

Tillmann Benfey

My comments come from the perspective of a university professor with a background in fish biology and aquaculture and with over 30 years of experience developing and assessing triploidy induction as a management tool to prevent unwanted reproduction in fish. This accumulated knowledge has led to invitations to provide expert advice to governments at multiple levels (mostly in Canada but also in the USA and the UN), to the aquaculture industry, and to environmental NGOs on the development and application of methods to minimize environmental impacts of aquaculture escapees. I have published extensively on this topic and one of my recent reviews may be of value to your deliberations (Effectiveness of triploidy as a management tool for reproductive containment of farmed fish; <https://doi.org/10.1111/raq.12092>).

With respect to the issue at hand, there is no doubt that aquaculture is essential to ensuring food security both globally and nationally. Consider, for instance, the USA's large seafood trade deficit. Aquaculture also provides jobs in rural and coastal regions that often face high unemployment. The physical and environmental footprint of net-pen salmon and trout farming is remarkably small when compared to more traditional livestock species that are farmed intensively on land. For all these reasons, it fundamentally makes sense to consider farming fish in Washington State (and elsewhere).

The escape of farmed fish (or any farmed animal for that matter) poses a risk to wild populations, both through direct interactions during the lifetime of the escapees (short-term impacts) and through their interbreeding with wild populations and/or the establishment of feral populations (long-term impacts). Any risks associated with these latter concerns are eliminated by using triploids, as has been proposed by Cooke Aquaculture Pacific, because triploids are sterile. Triploidy is easy to induce in fish, as is well documented for rainbow trout (the freshwater form of steelhead); in fact, a US company (Troutlodge; <https://www.troutlodge.com/en/>) is the world's largest producer of triploid rainbow trout. Trout farmers throughout the world rely on triploids for a significant portion of their production, and this has already carried over to steelhead production in some locations. Given the widespread concern that was expressed about escapes of fertile non-native Atlantic salmon in Washington State, the use of sterile triploids for native steelhead farming is a simple and effective solution.

Thanks for your time, and please feel free to contact me if you'd like me to elaborate on any of the above.