



RC. abstract of Otis 2018 article. PWS Pink strays in Cook Inlet

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Tue, Mar 17, 2026 at 4:57 PM

ABSTRACT This project was initiated to collect baseline data associated with two recently reopened hatcheries in Lower Cook Inlet (LCI). Salmon hatcheries have long been used across the Pacific Northwest as a tool to enhance fisheries, but these benefits may come with some cost to wild stocks. Wild stocks may be adversely affected by hatchery-origin fish in spawning streams as, among other things, they can inflate escapement indices making it difficult for managers to assess escapement goals. In 2011, Cook Inlet Aquaculture Association (CIAA) reopened the Tutka Bay Lagoon Hatchery (TBLH) for pink salmon *Oncorhynchus gorboscha* production and began releasing thermally marked fry in 2012. The CIAA also acquired the previously dormant Port Graham Hatchery (PGH) in 2014 and began releasing marked fry in 2015. Together, these hatcheries are permitted to take 250 million green eggs, potentially resulting in future releases of 200 million fry in LCI. From 2014 to 2017, otoliths were collected from carcasses of spawned-out pink salmon in 17 LCI streams to assess the presence of hatchery strays prior to TBLH and PGH reaching maximum production levels. The annual percent of sampled carcasses with marked otoliths in visited streams varied substantially across streams, as well as within streams across years, ranging from 0% to 95%. The proportion of hatchery marks originating from LCI hatcheries was highest in samples from streams closest to hatchery release sites (<6 mi). In addition, collections from some streams contained unexpectedly high percentages (0–87%) of pink salmon originating from hatcheries in Prince William Sound (PWS), 150–300 ocean miles away. This observation demonstrates that the scope of hatchery straying is broader than previously documented in Alaska. Further research is needed to quantify the hatchery-wild composition of pink salmon escapements in LCI and the scope of hatchery straying region-wide.

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