

**DOES SIZE MATTER: A COMPARISON OF THE BEHAVIOR OF
JUVENILE SALMONIDS IN A LARGE AND SMALL ESTUARY**

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EXTENDED ABSTRACT ONLY - DO NOT CITE

We have conducted field investigations of migratory behaviour using biotelemetry on two systems on the Oregon Coast with very different physical characteristics, the Columbia River (large), and the Nehalem River (small). Juvenile salmonids (*Oncorhynchus* spp.) were implanted surgically with radio or acoustic transmitters and released into the river. Their migratory behaviour was monitored from the land and water from the point of implantation until fish had entered the nearshore ocean environment.

Our results suggest that the behavior of fish in the lower Nehalem River (steelhead trout and coho) is more variable than in the lower Columbia River (steelhead trout and chinook). In both systems river flow is an important determinant of migration rates in the river. In contrast to their behavior in the river, juvenile steelhead in both estuaries appear to behave similarly. Movement of steelhead through the estuaries corresponds to changes in the tidal cycle. There is some evidence that the tidal influence may be increasing the vulnerability of the outmigrating juveniles to both avian and mammalian predators.

Comparisons of wild/hatchery steelhead trout and hatchery coho in the Nehalem estuary suggest that average residence times for coho are significantly greater than for steelhead trout and this tends to increase the vulnerability of this species to avian predation. However, a large proportion of steelhead trout are lost at the mouth of the estuary prior to reaching the nearshore ocean.

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