

11:50; Esther Pass and Pass Lakes, fry and presmolt, Greg Carpenter

12:15; Lunch

1:30; Speel Lake, Ron Josephson/Scott Kelley

1:50; Sweetheart Lake, Rich Yanuze

2:10; Redoubt Lake, Don Dennerline

2:30; Break

2:45; Open forum, Ken Roberson

End of forum; Set next years meeting time and place, closing remarks, Terry Ellison

**Sockeye Salmon Fry and Pre-smolt Stocking at Pass and Esther Pass
Lakes in Prince William Sound**

by

Greg Carpenter

This program is an experiment to determine the best method of utilizing excess fry production from Main Bay Hatchery to produce adult salmon in the small barriered lakes of Prince William Sound. The program was initiated in 1988 to compare the ability of two barrier lakes to effectively rear sockeye salmon to smolt. Pass and Esther Pass Lakes are two small oligotrophic lakes located on Esther Island in Prince William Sound. Sockeye salmon (*Oncorhynchus nerka*), fry reared at Main Bay Hatchery in Prince William Sound were released into both lakes in 1988 and 1989 with presmolt being stocked in 1990. both lakes were stocked with equivalent densities of fry per euphotic volume based on the sockeye production capacity model by Koenings and Burkett. The model indicates stocking at levels of 110,000 fry per euphotic volume of the lake to reach rearing limitation. In 1988 and 1989 Pass Lake was stocked with approximately 600,000 fry and Esther Pass with around 154,000 sockeye fry. The sockeye smolts emigrating from both lakes were captured with fyke nets attached to live boxes. A subsample of 40 smolts were collected daily for weight, fork length and scales taken for age composition. No fry were stocked in the spring of 1990 so both lakes lay fallow during the growing season except for the holdover fish. Survival rates were low from both lakes when sockeye fry were stocked. In 1990 fish were stocked at a later date than the two previous years to allow the food source to build up sufficiently during the growing season. Of the estimated 100,000 sockeye pre-smolt stocked in Pass Lake approximately 63,159 smolts were produced with 63.3% survival rate while Esther Pass Lake stocked with an estimated 25,000 pre-smolt produced approximately 16,326 smolts with a 63.5% survival rate. Previous survival rates for Age 1.0 and 2.0 fish combined from Pass Lake in 1989 was 12.2% and 6.6% in 1990 while Esther Pass Lake had 8.5% survival in 1989 and 9.8% in 1990. Survival rates from pre-smolt stocking were much higher than the two previous years mainly due to stocking larger fish, stocking lower total numbers of fish into each lake, and stocking later in the year preferably just before freeze up.