

## **Can angler-assisted broodstock programs improve the catch rate of hatchery steelhead?**

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Artificial propagation can have unintended consequences on managed populations. For hatchery steelhead and other cultured fish species, inadvertent selection can occur when broodstock represent a biased sample from a more diverse source population, favoring certain phenotypes in the next generation that can drive shifts in adult migration timing, age-at-maturity, or other heritable traits. In Oregon, hatchery steelhead are produced with broodstock that are collected passively with traps or actively through angler-assisted collection programs. Recognizing that vulnerability to angling can be heritable in some fish species, we compared the contribution to creel for steelhead produced with trap-caught broodstock to that of steelhead produced with angler-caught broodstock in the Alsea River, Oregon. We found no compelling evidence that offspring of angler-caught broodstock were caught by anglers at higher rates. Instead, offspring of trap-caught broodstock were over-represented in both the creel and among adult returns sampled at the hatchery trap, suggesting significantly lower egg-to-adult survivorship for steelhead produced with angler-caught broodstock. We conclude that while angler-assisted broodstock collection may be a popular outreach tool and necessary for some hatchery programs, trapping is a superior method in terms of fisheries enhancement.