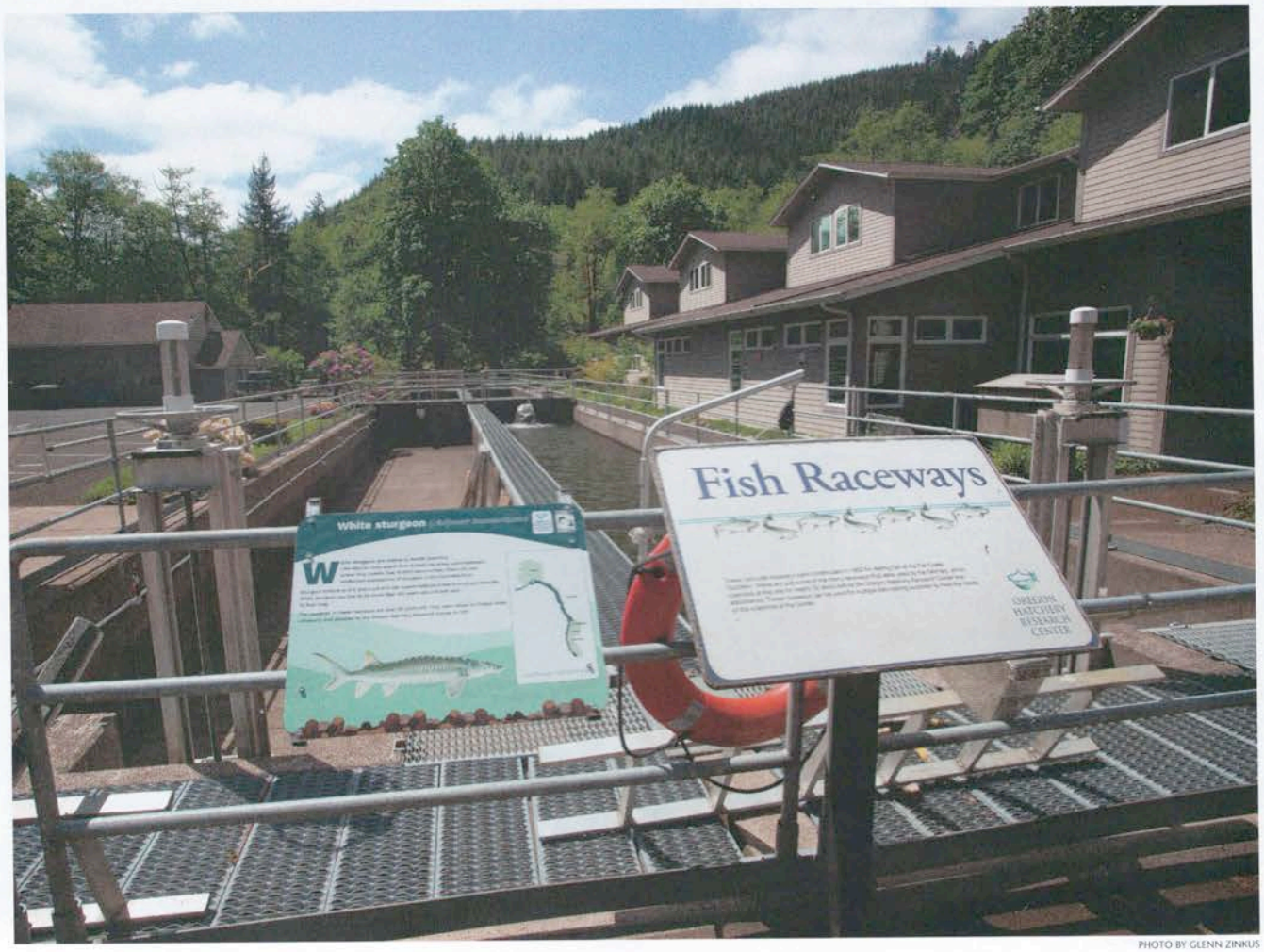
How the Oregon Hatchery Research Center Can Help Wild Anadromous Fish/By Glenn Zinkus

It is widely known among anglers, conservationists, fisheries managers, and researchers alike that hatcheries and hatchery-produced salmon and steelhead are detrimental to wild fish productivity. Hatchery fish interact with and spawn with wild fish. However, there are many hatchery proponents. The opposing views and opinions among various stakeholders often lead to litigation, with decisions ultimately made by the courts. But as bright as the best legal minds may be, science is at the foundation of these debates, and this science needs to be understood if sound decisions are to be made.

The Oregon Hatchery Research Center (OHRC) began as a vision of former Oregon Department of Fish and Wildlife (ODFW) director Lindsay Ball to create a facility that develops science-based information and data to form the basis for fish and habitat policy decisions and programs. Ball initiated this effort with scientists, engineers, management experts, and consultants. This group defined what research is necessary to answer questions raised during wild-versus-hatchery debates, and what kind of facilities are needed to conduct this research. The OHRC was designed and built from the ground up at what was once a production fish hatchery along Fall Creek.

The OHRC (www.dfw.state.or.us/fish/ohrc) opened in October 2005, its mission to help fisheries managers understand and manage the interaction between hatchery and wild fish. Specifically this mission is "to be an internationally-recognized leader in fisheries science, specializing in defining the mechanisms that may create differences between hatchery and wild salmonids, management strategies to manage those differences while meeting fishery and conservation objectives, and educating Oregonians on the role and performance of hatcheries ..."

To achieve this mission, OHRC personnel have three goals: to understand mechanisms that may create differences between hatchery and wild fish; to develop approaches to manage hatchery fish that conserve and protect native fish; and to educate and train students, fisheries biologists, managers, and the public on the relationship be-



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tween hatchery and wild fish, the connection between fish and watersheds, estuarine and ocean systems, and the implications for fish management and stewardship.

Running the OHRC is a cooperative effort between the ODFW, which owns the facility, and the Oregon State University Department of Fish and Wildlife, which manages the research programs. The research facilities include four artificial stream channels that simulate actual stream conditions, tanks and raceways, an analytical lab, and a wet lab. The facility also includes office space and living quarters for both full-time staff and a cadre of researchers who work there during the year.

An ongoing research project on Oregon's Elk River is just one example of how an OHRC project benefits wild fish. Not all hatchery-produced salmon and steelhead return to their natal hatcheries, and many instead spawn in the wild with natural-origin fish. The OHRC researched why this happens and is developing methods to prevent this cross-spawning. Scientists with OHRC hypothesize that each river, tributary, and maybe even specific stretches of a river have unique chemical odors from dissolved amino acids that provide an olfactory signature.

Anadromous fish use this unique olfactory cue to identify their natal sites as well as waypoints along the journey within the river. This imprinting allows adult hatchery fish to locate their hatchery of origin. If the hatchery lacks an odor signature that is distinct from main-stem river water, then returning hatchery adults may be limited in their fine-scale homing abilities and remain or stray within the main-stem river and spawn with the wild fish. David Noakes, OHRC director, points out that this problem is not unique to the Elk River and has impacts in many other locations.

One method to reduce within-river straying may be to impart a unique chemistry to the Elk River Hatchery water during critical imprinting periods, allowing juveniles to imprint a scent associated only with the hatchery. Amino acids could then be micrometered into the Elk River Hatchery ladder during the upriver run of adult fish, providing the necessary scent that enables homing to the hatchery.

While there is dissension among many stakeholders on the role of hatcheries, the reality is that hatcheries exist. A pragmatic approach to keep hatchery fish away from wild fish, while protecting and working to enhance wild fish populations, could be the answer. Yes, hatcheries negatively affect wild fish, but habitat degradation and destruction, dams, and overfishing are probably greater threats to native runs. Many agree that hatcheries are not the answer, but they may be necessary, at least for now, and a better understanding of how to protect wild fish will critically inform the entire debate.

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