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HATCHERY-WILD INTERACTIONS STUDY 2017 FIELD SEASON SUMMARY

October 2, 2017

OVERVIEW

1. Project Overview

The Sitka Sound Science Center (SSSC) was contracted in 2017 to collect genetic and life history samples from post-spawning summer chum salmon in 4 streams in Northern Southeast Alaska

SSSC field personnel conducted 70 visits to 4 streams between July 20th and August 26th. Two field crews established to each focus on 2 streams. Additional samples were collected by other SSSC staff and volunteers from Sitka. Prior to deployment, crew members spent 4 days in Sitka for training and field preparation.

The *M/V Surveyor* was used to transport and house a vessel-based crew to access Prospect Creek and Admiralty Creek and a Juneau-based crew had easy road access to Fish Creek and use of a skiff to survey Sawmill Creek. Two apartments were rented from the University of Alaska Southeast for the Juneau-based crew.

The 2017 field season saw moderate weather for most of the season and strong chum runs in all four streams. In general, access to the creeks was easy and sample collection went smoothly. However, both crews experienced heavy rains and flooding during the last couple weeks of the field season, limiting their ability to access late season returns.

2. Environmental Conditions

Field crews were able to survey all streams on a regular basis. The Juneau based crew experienced a single high-water event on Fish Creek. The crew based on the *M/V Surveyor* experienced two flood events on Admiralty Creek and a single event on Prospect Creek. Each of these occurrences prevented the crews from sampling on the given day. Neither crew had issues with high winds or seas and could access all creeks throughout the field season.

Tides had negligible effect on the surveys conducted during the 2017 field season. Each crew was able to adjust schedules or techniques to accommodate tides for each creek.

3. Fish Returns

The 2017 field season saw high chum salmon returns in inside waters. Fish Creek saw strong numbers from July 21 through August 3, Sawmill Creek had high returns from July 21 to August 8, and Prospect Creek yielded high counts

from July 22 through August 13. Admiralty Creek seemed to be slow developing with a steady run from July 21 to August 14, the run at Admiralty Creek also showed chum salmon numbers more similar to past years.

Generally, the run timing for each stream appeared to align with historical data. The run timing at Fish Creek and Sawmill Creek may have been slightly early, the first surveys conducted on each stream showed high numbers of live chum salmon (404 and 518 respectively).

The highest single day live counts reported from each stream:

- Admiralty Creek – July 29th, 354 chum salmon
- Fish Creek – July 30th, 1,591 chum salmon
- Prospect Creek – August 5th, 1,300 chum salmon
- Sawmill Creek – July 29th, 1,174 chum salmon

4. Communication

Communication between field crews and project coordinators was effective. The use of both cell phones and Garmin InReach SE Satellite texting devices allowed crews to remain in contact with the SSSC project coordinator throughout the season. Sample numbers, field logistics, schedule revisions, and other topics were discussed as necessary throughout the season. Project coordinators also maintained communications with ADF&G Area Management Biologists in Juneau and Haines with updates about fish numbers and stream conditions.

5. Data

The quality and integrity of the data was enhanced in 2017 with a combination of updated software for both tablets and laptops, additional checks of the data, both in the field and the office, and a more focused effort on four pedigree streams.

The edits to both tablet and laptop software allowed for easier data entry and review. The tablet application continues to prompt field crews to double check work periodically while sampling in the field. The laptop application has been updated to allow for easier review and editing of data and was used after each stream survey. The laptop application prompts a complete review of the samples collected that day and requires identification of cells with missing information. Once these checks have been completed the application runs a series of quality assurance checks before transmitting the data via the internet. Both crews were asked to back up the data each day to multiple locations and the crew with limited internet access would transmit data periodically.

The Hatchery-Wild Database was utilized by project personnel throughout the season to produce reports, check data and confirm transmission directly from an online database. This database was used at the end of the field season to conduct a final quality assurance check on all samples collected prior to delivery to the ADF&G MTA lab in Juneau.

6. Scheduling and Stream Visits

The Juneau based crew was given a schedule of sampling each stream every other day. In general, this schedule worked well and the crew surveyed Fish Creek 17 times during the field season and Sawmill Creek was surveyed 16 times.

The *M/V Surveyor* was provided with a loose schedule but in general was asked to survey each stream at least every 3rd day. Additionally, at the beginning and end of the field season the boat crew was asked to conduct surveys on each stream every other day for 4-5 days.

During mid to late August, both crews experienced some dangerous high-water events that required the crews to break from routine.

7. Sampling Equipment

All sampling equipment worked well in 2017. Crews were sent into the field with knives, forceps, surgical scissors, 48 deep-well plates, impermamats, tray labels, tray jigs, calipers, ethanol and scale cards to conduct sampling. Overall, crew members felt well prepared with the equipment in the field.

Impermamats, tray jigs and labels were provided by Kyle Shedd at the Gene Conservation Lab. Mr. Shedd was a great resource for this project in 2017. The ethanol for the 2017 project was shipped to the MTA Lab and stored at DIPAC with Jon Livermore. Both the lab and Mr. Livermore were extremely helpful and flexible with pick-up and delivery of materials and samples.

8. Results

Overall, the 2017 crews were efficient and thorough in collecting samples. By focusing on just four creeks, each crew could focus efforts on dead fish as opposed to attempting to catch live post-spawned chum salmon. With decent weather conditions throughout most of the field season, SSSC crews made 70 stream visits and collected 6,213 pedigree samples.

SSSC crews were tasked with collecting a minimum of 1000 samples per creek or 60-80% of the total run of chum salmon. The field crews met the 1000 fish minimum on 3 of the 4 streams (see figure 1).

Stream Name	AWC Number	Target Sample Size	Visits	Chum Salmon Sampled	Quota Met	Otoliths (2 ea.)	DNA	Scales (4 ea.)
Admiralty Creek	111-41-10050	1000	18	872	NO	1652	870	3444
Fish Creek	111-50-10690	1000	17	1931	YES	3773	1931	7640
Prospect Creek	111-33-10100	1000	16	1433	YES	2824	1430	5560
Sawmill Creek	115-20-10520	1000	19	1979	YES	3930	1976	7532
TOTALS			70	6215		12225	6207	24176

9. Recommended Changes

In future seasons SSSC would suggest providing an additional staff member in Juneau to act as support personnel. The vessel based crew receives logistical, shopping, cooking and cleaning support from the boat staff while the Juneau based crew is responsible for the field work plus the additional logistical concerns. Providing one additional person in Juneau to perform logistical support would greatly improve work conditions for that crew.

There may also be a need for an additional crew with the primary goal of establishing a rotation with the primary crews to allow for additional time off during the field season. The six-week field season is intense; we must balance work days and sampling opportunities with necessary rest days to minimize health and safety risks. Hiring an additional crew during the peak weeks of the season would allow for time off and maintain a constant surveying schedule. This could potentially be accomplished with one or two individuals rather than a full crew.

At least 2 of the streams currently surveyed can quickly become dangerous due to heavy rains and flooding. We would like to provide each crew with equipment that can be installed along the streams to monitor water levels and flood conditions. This will help our field crews make more informed decisions about river safety in future seasons.

Finally, the software for the 2017 season worked well and only minor changes are necessary. Primarily, we would like to implement a more rigorous field QA process in the future. Currently, there are periodic reminders to check the samples being collected. We plan to spend additional time emphasizing the importance of periodic field QAs during training but we would also like to explore ways to implement greater requirements within the tablet software.