

Pacific Coast Steelhead Management Meeting 2021

Abstract Submittal

Presentation Title: The Snake River Basin Steelhead Run Reconstruction Model: genetic foundations and management applications

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Steelhead in the Snake River basin are the focus of both harvest and conservation programs implemented across three states and multiple agencies. Although aggregate hatchery and wild abundance are estimated at Lower Granite Dam, tributary-level estimates of escapement and disposition across the basin have been particularly sparse. In 2011, representatives from Snake River anadromous fishery management agencies convened to develop a model which could address information needs for management within the large and complex arena presented by Snake River steelhead. During the next year, the analytical framework was developed, and in late 2012 the first model run was completed on spawn year 2011. Since then, the workgroup has completed steelhead run reconstruction analyses on nine spawn years (2012-2019). This work effectively synthesizes adult data for all populations and hatchery stocks across the basin for each spawn year. Specifically, we estimate conversion rates between dams, fishery impacts (both harvest and catch and release), number of steelhead retained at weirs and hatchery traps, and the potential spawners remaining in the habitat; all by origin (hatchery or wild). The run reconstruction model provides a useful analytical framework for synthesizing data collected by fisheries managers across the entire basin, thereby providing a good arena for critical review of these data. Model outputs can be used to bridge gaps in the existing data using reasonable assumptions in a structured manner, allowing for inference on disposition and spatial distribution of spawning fish. Results can help evaluate the performance of the Snake River wild steelhead evolutionarily significant unit (ESU) as well as evaluate hatchery program performance in context of management goals. And recently, results are also being utilized by NOAA to evaluate fishery impacts on wild steelhead as a requirement of Snake River managers permitted to conduct fisheries. Lastly, the workgroup is committed to continually making incremental improvements in the model to allow for more rigorous evaluations.