Cowlitz River Advisory Group
Information for 9/25/19 meeting

All numbers are preliminary (in-season) sourced from WDFW Fishbooks database and are subject to change before finalization

Spring Chinook: Met green egg take goal of 2,280,000

- Total return to 9/20: **1,253**
    - Including 190 NORs and 12 HORs transported upstream

Summer Steelhead:

- Total return to 9/20: **1,662**
- Recycled: 693
- Average run timing thru 9/20 is 86%

Fall Chinook:

- Total return to 9/20: **503**
    - Including 253 NORs
        - 69 NORs taken to brood
    - 243 HORs taken to brood
- Average run timing is 30% thru last week. 47% end of this week

Coho:

- Total return to 9/20: **1,028**
    - HOR (Tilton stock): 681
        - Including 552 transported to the Tilton
        - Including 129 to brood
    - NOR (Tilton stock): 67
        - All transported to Tilton
    - HOR (UCOW stock): 187
        - All transported to UCOW
    - NOR (UCOW stock): 93
        - Including 56 transported to the UCOW
        - Including 37 to brood
- Average run timing is 5.4% thru last week. 13% end of this week

2019 Tilton River Salmon and Steelhead Transport Management Plan

8/21/19

Purpose: Identify the preferred option for transport of salmon and steelhead into the Tilton River for 2019, near river mile 10.

Criteria

1) Minimize/reduce impact of anglers and/or handling stress on NOR fish.
2) Maintain ability to have recreational harvest of Hatchery Origin Recruit (HOR) fish.

Objectives

1) Disperse Natural Origin Recruit (NOR) fish into as much available habitat as possible.
2) Accommodate fish releases under a larger range of river flows.
3) Protect NOR fish in low flow conditions while maintaining a fishery through spatially separating HOR/NOR fish, particularly separation of NOR fall Chinook from HOR Chinook and Coho salmon.
4) Provide a secondary release site to avoid any release site failures – always have a release site available.

Chinook and Coho salmon and steelhead have been released into the Tilton River by Tacoma for many years to support fisheries and the recovery of Tilton River populations. Allowable transport numbers and release locations are described by Tacoma in the annual operating plan and WDFW annually in the Adult Handling Protocols document for the Upper Cowlitz/Cispus and Tilton rivers. Fall Chinook begin arriving in large numbers at the Cowlitz River Barrier Dam in August. All fall Chinook NORs and up to 1,600 HORs collected at the Barrier Dam separator in recent years that were not used for hatchery broodstock, were trucked and released into the Tilton River. Since 2011 nearly all releases have occurred at Gust Backstrom Park (GBP). Between 2003 and 2011 fish were released into Mayfield Lake. During this time period, numerous jacks and adults were collected at the Mayfield Counting House as fallbacks. In 2018, 50 pairs of NOR fall Chinook Salmon were released near the mouth of the Tilton River (Ike Kinswa Park), and the remainder were released at GBP. Releases at the Tilton River mouth were an attempt to provide fish an opportunity to utilize habitat in the lower Tilton where they likely historically spawned. The 2018 releases at the mouth of the Tilton River did not appear to result in a positive outcome as only three redds in the section below the canyon were documented.

The fishery in the Tilton River is regulated for harvest and to promote recovery of the ESA-listed populations by limiting fishery impacts on NOR fish. Due to low river level/low flow during August through mid-October, fish are highly vulnerable to angling after transport to GBP (RM 19). Because both NORs and HORs are released at this one available release location, but only HORs can be retained, NORs may be caught and released several times. Catch and release, combined with the warmer river temperatures at this time of year, can result in higher mortality of NORs and/or potential for reduced spawn success. To reduce these impacts, a closed fishing area was established around the release site after 2015. This closed area has proven to be too small to protect fish during low water months and

maintaining an orderly fishery is sometimes challenging. Therefore, a larger closed area was utilized in 2018 from August through mid-October. Once the river level was consistently high enough to allow fish to easily distribute from the release site (October 16, 2018), the size of the closed area was reduced back to the smaller area.

For the last few years, WDFW has been working in conjunction with Tacoma to establish a new adult salmon release site on the Tilton River, downstream from GBP. A new site has been identified on property owned by Washington Department of Transportation (WSDOT) (RM 10). Tacoma is the lead on site planning, design, and permitting and is working with WSDOT and other entities to permit construction of the site with construction planned for fall of 2019. WDFW is the lead on development of the transport plan for the Tilton River and is working with the Cowlitz Fisheries Technical Committee (FTC) Monitoring and Evaluation (M&E) subgroup and the FTC to develop a preferred option for transport of fish to the new and existing GBP sites for fall 2019. WDFW plans to solicit input from its Cowlitz River Advisory Group and potentially other public input for consideration after initial plan development with the Cowlitz M&E sub-group and feedback from the FTC.

This new site is intended to provide options to alleviate crowding of NOR fish into shallow water at GBP and reduce fishing impacts on NORs, especially during low river flow periods. Fishing access at this potential new site may be limited by parking and several options below include identifying a fishing closure around this area to avoid impacts on NORs. HOR Chinook and Coho could still be released at GBP for recovery and a fishery. A closed area around the release site at GBP will continue to be needed in the future to allow transported fish an area to acclimate after transport and to maintain an orderly fishery. An expanded closure may still be needed early in the fall depending on the transport option identified, streamflow conditions and WDFW's ability to maintain an orderly fishery.

Potential options for transport and fishery implementation utilizing both the existing (GBP) and new sites are as follows:

Options:

1) Transport all NOR fall Chinook and NOR Coho to the new site and all HOR fall Chinook and HOR Coho to GBP. Identify a closed fishing area around the new site.
    a. Continue this strategy throughout the entire release period.
    b. Implement this strategy from the beginning of the season until sustained adequate flows (likely about 150cfs) allow for natural distribution to occur (generally mid-October), at which time a combination of both NOR and HOR fish could be released at GBP for efficient transportation and additional distribution of NORs.
2) Transport all NOR fall Chinook to new site and HOR Chinook (if any) and Coho to GBP. This will allow for some spatial separation of Fall Chinook and Coho. This might be a preferred option if we are relying on the Tilton to produce our fall Chinook NOR broodstock in the future. Identify a closed fishing area around the new site.
3) Transport all NOR Fall Chinook and NOR Coho to the new site and the majority (i.e., ~3/4) of HOR fall Chinook and HOR Coho to GBP. Transport a smaller proportion (i.e., ~1/4) HOR

Chinook and HOR Coho to the new site to allow for expanded fishing opportunity between the new site and GBP. Identify a closed fishing area around the new site.

4) Transport a portion (to be determined) of NOR fall Chinook to the Tilton River mouth and the remainder to the new and/or existing (GBP) site as prescribed in options 1 and 2 above. Follow current transport protocol related to temperature for reservoirs.
5) Transport a portion (to be determined) of HOR fall Chinook to the Tilton River mouth and the remainder to the new and/or existing (GBP) site as prescribed in options 1 and 2 above.
6) Transport all NOR fall Chinook and NOR Coho to GBP and all HOR fall Chinook and HOR Coho to the new site. Have no closure area around the new site. Keep GBP closed to fishing until October 1st.
    a. Continue this strategy until October 1st when fishing is opened and mix HOR/NOR fish between the release sites for the remainder of the release period.
7) Release NOR steelhead at the new site and HOR steelhead at GBP.
8) Split NOR and HOR steelhead between the two sites equally throughout the entire season.
9) Release both NOR and HOR steelhead only at GBP.

Preferred Option for 2019:

The Cowlitz FTC M&E sub-group's preferred options for 2019 are #1b and #8. These options are contingent on completion of the new site and it being operational by late September 2019. Current projections are that the new site may not be operationally available until late October or November 2019. Contingency transport options for this scenario are under development.

Top Priorities from Coho FHMP workshop (2/21/19)
Finalized April 6, 2019
WDFW Perspective

Coho Top Priorities from 2-21-19 Workshop, finalized on April 6

1. Long Term Goal: Develop a plan and transition strategy to move to one hatchery program derived from the Upper Cowlitz Basin that meets all program and harvest needs. This single, Upper Cowlitz program will encompass hatchery production from the current Lower River program. AGREED – this is the long-term goal.
   Plan must include:
   a. A description of how harvest mitigation will be achieved in the long term for both upper and lower rivers.
   b. Plans for the Tilton River and how harvest opportunity will be maintained there.
   c. A robust abundance floor for the upper Cowlitz River release. This could override pHOS recovery goals.
   d. Analysis to determine if population can support the needed level of broodstock mining and if this plan will prevent or delay the upper Cowlitz coho population from reaching "healthy and harvestable" levels?
   e. An acknowledgement that if the plan cannot meet recovery and fishery goals, the plan would need to be altered.

2. Maintain flexibility to increase production within licensing and ESA constraints. AGREED

3. Identify (origin) and monitor pHOS in the mainstem Cowlitz. AGREED – WDFW would also like to discuss options for estimating mainstem coho spawner abundance.

4. Develop goals that take into account integrated vs. segregated SAR's. AGREED – this should be part of the transition plan described in bullet #1.

5. Develop a transition plan and begin marking at Mayfield (vs. Cowlitz Falls Dam) in the next 2 years. AGREED

6. Define the disposition / best use of surplus coho (salmon that return to the hatchery). AGREED – there is currently a disposition plan for hatchery fish surplus at the Cowlitz facilities. WDFW is open to discussing the current plan and potential changes including alternative fisheries uses for surplus fish (i.e. transportation to Riffe Lake, transportation of jacks to Lake Scanewa derby site, etc.)

Summary of Cowlitz FTC FHMP Workshop: Cutthroat and Chum

30 April 2019

WDFW Perspective

Cutthroat:

Themes:

- Program brood is met consistently - AGREED
- Will continue as segregated program with the same size, rearing and release protocols in near term
- Explore efficacy of moving from a segregated to integrated program over next FHMP period – WDFW is willing to discuss this concept, but reasoning for proposed change would need to be clearly outlined
- UC NOR (some are anadromous) - AGREED
- Tilton (some are anadromous) - AGREED
- Focus in sea-run cutthroat (in SA) AGREED – WDFW agrees that the focus of the SA was on sea-run cutthroat
- All NOR in the Upper Basin (some are anadromous) – WDFW agrees that future management should continue to support NOR cutthroat in the upper basin
- Segregated hatchery program of 102K smolts
    - Cowlitz Mayfield Barrier Dam arrivals (how the program started)
- Concern re: cutthroat predation on Chinook. AGREED – WDFW agrees this is a concern
    - TPU and WDFW collaborated on studies (3 years of sampling) –
    - Captured in Annual Report
    - WDFW would suggest these need to be expanded/reviewed. Were they adequate?
- Info gaps
    - Would like to do directed studies in the future – AGREED – several key information gaps should be addressed, particularly related to predation.
    - How popular is this program for anglers?
        - Could use Creel Surveys to help evaluate the success of the program
        - Is promotion of the fishery needed to make sure it is fully utilized?
    - After information gaps are addressed – program size should be re-evaluated.
- Be sure in the FHMP chapter to explain why the program is its current size (and that it does contribute to the poundage cap) AGREED

Chum History

Themes:

- Status Quo – WDFW believe there should be recognition of chum salmon in the FHMP update which would be a change from status quo.
- Characterize lack of impacts to other ongoing efforts – This needs more clarity.

- Do not intend to include Chum in 650K hatchery production goal during FHMP plan period – AGREED – however WDFW would like to discuss some options for use of Cowlitz production facilities to promote chum salmon recovery in the Cowlitz (e.g., providing eggs for RSI programs).
- Consideration for chum within Satellite Rearing facilities may be part of the FHMP during plan period - AGREED
- ESA listed - AGREED
- Cowlitz River used to support abundant chum runs (250K) - AGREED
- History is defined in the Bi-Op (recognized as part of the license)- AGREED
    - Biop says "Should include a chum salmon analysis (does this already exist)?"
- SA is limited on Chum – doesn't mention any species for the Cowlitz – Needs more clarification.
- There are a remnant number of chum in the Cowlitz (different from other Columbia River chum)- AGREED
- Spawned at least 15 miles above Mayfield (most spawned below that)- AGREED
- Recovery Plan recognizes **two** Cowlitz River populations (includes all tributaries)
    - The minimum viability target for each population (fall and summer runs) is 900
- This plan addresses only a portion of the overall lower Columbia River chum ESU
- Limiting factors include
    - Eruption of Mt. St. Helens
    - Damming of the river (significant habitat loss)
    - WDFW and Cowlitz Tribe are working on improving habitat
        - WDFW is restoring / creating habitat for Chum in the Lower Columbia River. May want to do the same for the Cowlitz…
- Chapter to describe:
    - What actions have been taken
    - Info gaps
    - No plan to add chum to hatchery facilities – WDFW would suggest that this be modified to describe that no production level programs are planned as part of the 650K cap, but some small-scale programs to support recovery could be entertained during the next six-year period (i.e. RSIs)
    - Disposition of chum that end up in the separator
    - M&E

Summary of Cowlitz FTC Fall Chinook FHMP Workshop

12 December 2018

WDFW Perspective

Agreements:

- **For the next 6 years, fall Chinook Salmon recovery will focus on the Lower Cowlitz and Tilton subbasins and fall Chinook will not be put above Cowlitz Falls. AGREED.**
    - We recognize that there may be push-back on this from the angling community and it is important to communicate this (purpose of this decision) within the strategy for the Tilton Subbasin. **AGREED.**
- **Move to a single integrated hatchery program for all or the vast majority of the 3.5 million smolts. – Generally agree, with conditions (see below).**
- WDFW views this as a longer term goal. It may be possible to begin implementation in the next 6-year period, if the plan is completed and if **key informational benchmarks** are achieved (i.e. ability to determine NOR population origin with confidence).
    - Maybe with a small segregated program for the Lower Cowlitz Subbasin? Will this be useful or needed?
        - Agree that a smaller program may be needed for the Lower Cowlitz to accompany the larger integrated program and to ensure harvest mitigation objectives are achieved.
        - Description of this program (size, integrated v. segregated, etc.) should be determined in the transition plan for the integrated program.
        - Risks of fully eliminating lower program and/or transitioning to a segregated program include reduced allowable pHOS under HSRG. This needs to be discussed and evaluated as part of transition plan development.
    - Develop long-term plan for hatchery supplementation of individual populations in Local Adaptation phase and beyond.
        - Not clear how this aligns with moving towards a single program. Details of this should be discussed and included in the transition plan, if needed.
        - Also requires evaluation of each populations current "phase" (i.e. recolonization, local adaptation, etc.) and thresholds for when to transition between phases.
- **For WDFW to support this transition:**
    - Need an immediate plan to determine population origin (i.e. Tilton vs. Lower Cowlitz).
        - PBT has been suggested as the most robust method for assigning origin – WDFW would support PBT
        - Alternate strategies of marking fish with external marks/CWT are also possible, but complicated by less than 100% collection efficiency at Mayfield Trap
            - This would need to be accompanied by an evaluation of trap efficiency and then a clear protocol for disposition of returning fish

        - For example, how would unmarked/tagged Tilton origin fish (fish that bypassed the Mayfield trap as juveniles) be dealt with. These would look like lower Cowlitz fish. Would some proportion be transported to Tilton? Used in Broodstock? Left in the lower River? What level of exchange between populations is acceptable?
        - If only known Tilton origin fish are transported into the Tilton – would the population be self-sustaining? (i.e. if collection efficiency is 70%, then 30% of production would not be transported, which equates to a 30% impact to the NOR spawning population)
    - TPU has suggested that development of the methodology should be an M&E team task. WDFW agrees that could be accomplished by the M&E team for presentation to the FTC, but that this must be completed and agreed to before any transition can occur.
- If an adequate method for determining population origin is developed and implemented, WDFW would support an interim strategy of:
    - Initiating an integrated Tilton River program (based on written strategy that is proposed to be developed)
    - While maintaining the Lower Cowlitz integrated program
    - Allowing use of both NOR separator and lower river NOR collections for broodstock for both programs and doing a post season analysis of the proportion of NORS that assign to each population, rather than requiring an in-season, real-time analysis of NOR assignment.
    - Based on results of this analysis, the program could be adaptively managed to:
        - Determine if real-time assignment in-season is needed.
        - Adjust program sizes appropriately – can lower Cowlitz program be transitioned to a small program focused on harvest supplementation?

Key Messages for Fall Chinook Chapters (listed in order of which received the most votes):

1. **Clearly define strategies (11 votes)**
    a. For fall Chinook for the Lower Cowlitz and Tilton - AGREED
    b. For spring Chinook for the Upper Cowlitz and Cispus - AGREED
2. **During the 6-year plan, we'll transition from integrated / segregated to a fully integrated program (11 votes)**
    a. We will describe this and begin to implement it within the 6 yrs.- WDFW supports development of the plan and implementation of the plan, potentially within the next six years, if the issues described above regarding NOR population origin assignment are adequately addressed.
    b. One program and plan for the future – dependent on the plan and ensuring adequate fish for long term harvest mitigation is also achieved.
3. **Recovering NORs produces more fish - over the long term, at a lower cost for rate payers and tax payers (9 votes) –** WDFW suggests "better quality fish" would need to be stricken or better defined.

a. Our ultimate goal is recovery to harvestable levels - AGREED
b. While this is not possible within 6 years, we will maintain harvest opportunity through the continued use of hatchery programs. - AGREED
c. We are addressing fish for harvest. We do hear what the community is saying - AGREED
d. Hatchery programs for harvest mitigation… - AGREED

4. **Highlight habitat restoration opportunities in high priority areas (4 votes)**
5. **We have to work within sideboards (2 votes)**
6. **Recognition that, in the short term, we don't fully understand population structure between the Tilton and lower river (2 votes) – From WDFW's perspective, this is assumed to be the critical piece of information needed to move forward with transition plan described above.**
7. How to improve smolt-to-adult return (0 votes)
8. Management of HOR/NOR by basin (0 votes)
    a. How to deal with that component of recovery

Major Content Themes for Fall Chinook Salmon Sections:

Major Content Themes (Fall Chinook)	How to Address
Need to define where we are in terms of phasing AGREED - Introduce redundancy between species and population sections – DISAGREE, suggest merging and reducing redundancy	Include criteria for moving between phases, e.g.: - NOR spawner abundance - - SAR - FCE?

Major Information Gaps - Fall Chinook Salmon:

Information Gaps	How to Address
Understanding the population origin of the NORs – AGREED-this is the most critical step	Lay out potential options and when in the 6 year period the plan would be developed (refer to M&E Chapter)
Harvest Objectives / targets AGREED - On strategic level – focus on the direction we are moving - Explain the conservation purpose and harvest objective – most important - Let them know what to expect programmatically	What constitutes "healthy and harvestable levels?" - Show what harvest has been - need updated data from WDFW - Range of harvestable surplus – focus on staying within that range - Develop a harvest plan
- Upstream transportation of HORs (pHOS) - Prioritize broodstock and fishery needs	Describe limits - manage as a Contributing population - 6 year goal - Note this will be derived from the strategies set

M&E Parking Lot:

- Tilton juvenile collection and marking – AGREED – must be addressed for the transition plan to move forward
- Inadequacy of estimated habitat capacity for upper limits of a population (doesn't consider historical capacity).
    - No data-based estimates of capacity – not completely true- all current estimates were modeled using available data at the time, but agree this can be improved.
- How to improve abundance estimate for lower river Chinook and how to proportion the pHOS (What proportion of the Tilton ate spawning downstream, etc.) – AGREED – improved abundance estimates and how this could be accomplished is described in our **current FHMP** and should be addressed as soon as possible. Need decisions to move forward with tGMR work that has been proposed or discuss alternatives.
- Genetic monitoring – AGREED, but less important than assigning population origin and improved spawner abundance estimates.
    - Timing
    - Population possibilities (using alleles)
    - Energy / efficiencies to evaluate abundance
- How to assess the population structure – AGREED – assigning population origin is the critical piece to the hatchery transition strategy described above.

Summary of Cowlitz FTC FHMP Workshop: Spring Chinook

11 January 2019

WDFW Perspective

Revised Agreements: WDFW provided detailed comments outlining our perspective on the Fall Chinook FHMP workshop notes – please refer to those comments.

The Path forward for **Fall Chinook** (Drafted 12/12/18 and finalized 1/11/19)

Timeframe: Next 6 years from Feb.2020 AGREED – If FERC allows for this to be the case. I believe Tacoma was going to have discussion with FERC regarding this issue and report back to the FTC.

- Fall Chinook Recovery will focus on the Lower Cowlitz and Tilton sub-basins and not put them above Cowlitz Falls. AGREED
- Manage as a combined integrated hatchery program for all/vast majority of the 3.5 million smolts, rather than maintaining a segregated program. Please see WDFW's detailed comments outlining our perspective captured in the FHMP workshop notes we provided.
    - During this period, continue to evaluate the appropriate program structure to manage for individual populations and adaptation.

Tentative Agreements:

The Path forward for **Spring** Chinook (Drafted 1/11/19 and to be finalized 2/5/19)

Timeframe: Next 6 years from Feb.2020

- In recolonization phase, working to build abundance. Start with status quo Spring Chinook segregated program with goal (within the 6-year period) of implementing the plan (still to be developed) for a small integrated program. AGREED. Our vision is that, to begin, this will be a small integrated program alongside the segregated program, similar to how we have been building the fall Chinook integrated program, but details will need to be described in the plan. Size of program will be driven by available NORs and proper integration rates.
    - Fish Passage Survival (FPS) is key limiting factor to NOR abundance. AGREED

- **Inserted from .ppt slide:** Prioritize Cowlitz basin program needs including both recovery and harvest objectives. AGREED – WDFW supports development of a prioritization plan for spring Chinook focused on in-basin recovery and harvest objectives, as long as recognition is given to other obligations WDFW has for the State's fish and these are worked into the plan (i.e., Governor's Southern Resident Killer Whale plan, Columbia River Policy requiring maintenance/development of terminal fishery areas such as Deep River, and U. v. OR requirements).
    - Develop plan for identifying triggers and fish/eggs dispositions and harvest objectives during first year of 6 year period. AGREED
        - Define surplus as it applies to triggers -AGREED
        - Salmon or their eggs/offspring that are determined to be surplus to the Cowlitz Basin programs may be exported for out of basin needs. AGREED

- Develop a plan for integrated program, early in the 6-year period, with potentially new/revised decision rules (e.g., based on number of returning adults). AGREED - with the following comments:
    - Will need to include discussion/plans for hatchery infrastructure needs/capability.
    - Will need to outline program size and use of NORs for the integrated program vs. transport upstream.
    - Will need to include how this program is phased with existing segregated program to meet both recovery and harvest goals.
    - Will need to include an evaluation framework to ensure survival and performance of the integrated program is better than (or at least equal to) segregated program. (i.e. survival (SARs), ecological impacts (precocity/mini-jacks, predation, etc.) and harvest contributions.)
    - Need discussion of process for updating or adding decision rules based on the plan – how does this work with FTC and FERC process?

- Long-term Goal: Implement an integrated program both for upstream recovery (which is defined as healthy and harvestable) and for lower river (below Mayfield) specifically for harvest to mitigate for lost harvest opportunity. AGREED – in the long term a single program meeting all recovery and harvest goals and objectives would be optimal.
    - Need a percentage of fish to be managed for harvest. AGREED – WDFW's perspective is that all hatchery fish would be adipose-clipped for harvest opportunity and some number (or percentage) of fish transported into the Upper Cowlitz would be done to support harvest opportunity in those areas as well.

Key Messages for Spring Chinook Chapters (listed in order of which received the most votes):

1. **Upper Cowlitz Spring Chinook Population is heavily reliant on FPS (11 votes) -** AGREED
    a. This is a key limiting factor - AGREED
2. **Currently in the recolonization phase (few NORS – trying to build abundance (8 votes)-** AGREED
    a. Recovery of Spring Chinook in the Upper Cowlitz is important step for ESU recovery - AGREED
3. **A plan for prioritization of broodstock collection for in-basin and out-of-basin programs is needed (6 votes) –** AGREED – this should include prioritization plans for transport and surplus as well.
4. **Plan for integrated program – potential impact on fishery (5 votes)** CONCERN – WDFW agrees that a key message should be describing the long-term goal of transitioning to a single integrated program, but that a transition plan has not yet been developed to outline how that would be accomplished. A short term goal of developing a plan for starting an integrated program will be part of the 6-year plan. It is unclear what potential impact on the fishery would be described, it is WDFW's hope that the message would be that transitioning to this new program will not negatively impact the fishery and may enhance it in the future.

5. **Concern that there won't be harvest opportunity in the Upper Cowlitz and what the release strategy is (1 vote)** AGREED – this does not need to be a key message, but describing the transport/release strategy and the potential for harvest opportunity does need to be described somewhere.
6. **Acknowledge FPS progress over the last 6 years (1 vote)** AGREED – this does not need to be a key message, but could be described in the introduction.
    a. Will show up 4 years later
    b. Expect an increase in NOR abundance in the next couple of years
7. **CRR Fund is available for habitat restoration (special considerations target Spring Chinook) (1 vote)** AGREED – this does not need to be a key message.
8. Not putting Spring Chinook in the Tilton in this 6-year period (0 votes) AGREED – this does not need to be a key message, but should be stated somewhere.

Audience Questions: Changes from responses for Fall Chinook – This appears to try and capture the differences between the fall Chinook and spring Chinook storyboarding exercise, but it is a bit confusing as to which questions/issues actually apply to spring Chinook. Suggest putting these into a matrix of some form, if needed for writing the chapter.

Q 1: What keeps Audience Groups up at Night?
To Hatchery Programs add:

- Timing for Integration / Plan?
- How to manage brood collection from multiple programs (e.g., Grey vs. Cowlitz)

To Population Structure remove:

- How to manage separately the Tilton and lower river fall Chinook Populations (T)
- Tilton River Release site (P)
- Tilton vs LCR population grouping (T)

And add:

- How to describe Lower River "population"
- When / if to reintroduce into the Tilton (T)
- Juvenile migration during April – August vs. September – March (Sch)

Q2: How can we solve their problems?
To Hatchery Program Implementation add:

- Hatchery, infrastructure to implement future program changes (T)

Q3: Shared experiences / Goals
To Management for Recovery remove:

- Minimize pHOS

M&E Parking Lot:

- Determine optimal suite of rearing sizes (Spring Chinook)

Previously defined for Fall Chinook:

- Tilton juvenile collection and marking

- Inadequacy of habitat capacity for upper limits of a population (doesn't consider historical capacity).
    - No data-based estimates of capacity
- How to improve abundance estimate for lower river Chinook and how to proportion the pHOS (What proportion of the Tilton are spawning downstream, etc.)
- Genetic monitoring
    - Timing
    - Population possibilities (using alleles)
    - Energy / efficiencies to evaluate abundance
- How to assess the population structure

Draft Notes from Steelhead FHMP Workshop

Cowlitz Salmon Hatchery

April 6, 2019

WDFW Perspective

Key Steelhead Themes (as recorded on the white board)

- Balance = ESA with harvest opportunity. - AGREED
- Recovery efforts need to be balanced within ESA, FERC and Basin constraints. - AGREED
- Priorities include:
    - Increase total abundance (HOR and NOR) in the Upper Basin for recovery. AGREED- this remains the strategy for recovery in the recolonization phase. Need to identify abundance floor for steelhead abundance.
    - Increase recreational/harvest opportunity by adjusting summer run program and exploring the possibility of early Winter Run Steelhead program. AGREED – WDFW supports exploring options over the short and long term for increasing harvest opportunities during the early portion of the winter run time period and adjusting the summer-run program to maximize harvest opportunity.
    - Increase opportunity by segregating HOR and NOR temporally and spatially. This concept would need more discussion and clarification before WDFW can fully support it. We agree that portions of the HOR program (i.e. early-winter component and summer-run component) could be (or already is) segregated temporally to increase opportunity. It is unclear how this will increase opportunity.
- Define the triggers or thresholds for moving from one stage (i.e., recovery phase) to another. (e.g. abundance, spatial distribution, Fish Passage Survival). - AGREED
- Consider reducing the impact on lower river Cowlitz NOR winter populations by reducing Lower Cowlitz Late Winter hatchery program to accommodate increase in early Winter Run Steelhead run and /or Tilton and Upper Basin. - AGREED – WDFW recognizes there will need to be adjustments in late winter program and/or the summer-run program to allow for an increased early-winter run component of the program.
    - Benefit – fish in the upper basin tend to return earlier = beginning to see early return expression.
    - WDFW supports consideration of an option to capitalize on this early returning component and develop a hatchery program around it, so more fish would be available for angling opportunity earlier in the year.
- Expand existing hatchery program run timing to increase fishing opportunities. - AGREED – WDFW has presented several options for doing this and looks forward to expediting discussions and development of the plan described in the next bullet.

- Develop a naturally timed Steelhead program to more closely emulate historic run timing. - AGREED - This would involve 1) moving the collection and spawning curves earlier, and 2) broadening the collection curve.
    - Develop a plan for this within a year that would: AGREED – this plan should be developed as soon as possible.
        - Minimize conflict with restoration of late winter run in upper basin AGREED – minimize conflict and/or promote restoration of late winter-run in the upper basin.
        - Consider hatchery rearing strategies, brood collection techniques/timing and other hatchery management practices to modify run/spawn timing - AGREED
    - Define how soon we want this program to begin - AGREED
    - Recognize the need for some harvest opportunity – AGREED – meaningful harvest opportunity during the early return component is a WDFW goal.
    - This needs to fit within recovery objectives – and ESA constraints
- Consider adjusting summer-run hatchery program to accommodate production in facilities outside of Tacoma operated Cowlitz rearing facilities (based on pHOS and stray rate) to fit hatchery capacity (physical space, etc.) and ESA limit constraints. AGREED – WDFW supports discussions regarding reprogramming hatchery space to maximize production/survival including the use of facilities outside current Tacoma operated Cowlitz rearing facilities (e.g. net pens, satellite rearing facilities), as long as programs remain within recovery and ESA constraints. This would include analysis of potential straying increases if sites in the lower river were to be considered.