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September 28, 2022

MEMORANDUM

TO: Fish and Wildlife Committee Members

FROM: Maureen Hess

SUBJECT: Update on genetic monitoring tools

BACKGROUND:

Presenters: Dr. Shawn Narum – Senior Scientist/Lead Geneticist, Columbia River Inter-Tribal Fish Commission
Dr. Jon Hess – Senior Fisheries Geneticist, Columbia River Inter-Tribal Fish Commission
Matt Campbell - Fisheries Genetics Program Coordinator, Idaho Department of Fish and Game

Summary: Presenters will update the Committee on genetic monitoring tools and applications that provide critical information to assist fisheries management and conservation efforts in the Columbia River Basin, with particular emphasis on the value that parentage-based tagging and genetic stock identification tools provide to the region.

Relevance: Genetic monitoring tools and their applications address multiple areas of the 2014 Columbia River Basin Fish and Wildlife Program and the 2020 Addendum, in particular: the Adaptive Management section of the Program (Part 4) and the Fish Propagation Including Hatchery Programs Strategy.

Workplan: Fish and Wildlife Division Workplan; Program Implementation and Performance

Background: In 2009, CRITFC and IDFG staff first presented to NPCC the concept of using genetic tools to monitor distinct stocks of salmonids in the Columbia River Basin. The overarching goal was to monitor stock-specific abundance, run-timing, and harvest to contribute to fisheries management and rebuilding fish runs in the Columbia River Basin. Two BPA funded projects (CRITFC 2008-907-00; IDFG 2010-031-00) enabled this concept to be developed into ongoing studies to identify stock of origin of salmonids at fixed locations (Bonneville Dam and Lower Granite Dam) or intercepted in mainstem fisheries. An update on progress was delivered to the NPCC Fish Tagging Forum in 2012 that summarized the development of genetic resources, empirical testing/demonstration, and results for long-term status and trend monitoring of steelhead and Chinook Salmon stocks. The concepts described initially in 2009, and efforts to improve and expand these genetic tools since then, have evolved into a broadly implemented genetic monitoring program for salmonids in the Columbia River Basin. This includes use of two powerful approaches to identify hatchery-origin fish with Parentage Based Tagging (PBT) and natural-origin fish with Genetic Stock Identification (GSI).

More Info:

- [Project #2008-907-00 – Genetic Assessment of Columbia River Stocks](#)
- [Project #2010-031-00 – IDFG Genetic Monitoring of Snake River Salmon and Steelhead stocks](#)
- [Fish Tagging Forum](#)