

TESTIMONY OF
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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
DEPARTMENT OF COMMERCE

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FEDERAL HATCHERIES

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Mr. Chairman and members of the Committee, thank you for inviting me to speak about the National Oceanic and Atmospheric Administration's (NOAA) role with federal fish hatcheries. I am Bob Lohn, Regional Administrator of the Northwest Region of NOAA's National Marine Fisheries Service (NMFS).

Salmon and Steelhead Hatcheries: NOAA's Partnerships with Federal Agencies and States

Beginning almost 150 years ago, early settlers established hatcheries to supplement native runs of salmon and steelhead in many parts of the western United States. Today, hundreds of hatcheries produce Pacific salmon and steelhead to meet treaty and trust obligations to Indian tribes; to provide for commercial and sport fisheries; and to mitigate the impacts of development projects such as dams for hydropower, irrigation, and flood control.

Although each hatchery program is unique, hatcheries generally have one or both of two basic goals: (1) to produce fish for harvest, including compensation for lost production due to habitat loss or degradation; (2) to help recover or conserve naturally spawned populations. Hatcheries that have the goal of producing fish for recreational, commercial, or tribal harvest, and which often were built to mitigate for losses of habitat, have been around for generations.

The fish produced by hatchery programs to mitigate for losses vary substantially in their similarity to and their level of interaction with naturally spawned populations. In contrast, hatchery programs aimed at conserving or recovering wild populations intentionally integrate the wild and hatchery populations; naturally spawned fish are incorporated into the broodstock in varying proportions, and the returning adult hatchery fish are intentionally allowed to spawn and reproduce in the natural environment. Two examples of conservation hatcheries are: (1) the Livingston Stone hatchery, established by the FWS to aid in the recovery of winter Chinook in the Sacramento River and operated under strict criteria to enhance recovery; and (2) a state-operated hatchery in Fairbanks, Alaska, which NMFS supports with Pacific Coastal Salmon Recovery funds to augment salmon production in the central Alaska region.

Programs aimed at conserving natural populations seek to maintain natural genetic diversity and behaviors found in the hatchery stocks. The two goals of conservation and compensation are not mutually exclusive, and many programs strive to conserve natural populations while also producing excess fish for harvest.

While most of the salmon hatchery programs are on the West Coast, in the Northeast region NMFS partners with the FWS on programs to restore Atlantic salmon. We work with FWS hatcheries to raise endangered Atlantic salmon for stocking throughout the region.

The Role of the Mitchell Act in Hatcheries

In 1938 Congress passed the Mitchell Act (P.L. 75-502) to respond to federal water-related projects in the Columbia River basin, including federal hydroelectric dams that had affected salmon and steelhead natural production. The Act authorizes, in part, the construction, operation, and maintenance of hatcheries in the basin. An amendment to the Mitchell Act in 1946 led to the development of the Lower Columbia River Fisheries Development Program (CRFDP). As part of the CRFDP, a major hatchery construction program was initiated in 1950, and in 1956 the CRFDP was expanded to include the portion of the Columbia River Basin above the Dalles Dam. Although most of the Mitchell Act hatcheries are located in the lower Columbia River basin, about 40 percent of the fish are released above Bonneville Dam to contribute to fisheries and seeding of streams important to the Columbia River treaty tribes.

The Mitchell Act has been administered by NMFS since 1970, when a governmental reorganization transferred the functions of the Interior Department's Bureau of Commercial Fisheries to the newly created agency. Congress annually appropriates funds, which are distributed by NMFS to Oregon, Washington, and the FWS as well as to the Confederated Tribes and Bands of the Yakama Nation. For the past several years, NMFS has distributed approximately \$11.3 million annually for this hatchery program. These funds currently support operation of 18 hatcheries, which annually stock the Columbia River and its tributaries with approximately 65 million juvenile salmon and steelhead. These funds also support marking of hatchery fish, monitoring, and scientific investigations. Mitchell Act hatchery fish are a significant contributor to ocean fisheries from Alaska to California, as well as state and tribal fisheries within the Columbia River basin.

Endangered Species Act and Hatchery Interactions

Under section 7 of the Endangered Species Act (ESA), federal agencies are obligated to consult with NMFS on any activities that may affect a listed species, including hatchery programs.

NMFS works with hatchery managers to define appropriate use of hatcheries in helping rebuild depressed natural populations and to ensure their programs will not jeopardize listed salmon and steelhead. In the Northwest, this effort involves working with states and numerous tribal co-managers on management of more than 350 hatchery programs. In the Southwest, this effort involves working with the state of California and tribal and stakeholder co-managers of 23 anadromous hatchery programs located in the Klamath Basin, Central Valley, and coastal regions.

NMFS supports the development and implementation of Hatchery Genetic Management Plans (HGMPs). These plans are described in the final salmon and steelhead 4(d) rule (July 10, 2000; 65 FR 42422) as a mechanism for addressing the take of certain listed species that may occur as a result of artificial propagation activities. NMFS will use the information provided by HGMPs in evaluating impacts on anadromous salmon and steelhead listed under the ESA. In certain situations, the HGMPs will apply to the evaluation and issuance of section 10 take permits. Completed HGMPs may also be used for regional fish production and management planning by federal, state, and tribal resource managers.

The primary goal of the HGMP is to devise biologically-based artificial propagation management strategies that ensure the conservation and recovery of listed Evolutionarily Significant Units.

Hatchery Research

NOAA also funds important research programs around the country on salmon, steelhead, and other species, which allows the agency to improve the basis for decisions.

- NOAA's Sea Grant program conducts and funds aquaculture research around the country, including research directly applicable to hatchery science. For example, NOAA is involved with research on nutrition of larval fish, control of disease, broodstock genetics, and hatchery technology. Sea Grant state colleges and extension agents participate in aquaculture research and education, much of which is directly relevant to hatcheries.
- Through NOAA's Chesapeake Bay Office, we use hatchery products to conduct restoration and research activities for both native oysters and blue crabs. NOAA conducts native oyster restoration in the Chesapeake Bay with oyster larvae provided through the University of Maryland Horn Point hatchery. Throughout the country, similar projects are assisting in important restoration activities.
- In the Southeast Region, NMFS funds several projects with hatchery components—either using hatchery-raised fish in projects or investigating hatchery functions themselves. Projects have included examining the technical, economic, and commercial feasibility of farm-raising marine finfish in cages using oil and gas platforms; optimizing feed and feeding strategies for different species; improving methods and nursery operations for bay scallops to support stock enhancement; and maintaining the production capacity to produce juvenile red drum for use in stock enhancement efforts. NMFS is also funding a project at the University of Southern Mississippi to determine the feasibility of producing red snapper for stock enhancement. This project includes spawning red snapper in hatcheries to sizes that could be released in the wild to augment the natural population.
- The NMFS Little Port Walter Station in Alaska focuses on experimental hatchery and research capabilities. Recent studies at Little Port Walter include two major fishery concerns: (1) interactions between hatchery and wild stock and (2) technology for recovery of ESA-listed salmon. The goal is to better understand how and why changes in hatchery stocks differ from their wild founders and to use the information to avoid pitfalls associated with hatchery-related declines in wild stocks in other areas. Steelhead research is focused on studying the effects of isolation of an anadromous origin population in a freshwater lake to understand whether and how this unique gene bank can be used in ESA recovery programs. All this work is closely coordinated with the Alaska Department of Fish and Game, University of Alaska School of Fisheries and Ocean

Sciences, and private aquaculture associations. It is guided by the best scientific hatchery practices, as well as Alaska's fish health and genetics protocols and policies, some of which are encoded into state statutes.

- The Northwest Region's Manchester Laboratory in Puget Sound sponsors a number of important hatchery and aquaculture research programs.
 - The Marine Fish Enhancement program focuses on rebuilding depleted fish stocks, such as lingcod and rockfish species, through better management, improved ecological conditions in coastal habitats, and application of aquaculture technologies.
 - Natural Rearing Enhancement protocols for conservation hatcheries help produce fish as closely equivalent as possible to local native stock, with the full ability to return to and spawn naturally in native habitat. This program is yielding promising results regarding the growth, behavior, coloring, and other development of fish reared in a natural-like substrate.
 - Passive Integrated Transponder tag technology involves injecting machine-readable tags into the body cavity of a fish. This technology is now used at most federal mainstem hydropower dams in the Columbia and Snake rivers and allows researchers to examine juvenile smolt migration behavior; quantify the effectiveness of fish transportation; and study how survival rates correlate with variations in temperature, flow rate, and other factors.
 - Captive broodstocks are used to aid the recovery of ESA-listed stocks.

Conservation Hatcheries

Most hatcheries were designed and developed decades ago to contribute the maximum number of fish to fisheries. Eggs and fish were routinely exchanged between hatcheries to ensure full facilities. There was little consideration or understanding of how this practice affected local biological diversity.

Great strides have been made in ensuring that these programs serve their purpose while rebuilding natural salmon populations. NMFS has documented this progress in its report to Congress on the Pacific Coastal Salmon Recovery Fund. Many hatcheries are being managed to contribute to fisheries by using fish compatible with local natural populations in order to help maintain biological diversity. Hatchery management also has evolved to include collection of broodstock from the entire run of fish, implementation of mating protocols to maximize biological diversity and minimize selection, and improved control of disease.

In 1999, Congress created and funded the Puget Sound and Coastal Washington Hatchery Reform Project, established the Hatchery Scientific Review Group (HSRG), and designated a nonprofit entity—Long Live the Kings—as the project's independent, third-party facilitator. In April 2004, the HSRG released a report detailing specific, science-based recommendations for nearly 1,000 program-level changes at more than 100 hatcheries. The project has successfully brought together local, state, tribal, and federal partners to use hatcheries to help recover naturally spawning populations; to support sustainable fisheries and measure results; and to report to Congress, the State of Washington, and the public on its progress.

The most critical remaining scientific unknown associated with hatchery fish is their long-term reproductive success in the wild and whether hatchery fish can successfully contribute long-term to rebuilding natural populations. Considerable research is currently being directed at answering this question, but it will take years to resolve. Our understanding of the best practices associated with the use of hatcheries will continue to evolve as new information becomes available. Hatchery programs are in the process of adapting to our current understanding of the science. We can anticipate that future hatchery management will require continued adaptive management as new information from ongoing research becomes available.

Conclusion

In conclusion, Mr. Chairman, NMFS, along with our federal partners, believes hatcheries play an important role in fisheries management—meeting our tribal and trust responsibilities, helping to aid the recovery of endangered and threatened species, and contributing to West Coast economies by providing fish for these important fisheries. We are encouraged by the progress being made to improve hatcheries and to better integrate their use to achieve our goals. I appreciate the opportunity to talk about our role in the federal hatchery programs and would be happy to answer any questions.