

PSHAAC Meeting Notes
Thursday January 5, 2012

Attendees:

Members

Dick Burge – Wild Steelhead Coalition
Nick Gayeski – Wild Fish Conservancy
Frank Haw – CCA
Andrew Marks – CCA
Michael Schmidt – Long Live the Kings
Al Senyohl – Steelhead Trout Club
Frank Urabeck – concerned citizen
Roger Urbaniak – PSA/Issaquah Hatchery

WDFW

Heather Bartlett
James Dixon
Annette Hoffmann
Brodie Antipa
Christina Iverson

HSRG

Andy Appleby
Lee Blankenship

Public

Hal Boynton

1. Revisited Puget Sound Wild Salmonid Management Zones (WSMZ) Candidate Ranking

- Those who submitted rank scores were placed into a matrix and a score for each population for the three geo-regions were calculated (1 = highest WSMZ candidate) (To review scores see matrix – provided by James Dixon)
- **North Sound Geo-region** candidates to move forward with WSMZ designation in agreement:
 - Sauk
 - Tolt
 - Pilchuck
 - Samish
 - SF Nooksack

North Sound Discussion:

Consensus was not reached for the Skagit DIP as a WSMZ. Some in the group looked to maintain the hatchery program at Marblemount, because of the economic benefits generated, while others saw a benefit in having the entire Skagit River as a steelhead WSMZ. A discussion about starting an integrated program at Marblemount then ensued as an alternative to the current segregated program. Some stated that, while the Skagit would not qualify as a WSMZ if the Marblemount program was switched to an integrated program, this could be a way to potentially address some of the potential risks associated with the program (F. Haw and H. Bartlett). Frank U. advocated for future consideration of this. A follow-up discussion regarding the existing genetic risks associated the Marblemount program occurred later in the meeting. Ultimately, based on existing information, it was determined that the risk of the current program may only be moderate. That being said, some members strongly desired confirmation of the risk assessment and

asked for further evaluation to occur (N. Gayeski, D. Burge) given the relative importance of the Skagit to the overall Puget Sound DPS. See the notes in the Program Risk Assessment section, below.

Hal Boynton noted that Puget Sound itself may be a bigger negative factor on the survival of steelhead than hatchery impacts, and that this possibility needs to be given more attention. It is possible that stopping all the hatchery releases would not materially gain significant improvements in wild populations, e.g. Cedar River wild population has gone functionally extinct since a high return of around 700 wild steelhead in 1997 after hatchery releases were terminated, all harvest was stopped and other measures undertaken

H. Bartlett noted the desire to not go forward with Skagit as a WSMZ, without consensus from the group. This will be discussed further at the March meeting.

The group also ranked the Deer Creek summer population as a high; however, this would require either discontinuation of the Whitehorse Hatchery programs or operation of a weir at the mouth of Deer Creek to remove strays.

- **S. Central Sound Geo-region** candidates to move forward with WSMZ designation in agreement:
 - Nisqually
 - White
 - Puyallup/Carbon
- **Olympic Geo-region** candidates to move forward with WSMZ designation in agreement:
 - Skokomish
 - E. & W. Hood Canal
 - Sequim
 - Elwha

Eastern Straits Discussion:

M. Schmidt expressed concern over locking up all of the Strait of Juan de Fuca tributaries as WSMZ's because of its potential long-term impact on both the goal of establishing Elwha as a WSMZ (after the conservation hatchery program concludes) and meeting harvest demands in the Strait. Basically, if there is no home for harvest-related hatchery production in the future, it may be maintained in the Elwha. Therefore, M. Schmidt recommended removing the Strait Independent Winter steelhead population from the list of WSMZ candidates.

Elwha Discussion:

Monitoring and Evaluation (M&E) money not formally secured. This is a collective concern of the group since it could impede effective management toward the goals set forth in the Elwha Fish Management Plan.

H. Bartlett - Rankings that were missing but submitted on or by today's date will be input into the matrix (Nick Gayeski & R. Urbaniak). The rest of those not submitted by those not present at this meeting, as they have had ample time, will not be considered after this

time. Roger Urbaniak stated his rankings would mirror the consensus of the group present. Nick stated he had already submitted rankings but would resend.

2. Puget Sound Steelhead Genetics Presentation

Ken Warheit, WDFW Molecular Genetics Laboratory, presented and discussed the results of two reports by Phelps et al. (1994, 1997) and an analysis he conducted in 2010 to assess introgression between genetically differentiated populations. Ken clarified the concept of introgression versus the biological mechanism of gene flow, and suggested that the **result of gene flow can be introgression**. He discussed that the analysis conducted by Phelps (1994) was an exercise in measuring introgression in a group of unknown samples by assigning them to baseline populations of known hatchery and natural-origin sources. This approach may not be directly applicable to the current group discussion of introgression because it measures the assignment of whole individuals based on a probability of assignment and not the proportion of genetic ancestry that is present in each individual. Additionally, Phelps (1997) used a 1993 collection of steelhead from Chambers Creek to compare to samples analyzed by Allendorf (1975) and WDFW (1990). In this analysis, Phelps evaluated the genetic distance of each of the collections to determine if the more recent samples were genetically closer to the hatchery collection than the earlier samples. A more recent analysis conducted by Ken Warheit (2010) evaluates the proportion of the genetic profile that are of hatchery or natural-origin to provide a better estimate of the introgression that is occurring. Current microsatellite and SNP analyses being conducted by the WDFW Molecular Genetics Laboratory (T. Kassler) on steelhead samples from locations within Puget Sound are also measuring the level of introgression between natural and hatchery-origin populations. An additional SNP analysis (unfunded, Young & Warheit) on Hood River steelhead samples WDFW has collected could also be beneficial. These microsatellite and SNP analyses can be used to provide more information that the group can use to better understand the risks of transition from segregated to integrated steelhead programs in Puget Sound.

There is a collective concern of the group about data collection on adult and juvenile samples, as they capture different information about the population. The data from only one life stage may limit the ability to measure true introgression due to gene flow from hatchery to natural populations. Warheit did clarify that for a general rule it would be safe to assume that observed introgression equals gene flow.

BREAK 1:30PM – 2PM

3. Steelhead Hatchery Program Risk Assessment

In light of the genetic discussion with WDFW Geneticist, Ken Warheit the second part of the meeting was set aside to rank the natural population risks to those in the Puget Sound river systems (1 = the population we should be the most conservative with) based on the available data. James provided a matrix that displayed programs with financial costs and economic benefit for each PS system, this included harvest numbers, program size, program changes and available SAR most recent 5-yr average, if available, whether there is estimated genetic influence from hatchery programs, quality of the genetic data analyzed to provide those estimates, a biological risk assessment (high, moderate or low) and whether it is a priority program to retain for harvest.

The committee examined each set of available data and the number of samples ($N = X$, i.e. $N = 76$ for Green River) was evaluated against the natural population size. This was used as a measure of how representative the samples are of the genetics of the entire population. Those samples with a small N generally were considered to provide low quality data for estimating biological risk of genetic introgression from hatchery to natural. Consequently, in those river systems with low quality genetic composition estimates the group felt it necessary to obtain higher quality data to make a properly informed decision about risks posed genetically to natural populations from continuing a hatchery program. The group also believes that timing is important in assessing genetic vs. biological risk (competition).

Puget Sound River System:

- **Snohomish - Genetic sample = small N, Low quality data; group consensus - need more samples to comfortably assess biological risk, high priority to retain hatchery program.** Natural populations include:
 - Snoqualmie winter
 - Snohomish/Skykomish winter
 - NF Skykomish summer
 - Tolt summer
 - Pilchuck winter
- **Skagit – Genetic sample = good quality** (but some question as to whether it was collected from either adults and/or juveniles, or a mix?), group agreed there was a reduced risk, since rearing numbers were reduce (and release locations isolated to areas where adults can be recaptured). **This seems to be a high value program with currently moderate risk, high priority to retain hatchery program.** Some members strongly desired confirmation of the risk assessment and asked for further evaluation to occur (N. Gayeski, D. Burge) given the relative importance of the Skagit wild populations to the overall Puget Sound DPS. Natural populations include:
 - Skagit S/W
 - Baker S/W
 - Sauk S/W
- **Green – Genetic sample relatively small** ($N = 76$); more data may be available (Brodie Antipa noted they sample lots of fish from this system regularly and Annette H. noted that, statistically, an N of 76 was reasonable)= **moderate quality data, thus the group consensus is that more data would be ideal to properly assess the biological risk to natural populations, moderate need to retain winter program and high need to retain the summer hatchery program.** Natural populations include:
 - Green winter (summer program as well? Unclear from matrix text)
- **Nooksack – Genetic sample = good quality** ($N = 132$), **moderate to low biological risk** (questions about Whatcom Creek use), **moderate to low need to retain the program.** Natural populations include:

Nooksack winter

SF Nooksack summer

There are concerns (HSRG and others) about using Whatcom Creek as an adult collection point for the Kendall Creek program because it is located far downstream of the Kendall Creek Hatchery where the steelhead are reared and released. This could affect local adaptation and disagrees with HSRG recommendations for a properly managed program. WDFW staff stated that it has been difficult to trap steelhead at Kendall Creek (B. Antipa, A. Hoffmann, J. Dixon, and A. Appleby)

- **Stillaguamish – Genetic sample = good quality, discussion about high biological risk with hatchery/natural fish competition during Deer Creek summer program, and winter high risk as well, high priority to keep summer hatchery program and moderate need to retain winter program.** Natural populations include:

Stillaguamish winter

Deer Creek summer

Canyon Creek summer

- **Dungeness – No genetic samples, thus unknown biological risk, low need to retain this hatchery program.** Natural populations include:

Dungeness S/W

4. Closing Discussion/ Standing Questions:

M. Schmidt – Commented that the <2% gene flow management requirement appears less stringent than a pHOS of <5% (HSRG recommendation) because gene flow actually requires genetic interaction to occur while pHOS is a measurement of the number of hatchery and wild fish comingling, regardless of whether a genetic interaction occurs. It's also a measurement that happens "prior" to interaction. A pHOS of <5%, therefore, is likely more stringent. This appears to be verified by Ken W.'s work. For example, on the Stillaguamish, 22% of the fish collected associated with Skamania, however, no potential introgression was noted. On the Green, 6.6% associated with Chambers, however, again no potential introgression noted. And these were often what were assumed to be wild-born fish (i.e. progeny of hatchery fish that spawned successfully), which means that the % of hatchery-origin fish on the spawning grounds could have even been higher. M. Schmidt appreciates the difficulty of establishing both gene flow and pHOS estimates, but still wonders which approach is best.

F. Urabeck – Do we have the data required to measure if there is pHOS < 5% or 2% gene flow from hatchery to natural steelhead populations? If not, why not?

A. Appleby – So, as a consensus we would prefer to use adult wild returns (N = 100 minimum, or use stats to determine a necessary N for population size), to obtain a good quality genetic sample to measure introgression? Would it be possible to get samples to validate the group's decisions? Approximately 200 for all the high priority areas?

N. Gayeski – Stressed we need genetic samples from both adults & juveniles to trace introgression rates

H. Bartlett – Stressed the importance of telling her and James what is needed to assess biological risk of hatchery steelhead programs on natural steelhead populations, and why so we can obtain that information/data for future discussions.

Andy Marks – We need to convey to Director Anderson and the Fish and Wildlife Commission that the use of something like the PSHAAG should be employed as part of the public participation process used for the next update of the Puget Sound Chinook Harvest Management. Director Anderson said at a November 29 meeting, attended by Andy, Frank U., Lee, Nick and others, that he was looking for an improved public process.

Frank U. – It is our understanding that, as agreed to previously, Ron and Annette will provide at each of the remaining meetings, a PSHAAG position matrix that reports on the progress made with the various tribes on each specific element. Heather confirmed that this will occur.

Next meeting: February 2, 2012 10 am – 4 pm, NRB – Hope to address Coho

- Follow –up **March 8, 2012?**
- **By April 2012** would like to have a summary/compilation of recommendation sheets? For review prior to first weekend of June 2012 WDFW Commission meeting for Heather Bartlett and James Dixon. We will attempt to get members to comment to the Commission of their assessment of the process and outcomes.
- *H. Bartlett* - Additionally, would anyone like to speak in front of the WDFW Commission about the process of the PSHAAC? She values the input and thought each member has put forth. Feels the process leads to buy in from additional user groups.
- *General group consensus* – Want to see follow through and track feedback outcomes in HAIP's and with tribes responses following the meeting wrap-ups this June. Also, group interest in participation in the Puget Sound Chinook Harvest Management Plan updates. Want to see updated matrix from Annette/Ron for HAIP before next meeting? Want to see K. Warheit's data and the Phelps (1994, 1997) studies on web?