

ASSESSING BIOLOGICAL AND SOCIAL TRADEOFFS TO IDENTIFY DIFFERENT STAGES OF RECOVERY AND APPROPRIATE MANAGEMENT ACTIONS

Host: Northwest Indian Fisheries Commission
6730 Martin Way E., Olympia, Washington

Fellowship Supervisor:

Dr. Ken Currens, Conservation Scientist

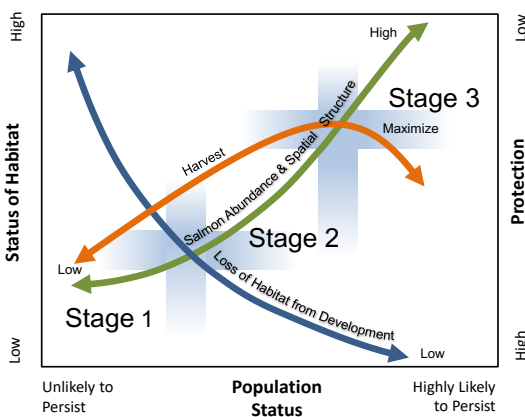
- Mike Crewson, Tulalip Tribes Scientist
- Craig Bowhay, Fisheries Program Director
- Fran Wilshusen, Habitat Program Director

Other Key Mentors

Overview

The Northwest Indian Fisheries Commission (NWIFC) is a support organization for the 20 western Washington treaty Indian tribes headquartered in Olympia, Washington. It assists member tribes in their roles as natural resources co-managers by providing policy and scientific analyses on harvest, hatchery, and habitat issues. The NWIFC coordinates the development of regional management plans for tribes under the Endangered Species Act, Clean Water Act, and Forest & Fish Law. The NWIFC also provides a forum for tribes to address shared natural resources management issues with state and federal agencies and to speak with a unified voice in Washington, D.C.

The 2019-2020 Sea Grant State Fellow will have an opportunity to advance and publish on a key innovative concept in conservation planning and policy: the identification of stages of recovery. Management plans and strategies to recover listed species often emphasize different priorities (e.g., ex situ preservation in gene banks, zoos, or hatcheries; habitat protection and restoration; reintroduction, population supplementation; utilization restrictions), depending on the stage of recovery of the populations and the ecosystems. A well-documented example is using intensive artificial propagation to preserve a unique species or population when it is about to go extinct and accepting potential genetic risks as a tradeoff, while recognizing that as the species and its ecosystem recovers, this action may become less appropriate. Missing from these efforts are descriptions of the stages of recovery where



tradeoffs among different strategies become more or less acceptable. This contributes to policy debates and legal actions about when strategies need to change. Implementation of many recovery actions could be improved by extending the concept that biological and social tradeoffs define stages of recovery to other recovery actions and species. Surprisingly, this topic has had little development in the conservation science-policy literature. In the Pacific Northwest, hatcheries provide a valuable context for exploring biological and policy tradeoffs that might define different stages of recovery because how hatcheries are used is closely tied to

the changing status of marine and freshwater environments, the status of valued species such as salmon and orca, and highly valued ecosystem services, all of which are expected to change as marine and freshwater ecosystems recover or degrade (illustrated hypothetically in Figure 1).

Specific Task and Project Major Components

The 2019-2020 Sea Grant State Fellow will have opportunities to learn and contribute through a variety of activities. Activities would include those described below, but the Fellow would have a key role in revising or shaping these, depending on the kind of expertise and experience he or she brings to the project. Components of the project include

- Forming a steering committee of tribal, state, and federal biologists and decision makers and working with them to get direction and feedback on the project
- Helping integrate work on the Tribal Habitat Strategy with this project. The Tribal Habitat Strategy (in Lushootseed, *gʷədʷadad*) is a tribal approach to identifying and protecting the lands, waters and ecological processes critical to tribal rights, resources and homelands
- Helping advance policy that connects the results of this work with the four basic values recognized by federal courts associated with treaty-reserved fishing rights: 1) resource conservation, 2) ceremonial, religious, and spiritual values, 3) subsistence values, and 4) commercial values.
- Helping with a scientific literature review on stages of recovery in terrestrial, freshwater, estuarine, and marine ecosystems
- Developing conceptual models and narratives that identify and describe the relationships among the different factors that affect decisions about hatchery strategies, such as population and habitat status and threats, long-term and short-term goals, economic and logistical constraints, and competing social needs
- Using value-thinking techniques and objectives hierarchies to describe management objectives, management alternatives, and performance measures
- Developing ecological scenarios for recovery and their effects on management objectives and associated performance measures and exploring tradeoffs between competing objectives using decision makers' value judgments of how to weight these
- Summarizing the work in a final report that could be the basis for a peer-reviewed journal article.

Tribal, Interagency and Private Sector Connections

During this project, the Sea Grant Fellow will have the opportunity to meet and work with a variety of different groups. The principal groups will be the 20 Western Washington Treaty Tribes (Lummi, Nooksack, Swinomish, Upper Skagit, Sauk-Suiattle, Stillaguamish, Tulalip, Muckleshoot, Puyallup, Nisqually, Squaxin Island, Skokomish, Suquamish, Port Gamble S'Klallam, Jamestown S'Klallam, Lower Elwha Klallam, Makah, Quileute, Quinault, and Hoh), state agencies working on recovery planning and implementation (especially Washington Department of Fish and Wildlife, but also Puget Sound Partnership and its associated leadership and science boards, Department of Ecology, Department of Natural Resources, Department of Health), federal agencies involved in recovery consultations and funding (e.g., National Marine Fisheries Service, U.S. Fish and Wildlife Service, Environmental Protection Agency), and non-governmental organizations, such as Long Live the Kings. We also intend to involve experts from academic and research institutions and consulting groups as needed, such as the Northwest Fisheries Science Center and University of Washington.