

AHRP Design Changes to Maximize Information Content/Cost



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Informational Meeting

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Original Design

1. What is the genetic stock structure of pink and chum salmon in each region?
 - SEAK and PWS chum: Statistical and interpretation
 - PWS pink: New collections, lab, statistical, and interpretation
2. What is the extent and annual variability in straying of hatchery pink salmon in Prince William Sound (PWS) and chum salmon in PWS and Southeast Alaska (SEAK)?
 - Stray assessment: 4 years
 - Ocean sampling (PWS): 4 years
3. What is the impact on fitness (productivity) of wild pink and chum salmon stocks due to straying of hatchery pink and chum salmon?
 - Alevin sampling: 10 streams for 6 years @ 2,500 fish per stream/year (2014-2019 in PWS; 2014-2024 SEAK)
 - Adult sampling: 10 streams for 6 years @ 500-1,000 fish per stream/year (2013-2018 in PWS; 2012-2023 SEAK)
 - Genetic analysis: 96 genetic markers

New Information Changed Design

- The escapement numbers and hatchery proportions were highly variable
 - Power analyses demonstrated need for larger sample sizes
 - Offspring analyses (Kyle will show these analyses next)
 - Grandoffspring analyses
 - Some selected streams had too few hatchery-origin fish
 - Robust grandparentage required another sampling year
- The alevin sample collections were logistically challenging
 - Random sampling was prevented by ice
 - Concern that sampling may impact adult-to-adult RRS
- Additional genetic markers needed for parentage
- Funding not secure



Figure 17. Redd pumping on Stockdale Creek, April, 2014.



Actions Taken to Fund More Sampling and Analyses for Fitness

1. What is the genetic stock structure of pink and chum salmon in each region?
 - Followed plan and ADF&G provided in-kind support
2. What is the extent and annual variability in straying of hatchery pink salmon in Prince William Sound (PWS) and chum salmon in PWS and Southeast Alaska (SEAK)?
 - Stray assessment: cut from 4 to 3 years
 - Ocean sampling (PWS): cut from 4 to 3 years
3. What is the impact on fitness (productivity) of wild pink and chum salmon stocks due to straying of hatchery pink and chum salmon?
 1. Alevin sampling: cut to 1-2 streams for 3 years, no lab
 2. Adult sampling:
 1. PWS: cut from 6 to 5 streams
 2. SEAK: cut from 4 to 3 streams

Changes to Sampling and Analyses Plans for Fitness Component

- Increased sampling effort starting in 2014
 - Sampled extra year in PWS: 3 creeks (2019), 2 creeks (2020) (grandparentage)
 - Increased from 49,000 fish to ~260,000 fish
- Mapped the pink salmon genome and selected over 300 unlinked markers
- Increased laboratory analyses
 - Increase number of markers screened to 300+ markers (from 96)
 - Increased fish analyzed from ~40,000 to ~200,000

Changes resulted in ~5% increase from the original budget