

Alaska Hatchery Research Program Science Panel meeting November 9, 2020

Virtual meeting via Microsoft Teams

Summarized meeting notes and decision points

Attendees

Science Panel

Milo Adkison, University of Alaska
David Bernard, ADF&G (retired)
John Burke, ADF&G and Southern
Southeast Regional
Aquaculture Association
(SSRAA; retired from both)
John H. Clark, ADF&G (retired)
Chris Habicht, ADF&G
Jeff Hard, Northwest Fisheries
Science Center, National
Marine Fisheries Service
(NMFS; retired)
Ron Josephson, ADF&G (retired)
Bill Smoker, University of Alaska
(retired)
Bill Templin, ADF&G
Alex Wertheimer, NMFS (retired)
Peter Westley, University of Alaska

Other Attendees

Sam Rabung, ADF&G
Tommy Sheridan, Prince William Sound
Aquaculture Corporation (PWSAC)
Chance Gray, Sitka Sound Science Center
(SSSC)
Callie Simmons, SSSC
Jodi Neil, ADF&G
Bev Agler ADF&G
Kristen Gruenthal, ADF&G
Garold V. "Flip" Pryor, ADF&G
Kyle Shedd, ADF&G
Erica Chenoweth, ADF&G
Mike Wells, Valdez Fisheries Development
Association (VFDA)
Ron Heintz, SSSC
Geoff Clark, ADF&G (retired)
Katie Harms, Douglas Island Pink and
Chum, Inc (DIPAC)
Katrina Hoffman, Prince William Sound
Science Center (PWSSC)
Peter Rand, PWSSC
Dion S. Oxman, ADF&G
Scott Wagner, Northern Southeast Regional
Aquaculture Association (NSRAA)
Tina Fairbanks, Kodiak regional
Aquaculture Association (KRAA)
Wei Cheng, ADF&G
Erik Knudsen, **Current Affiliation?**
Eric Prestegard, DIPAC
Chris Barrows, Pacific Seafood Processors
Association.

Budget status

- **Flip P. & Sam R.** Proforma budget up-to-date and available
 - Project is solvent as projected currently
 - ability to carry over savings year to year and
 - 2016 Pink Salmon Disaster Funding came through
 - Processor payments likely suspended for now, with conversations ongoing, due to rough years.
- **Fund sources**
 - Northern Fund for FY21
 - \$180,000 requested. Still in final stages of application process
- Discussion
 - **Ron J** More processing of samples for genetics lab could be done with any excess funds. **Sam R.** Good point, though processors and hatchery operator contributions might not happen depending on future years (reducing surplus funds). **Chris H** Cost for genetics has dropped when we removed the alevin component and have made our genotyping methods more efficient, so GCL expenditures have gone down overall.

Publications and website updates

- Straying manuscripts
 - PWS – pink and chum
 - **Bill T.**, Publication continuing to move forward, galleys have been proofed, accepted to *Marine Coastal Fisheries* online journal; SP will want to discuss a press release moving forward as it should be out soon.
 - All of the data used for calculations and analysis are available on the Knowledge Network for Biocomplexity (KNB) hosted by the National Center for Ecological Analysis and Synthesis.
 - SEAK – chum
 - **Bill T.**, It has been accepted with revisions as full article (rather than original brief) in *North American Fisheries Management*, awaiting journal editor contact after latest version submitted. Editor requested more information on other straying studies be included, we provided larger acknowledgements and an additional conflict of interest statement, and Andy Piston and Steven Heintz are now on as co-authors.
 - All Science Panel (SP) members have seen updated draft and submitted comments. **Bill T.**, can resend material to those who request a refresher on those materials.
 - All of the data are available as a supplement to the publication but not as Microsoft Excel file. **Decision point: Bill T.** will work with Wiley publishers to make supplement available in accessible file such as Excel.
 -

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- RRS reports and publications
 - Hogan & Stockdale 2013–2016
 - **Kyle S.** Manuscript was accepted with revisions to the journal *Evolutionary Applications*
 - **Emily Lescak** and **Kyle S.** addressed editor's revisions this past summer
 - Co-authors currently reviewing updates
 - Plan is final review at end of November, with final journal submission in December. SP will receive copy for courtesy review as we submit in Dec.
 - Website updates
 - **Flip P.** No major changes to the webpage have been implemented so far
 - **Future plans:**
 - **Bill T.**, We will add a section with our publications and any related projects using information derived from the program
 - Develop a page that describes the data protocols for requesting data
 - Catch up on synopsis summary for 2020 and make sure past editions are available on the website (**Decision point** for **Bill T.**, **Sam R.** and **Flip P.** to continue leading those drafts)

2020 Contractor Reports

- PWS Stream Sampling summary – PWSSC
 - **Pete Rand** presented on a successful field season; even with Covid-19 challenges; reduced effort this year from 3 to 2 streams (Paddy and Erb Creeks); really appreciated collaboration with **Tommy S.** and PWSAC for mobilization and demobilization.
 - 10,836 samples over 2 streams (7,465 in Erb and 3,371 Paddy) and estimated sampling of total run was 82% for Erb and 61% of Paddy and good distribution throughout run of sampling so good characterization
 - Estimated stream life for both creeks; Erb (7.5 days) and Paddy (4 days)
 - Discussion:
 - Dry conditions early but no prespawning mortality events like last year with more water later in the season; water temps were similar to what they've seen in recent years; fairly high predation. Tissues samples were taken from those bitten by bears even though otoliths not intact; crew did survey forest to recover carcasses but still probably some in forest not recovered; amount of run sampled is sensitive to your estimate of stream life; overall poor returns but still good sampling year for what was there.
 - **Bill T.**, annual reports need posted to website for 2018-2020 from contractors. **Decision point: Flip P.** will make sure those are posted to website
- SEAK Stream Sampling summary – SSSC
 - **Chance Gray** presented on great crews but challenging field season, in addition to Covid-19 challenges, due to many flooding events, consistently high flows, turbid water and rain events across all 3 streams (Fish, Prospect and Sawmill)
 - Shifted sampling focus mid-season to focus on live post-spawned fish, contributed significantly to number of samples collected

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- Poor returns with high flows resulted in 134 from Fish, 51 from Prospect and 6 from Sawmill
- Interested in adjusting sampling design for future year in ways that help deal with extremes in weather (partial carcass weirs, mark/recapture tagging, addition crew for peak of season/drones for aerial surveys)
- Discussion of sampling design will continue in later agenda item but was agreed that tools like carcass weir might help.

2020 Lab Reports

- PWS Otolith – ADFG Cordova
 - **Stormy Haught** sent an email update (not present at meeting): All reads for all 3 streams in 2019 completed: 30,489 reads total with rates of no reads varying from 1.6% in Hogan to 2.4% in Gilmour;
 - All reads completed for 2015 Erb Creek for a total of 10,808 reads (no read rate 2.2%)
 - All reads completed for 2017 Erb Creek for a total of 12,835 reads (no read rate at 4.6%)
 - Currently working on Paddy 2017 (43% complete at time of meeting)
 - Future plans include continuing to work on the backlog of 2015 Paddy samples and Paddy and Erb Creek samples from 2020 (once received); flexible winter staffing depending on AHRP needs
 - **Bill T.** noticed high “No Reads” of 25% for Paddy 2017 and was going to follow up with the Cordova Otolith lab to get more information. Hypothesized that might be due to bear predation.
- SE Otolith – ADFG Mark, Tag and Age Lab (MTAL)
 - **Bev Agler** presented numbers for 2020: 193 samples received, 173 readable and reviewed marks present by hatchery
 - Discussion asked about high “no read” rate, was pointed out that includes otoliths not available (not collected) in addition to those unreadable
- Genetic – GCL
 - See PowerPoint presentation “Gene Conservation Lab 2020 Progress update” for full details; **Kyle S.**, introduced **Kristen Gruenthal** new team member for AHRP
 - Lab progress (tissues analyzed)
 - DNA extraction: nearly everything extracted except for Paddy and Erb 2015, 2017, and 2020. Total of 57,688 extracted in 2020
 - Genotyping: 21,013 completed or in progress with 36,675 to be done in the coming months.
 - Lab progress (otolith shipping issue)
 - Backlogged samples experienced some otoliths shifting in transit due to changed method in sample storage and shipment (see detailed email for full account from **Chris H.**) affected approx. 17% of samples
 - GCL has been investigating methods to use DNA derived from the otoliths to re-pair the otolith and heart tissues and has had high success rates; methodology is being finalized and cost is not

expected to use more than originally projected for lab due to cost savings in other areas of GCL methods.

- Statistical Analysis
 - **Kristen G.** presented. Review of how we measure fitness (Reproductive Success) and fact that AHRP is an origin-only analysis (decoupled from ancestry) with incomplete sampling; we only know 1-3 of 4 total potential grandparents for a given fish
 - As pedigree expands through generations, it reduces power to know RS or the magnitude of maternal/paternal/ancestral effects, numerous methodologies being explored for statistical analysis
 - Questions we can ask now given data we have:
 - How many F2 offspring can trace their lineage back to hatchery vs natural grandparents?
 - What is the effect on RRS for F1s that have at least one natural parent vs at least one hatchery parent?
 - Does including neighboring streams improve multigenerational pedigree reconstruction?
- Discussion of Statistical analysis included the following points
 - Other contemporary studies have more complete sampling and pedigrees than we do with fewer unknowns so not as comparable to our study
 - Probably going to use a maximum likelihood/Bayesian based approach rather than exclusion
 - Simulation work could help estimate RRS (modeling scenarios): e.g. use timing differences between wild and hatchery to estimate origin probabilities of unknown origin parents
 - Only likely to find very large effects if they exist and unlikely to detect small effects
 - GCL has resources for next few months to continue with F1/F2 analysis and will know then whether more resources/skill sets (such as post doc) are needed.
- Database Status
 - **Chris H.** presented that he had a productive meeting with contractors and ADFG database teams to secure all program data in the department database for long-term storage. They have decision points about how to move the data over into ADF&G databases with definitions for each field, including alevin dig information (currently not in any database)

2021 Planning

- PWS stream sampling
 - **Decision point:** no sampling to occur in PWS in 2021
- SEAK stream sampling
 - Discussion of further options to increase success
 - Next 2 years are critical for generational analysis

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- Having a crew camp at Sawmill would reduce transit time, increase coverage
- Live weir will be dealing with large number of pinks; full weir not practical in Prospect due to frequency of blow out events
- Tagging would give good population estimates for sampling rate (could also be achieved walking the stream every day but flood reduce effectiveness of walking)
- Carcass weir relatively easy to put in; keep eye out for vandalization; abundant materials exist in Juneau to be used
- One option is to continue with all streams in 2021 but then consider cutting streams moving forward depending on sampling success
- **Decision point: Chance G.** will get revised/draft budget and sampling plan to **Flip P.** by first week of December and then **Flip P.** will schedule a meeting in mid to late December for further discussions of chum sampling Feb 1. is estimated latest date for finalized plan for **Chance G.**
- Priorities for sampling processing
 - PWS Pink analysis: Hogan 2016 (after genotyping complete) followed by Hogan/Stockdale 2019 (after genotyping complete) followed by Paddy 2014/16/18 and Paddy 2015/17 and Erb 2015/2017. No changes requested by SP.
- Outreach/presentation opportunities
 - January 26-28, 2021, Alaska Marine Science Symposium, Virtual
 - **Kyle S.** submitted an abstract for talk at AMSS on material being submitted to *Evolutionary Applications* on Hogan 2013–2016 analysis.
 - March 3, 2021, HWI Public outreach meeting, Anchorage
 - Board meeting may or may not occur, may be virtual, several unknowns
 - **Decision point: Skip this year**
 - March 4, 2021, Board of Fisheries Hatchery Committee, Anchorage
 - Board meeting may or may not occur, may be virtual, several unknowns
 - **Sam R.** will reach out to find out about status
 - Discussion of importance of sharing information in lieu of public outreach meeting in a printed or video format included the creation of a glossier type of annual report with pictures and highlights
 - **Decision point: Bill T. and Chris H.** will work with **Flip P.** and **Peter W.** to create a short highlights handout, **Amy Carroll** from ADF&G publications might help
 - March 2021, Genetics Symposium, Alaska Chapter of the American Fisheries Society Meeting,
 - Virtual and seems like a good idea for presenting information, is inexpensive, and was encouraged by the SP
- Other 2021 planning
 - Other publications
 - Chum salmon baseline will be published for the entire range (part of the Western Alaska Salmon Stock Identification Program research as well)

- *Other publications continued*
 - **Tyler Dann**'s top priority is finishing his pink SNP panel publication, in prep currently.
 - **Wei C.** gave three updates about the PWS pink salmon baseline
 - the report covering the contemporary even year structure has been sent to all coauthors for review
 - She has looked at both even and odd year historical samples, population structure was detected from both brood lines, odd year better than even year structure, similar to contemporary samples
 - She's now starting to investigate the hypothesis of primary drivers of population structure in context of hatchery releases.

Data Sharing

- **Chris H.** led by reminding the group that **Flip P.** sent data sharing documents by email including 1) a letter that would be sent to **Bill T.** to request the data and 2) a letter that goes back to the requester explaining the data and how to cite the information. These were put together by **Chris H.** and **Bill T.** under SP guidance and following recommendations from **Peter Bangs**. The process would involve a section of the AHRP website that states data available, describes the data by field and states direct requests should be submitted to **Bill T.** using the request form and he would work with the person requesting data to agree what data be sent. A clarification letter would be sent along with the data.
 - Is this the approach the SP wants to take for data coming out of AHRP?
 - Consensus of SP was this is a reasonable plan
 - Discussion included how WASSIP handled data and data requests (excel files of tables on the WASSIP publications website) and the differences between AHRP and WASSIP were briefly reviewed
 - **Bill T.** & **Sam R.** characterized this as a well-balanced approach balancing needs of the AHRP for data analysis and sharing the data with collaborators or external sources working on projects that provide information to help understand hatchery interactions with wild fish. It follows the Alaska Public Records Act precedent, not intended to stonewall. Recognizes the difficult situation that an embargo on the data until we have finished all of our analyses is not technically possible because we're a public agency.
 - The question of turnaround time for data requests needs to be finalized
 - Discussion occurred stating the need to clarify at what stage of writing a manuscript the requester who is using these data submits a copy to the SP for courtesy review; It was recognized that logistically it makes sense to do SP review before submission but this might be viewed as overreaching by some authors.
 - Further work on the language was requested by the SP before finalizing
 - **Decision point:** **Peter W.** and **Alex W.** will work on language and send it out to the SP soon.
- Specific data sharing requests were presented by **Pete R.** and **Eric K.** for future work in PWS.

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- Consensus that while work would be funded separately from AHRP, the SP would support pursuit of other grant funds
- Interest was expressed in a convening a separate group with interested members to brainstorm ideas for future studies and funding sources. **Pete R.** volunteered to receive email ideas and coordinate a meeting. **Peter W., John B., Chris H., Kyle S., Eric K.** were other members interested in the brainstorming.

Additional Items

- **Chris H.** presented on the question of sharing data analyses with the SP in meetings
 - The SP has requested in the past that all results for RRS analyses be published/released at the same time
 - Any data presented at the SP meetings is considered publicly released
 - GCL can provide SP with description of what data and analyses are available. SP can decide if they want to see the data and analyses.
 - SP gave general consensus that was a good way to move forward **Decision point: Chris H./GCL** will send SP information when a chunk of analyses are available, and the SP will decide if they want to see those data/analyses/results.