

Dear Representative Witt,

I hope that my perspectives on the current operations of the Oregon Hatchery Research Center (OHRC) will be of value to you and the other members of the Agriculture and Natural Resources Committee as you consider House Bill 3441, which proposes to change the oversight and duties of the Oregon Hatchery Research Center.

The OHRC Advisory Board and Director have developed innovative ways to determine the mechanisms that create differences between hatchery and wild fishes and ways to meet fishery and conservation objectives. One of the primary concerns with hatchery fish is that, invariably, some “stray” and interbreed with wild fish. The reasons that fish stray are poorly understood (hatchery or wild), but are likely related to the navigation mechanism of homing. Although it is widely held that fish imprint on the “scent” of their home river in order to find their way back, many scientists have speculated that salmon (and other migratory animals) use the Earth’s magnetic field to guide their migrations. If true, this could have profound implications for how hatchery fish are reared (given that there are many manmade sources of magnetic disruption, including during the incubation of hatchery fishes) and could explain increased straying in hatchery fishes compared to wild fishes. The OHRC Advisory Board and Director pursued funding from Oregon Sea Grant to answer this question. The OHRC Advisory Board and Director showed an astuteness that appears to be characteristic of their decision making process. They recruited me, a postdoctoral scientist who had not studied fish, but who is an authority on magnetic navigation and migration in sea turtles. The rationale was clever, the OHRC Director and staff could teach me all that I would ever need to know about fish; I would provide the know-how on magnetic navigation.

Since I began work in June 2012, we have published the first evidence that salmon use the Earth’s magnetic field to assess the location of their home river from sea. The paper was published on Feb. 18, 2013 in *Current Biology* and was highlighted in more than 100 popular press articles including *The Oregonian*, *The New York Times*, *The Wall Street Journal*, NPR, the BBC, and news outlets across Europe and North America – putting Oregon and the OHRC in the global spotlight. We have now set-up large-scale structures at the OHRC that manipulate the magnetic field around adult salmon and steelhead to simulate “magnetic displacements” to determine how they use the magnetic field to navigate. We are also rearing thousands of salmon eggs and fry under different magnetic conditions to determine whether there is an influence on their subsequent navigation behavior. In addition we are performing a systematic review of the stray-rates of hatchery and wild fish to determine whether straying is influenced by spatial and temporal variations in the Earth’s magnetic field. The data that we are generating on the homing mechanisms in salmon and steelhead is crucial missing information to the successful management and conservation of these animals.

It is these kinds of exciting and valuable research projects that the OHRC Advisory Committee and Director consistently develop in tandem with universities, such as Oregon State University, and government agencies. I have complete confidence in their ability to continue to lead the OHRC in a way that continues to produce cutting-edge information that is essential to the successful management of hatchery and wild fishes of Oregon.

Sincerely yours,

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