PSRFEF Oversight Sub-Committee Meeting Minutes

January 27, 2022, 3:00-5:00 pm
Join by Zoom
> **https://us02web.zoom.us/j/4224362557?pwd=dFdtZjVJSmM4NjJVcmdtZ09kdWdydz09**
> **Meeting ID: 422 436 2557**
> **Passcode: 2021**

Committee members present

Art Tachell, Chris Grue, Gabe Miller, Hank Vanderhag, Kurt Pachaud, Mark Riedesel, Michael Gilchrist, Mike Olson, Norm Reinhardt, Tom Nelson, Troy McKelvey

WDFW staff present

Kirsten Simonsen, Leah Snyder, Hailey Rosenthal, Mark Baltzell, Joe Coutu, Eric Kinne, Jill Cady, Ken Warheit

Introduction

The WDFW team was introduced by Kirsten. Kirsten led the group in a brief recap of the last meeting and an overview of the meeting agenda. There was a brief review of what is expected from the PSRFEF.

Hatchery Policy Update

Ken Warheit, Statewide Fish Health and Molecular Genetics Supervisor led a discussion on implementation of the new Anadromous Salmon and Steelhead Hatchery Policy C-3624 that became effective April 9, 2021. The previous hatchery policy had requirements that treated every basin alike with very little room to tailor production to the needs of an individual basin while this policy includes more coordination with the tribes and additional specificity to local concerns.

> "The purpose of the Anadromous Salmon and Steelhead Policy (Policy) is to guide hatcheries and their individual rearing programs **to advance the conservation and recovery of wild salmon and steelhead** by implementing hatchery reform measures; to perpetuate salmon and steelhead in accordance with **existing mitigation programs** and agreements for permanently lost or impaired habitat; and **to provide sustainable economic and stability benefits to recreational, commercial and tribal fisheries in Washington State as appropriate**."

> "…**reflect a balance between minimizing genetic and ecological risks to coincident wild populations and providing for the ecological and societal benefits of hatchery propagated salmon and steelhead**."

Every anadromous salmon and steelhead hatchery in the state will require a hatchery management plant (HMPs). The HMPs will include broodstock information as well as overall operations at the hatchery. Due to the need to develop the Technical Procedures Document and each hatchery's individual HMP, the Commission has directed the department to keep following

existing hatchery genetic management plans HGMPs until HMPs have been finalized. There are three exceptions however, the Columbia River Policy, Willapa Bay Policy and the 2018 Southern Resident Orca Prey Initiative, which will follow their policies prior to HMP development. If a production change is necessary before HMPs are completed, it will need to be done in a public

The next step in implementation of Policy C-3624 is creating the Technical Procedures Document. The requirements of the document are to be developed in consultation with Tribal co-managers and outline balance risks and benefits; Science-based risk management framework; incorporates uncertainty in the estimates of the risks and benefits; structure decision-making process (SDM).

Budget

Since the fall email exchange there has been many meetings between department staff to understand budgetary changes that were made at the beginning of the new biennium, level out funds and work on reallocation of funds. Eric Kinne and Jill Cady worked to prioritize PSRFE production and marking and tagging to make sure it was accounted for in the PSRFEF budget. The production numbers are synonymous with previous years, except for the committee's decision to stop funding Glenwood Springs.

Marking & Tagging Programs	Species/Run	Annual Cost
**Wallace River	300k Summer Chinook Yearlings	$51,408
Minter Creek	AD Only 100k Fall Chinook Subyearlings	$17,136
Hoodsport	100k Fall Chinook Yearlings	$20,496
Soos Creek – Icy Creek	AD Only 100k Fall Chinook Yearlings	$5,353
Glenwood Springs	AD Only 100k Fall Chinook Subyearlings	$5,406
Glenwood Springs	AD Only 100k Fall Chinook Yearlings	$3,975
Voights Creek	AD Only 1 million Fall Chinook Subyearlings	$26,250
Voights Creek - PDNP	50k Fall Chinook Subyearlings	$8,736
Clarks Creek - PDNP	CWT 50k Fall Chinook Subyearlings	$4,730
**Hupp Springs	AD Only 150k Coho	$8,215
Release Time Studies		
Garrison	300k Fall Chinook Subyearlings	$51, 408

A few budgetary changes were made to help level out funds and to ensure the committee is funding their priorities. PSRFE will no longer be funding Gorst; however, the program will continue through a different funding source. The committee will only be funding the marking of fish at Glenwood Springs. PSRFE will be funding 300k Wallace summer Chinook yearlings and 150k Hupp Coho.

Future Projects / Funding Opportunities

The department is predicting, between Goals and Development and Marking and Tagging, that PSRFE will have $130,463.74 moving forward in the biennium.

Oak Harbor Net Pens – The net pens are currently in the water and fish are ready to be transferred. The tentative fish transfer dates are February 15 or 16 with times being dependent on tides. High tides are at 1537 and 1618 with the hatchery arriving 1-2 hours prior for set up. With returns expecting in 2023, we need to start thinking about sampling and monitoring, potential bubble fishery and bubble boundary.

Tagging Hupp Coho – Hupp is a group we do not have any CWT data on. The department is proposing to tag the Hupp Coho so that we can trace their contribution rates and see how it compares to other tagged groups.

Continue Garrison Survival Studies – The department has requested three more years of funding to continue their survival study through release year 2025.

Multilingual Information – There is a large multilingual fishing community, there is a lack of information in languages other than English and Spanish. Pamphlets, ID cards would be ideas to expand multicultural outreach.

Habitat – There are many ongoing projects that the regional fisheries enhancement groups are currently working on that PSRFEF could contribute to. This would be a good way to help habitat in the local communities.

Kids fishing derby – There is a large untapped opportunity in getting kids involved in fishing with kids fishing derbies. Derbies are a great way to reach out to underrepresented communities and there would be a good partnering opportunity with local businesses.

Crescent Creek hatchery program – Collaboration between Tacoma/Gig Harbor, local Tribes, Northwest Salmon Research that has been in the works for the past year about raising Chinook, Coho, and Chum at Crescent Creek Hatchery. They would be open to receiving funds from the committee.

Improving In-Season Updates: Snohomish Coho Escapement Model
Kirsten led the group through how the department determines escapement and a project she has been working on to improve in-season updates (ISU). The Snohomish escapement is estimated from fish returning to Sunset Falls, where around 25% of Snohomish Coho pass through annually. Previously, estimates went by management week with fish counts for those periods which would give a cumulative fish count. There would then be an idea of average total of returns by week to the Sunset Falls area specifically and the general Snohomish area. By then applying the percentage of return by week to the cumulative number of fish that have came through the fish ladder at Sunset Falls, you can estimate escapement.

The problem with this current approach is that by using the mean percentage of returns to Sunset Falls for the entire system there wasn't a way to account for variability around the estimate. The first step was to look at the relationship between the management week and the proportion of the total number of Snohomish fish that are represented. Kirsten decided to use a Generalized Additive Model (GAM) due to flexibility in the fit and ability to add to the model. There is also a function (gam.predict) that will allow you to fit a model and go back with another set of data and use the gam.predict to fit the new data to the model to make predictions.

Kirsten then used gam.predict to fit 2021 data to the model created from 2011-2020 data and the first model explained 97.3% of the variance in the data set and showed a significant relationship. The second model looked at whether or not it was a Pink year. One of the main questions was, during a Pink year, Coho and Pinks returning at the same time and there is competition in river and if it effects what is happening with Coho numbers coming in and escapement. Model two explained 97.5% of the variance in the data set showing a significant relationship with the management week and if it is a Pink year or not. The third model was done without 2015, because 2015 was the Coho crash and a Pink year and there was the thought that it might be biasing the results. Model three explained 98.7% of the variance in the data set showing a significant relationship with management week and Pink year.

Kirsten then included environmental variables to further increase the prediction abilities. The variability that we see year to year has much to do with the conditions that exist at the time in the river and environment, and we needed to find how to take that into account. The fourth model took into account water discharge, gage height and Pink years. The data was taken from the USGS from the Skykomish River station in Gold Bar (closest to Sunset Falls). Model four explained 98.4% of the variance in the data set and showed a significant relationship with all variables. The fifth model used management week, water discharge and gage height, pink year (without 2015) and it explained 98.8% of the variance in the data set and showed significant relationship with all variables.

The next step was to validate the model using the leave-one-out cross validation method to test out the robustness of each model. This method fits each model without one of the years (2011-2020) and gives the ability to calculate mean squared prediction error (MSPE) of each model. Model five ended up providing the best fit to the data. It provided the highest deviance explained, the lowest AIC and the lowest error based on LOOCV. Model five is expected to be more conservative than the other models examined. The new method does show the largest deviation from the original in early weeks (<35), but it is likely not a huge issue since escapement is not finalized until later.

The Snohomish final escapement is determined from fish counts in different reaches in the river and is estimated at 95,000 Coho this year. With Kirsten's modeling approach, her mean EE was 97,168 fish, with the low EE at 90,098 and high EE at 105,442.

There is potential for this model to be used in other systems besides Snohomish and has been presented to other regions and co-managers. Forecasting models are starting to include more environmental data which is leading to better models which improve our ability to manage

fisheries and finding common factors driving distribution improves our ability to plan. Similar driving factors are currently being discovered in Hood Canal.

Marine Area 10 Update

The current season (planned January 1-March 30: Sat-Mon only, 1-fish limit for Chinook) is currently on hold to preserve opportunity for February and March when conditions allow for better time on the water. We are currently at 25% of Total and Sublegal Encounters and 46% of Unmarked Encounters. These estimates are based off WDFW Test Fishing number for the legal marked rate, which to date is 12.5% and is higher than originally modeled in FRAM.

North of Falcon

The North of Falcon meetings will continue to be held virtually this year and are up on our website. The Forecast Kickoff public meeting is on March 4. We have been working to get a long-term Chinook plan in place since 2014 and have been in mediation, hopefully to be wrapped up before North of Falcon. If that happens, the agreed to plans will go into place for this coming year.

Wrap-Up

Once the department has a better idea on the Oak Harbor net pens, we will be reaching out to committee members.

Kirsten will get a doodle poll out to determine a good date for the next meeting.