



Oregon

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To: The Honorable Brad Witt, Chair
House Committee On Agriculture and Natural Resources



House Bill 3150

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Thank you for the opportunity to provide testimony. The department has no position on House Bill 3150 and would like to provide considerations around implementing the program called for in the bill.

Hatchery programs are an important component of fish management. Egg incubation within stream-based containers is a type of hatchery program which *minimizes* the holding and rearing of a broodstock's offspring in any sort of artificial facility.

The benefits of this strategy are a) lower costs and b) far fewer “domestication” traits of the offspring, which can develop rapidly in hatchery populations. Domestication traits can lead to behaviors that reduce survival or fitness once the hatchery fish are released into natural systems, and can be “transmitted” to naturally-produced (“wild”) fish through spawning. The drawbacks of this strategy are that the offspring a) will survive to adulthood at only a fraction of the rate of those reared longer in hatcheries (i.e., because they do not bypass freshwater habitat limitations and sources of mortality), b) will not be able to contribute to hatchery-specific fishing opportunities (i.e., because they cannot be externally marked with a fin clip and anglers would not be able to distinguish fish from egg incubators from naturally-produced fish), c) will not boost natural production in places where juvenile rearing habitat is limiting (i.e., because the juveniles resulting from these incubated eggs will still have to go through this juvenile “bottleneck” and habitat restoration is what decreases this limitation by increasing capacity), and d) may negatively affect naturally-produced fish that are present (i.e., through competition, predation, or genetic impacts).

Given these benefits and drawbacks, egg incubation approaches are best suited to locations above artificial fish passage obstructions, where habitat restoration has recently occurred, and where spawning gravel is insufficient in quantity or quality. These situations have the potential to boost fish production, until natural production occurs, because naturally-produced fish and juvenile rearing limitations are presumably not present. In addition, if these locations are also in basins where fisheries on naturally-produced fish occur, these incubated fish may contribute to those fisheries (note: this would not include many locations with ESA-listed or sensitive species, and these fish would not contribute to any “bonus” harvest that marked hatchery fish provide across the state).

It should also be noted that, from an adult production perspective for fisheries or reintroductions, egg incubation programs would likely not be very successful at replacing existing hatchery programs that feed and rear fish longer. Fish held longer in hatcheries bypass freshwater habitat limitations and sources of mortality; hatchery fish released as smolts survive and return as adults at a significantly higher rate than those with minimal time in the hatchery. Increased egg numbers would likely not be able to compensate for this due to broodstock limitations. Considering funding and hatchery space limitations for longer-term rearing, egg incubation could be a cost effective approach in locations without existing hatchery programs.

In terms of operational implementation, artificial in-stream egg incubation still requires hatchery staff and infrastructure for brood collection, holding, disease screening, and mating, and likely some level of initial egg management (e.g., holding, culling, disease treatment) until transferred into streams. Significant work would be required to install meaningful numbers of incubation boxes within appropriate stream locations, while exercising necessary care to not disturb natural redds. Loss or failure to retrieve egg incubators can also be a source of plastic pollution in streams and marine environments. Additionally, artificial in-stream egg incubation systems are relatively new and will require evaluation to determine their best performance parameters and effectiveness relative to other approaches that limit hatchery facility utilization (e.g., streamside hatchboxes, direct stocking of unfed fry).

An egg incubation program as described in House Bill 3150 may have some limited utility in fish management within Oregon and the three coastal counties identified. The department also appreciates the inclusion of necessary funding within House Bill 3150 to operate and evaluate such an egg incubation program.

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