

**Key Points in Testimony before the  
House Natural Resources Committee  
HB 2351  
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My comments today will focus on potential ecological effects of boats designed to create large wakes in the Willamette River.

Much attention is given to the physical erosional impacts of large-wake-producing boats.

Large-wake-producing boats potentially impact juvenile salmonids, other native fish and aquatic organisms, and the food resources of shallow nearshore habitats in the Willamette River.

The shallow nearshore habitats of the Willamette River are important for producing food resources and providing essential habitats for aquatic insects, freshwater mussels, early life stages of all native fish species, and adult native fish.

One of the primary sources of food for the aquatic food webs of the Willamette River is benthic algae, which are attached to the gravels and other bottom substrates of the river. Shallow habitats support the highest levels of benthic primary production. The turbulence and velocity of the wakes will scour algae from these surfaces, reducing primary production. In addition, the silt and fine sediments suspended by the wakes will coat these benthic communities and block light for their photosynthesis. During low flow periods, these sediments will not be removed as readily.

These nearshore habitats also are habitats with lower velocity. Such habitats with productive algal communities and lower velocities are important for aquatic invertebrates, which are the primary food resources for many native fish and adjacent terrestrial wildlife. The erosional effects of the wakes and deposition of silt affect aquatic invertebrate survival, as well as that of their algal food resources.

Freshwater mussels are another important invertebrate in the Willamette River and may be affected by the disruption of the nearshore habitats. These organisms filter particles from the water to feed, but suspended sand and silt decrease the quality of their food by diluting it with undigestible inorganic material. The margins of the Willamette River are critical for invertebrate communities and wakes can have substantial negative impacts.

The early life stages of almost all native fish species in the Willamette River are restricted to the lower velocities of the shallow nearshore habitats. Anyone who has walked along the river has seen the numerous young minnows, suckers, sculpins, and trout along the edges. These are the nurseries for the fish populations of the Willamette. Turbulence and waves created by wakes can disturb them and make them vulnerable to large predators when they become momentarily disoriented.

Juvenile Chinook salmon and steelhead use the margins of the Willamette River for rearing habitat and migration. Subyearlings, in particular, are found in these shallow, low velocity areas. Studies by Tom

Friesen of ODFW and our OSU research team have found that juvenile Chinook salmon are found mostly in shallow habitats with gradually sloping bottom adjacent to the shore. These habitats are particularly susceptible to the amplified alteration of depth, velocity, and turbulence by wakes from boats. Increasing disruption of the critical habitats of juvenile salmonids along the Willamette River by wake-producing boats are potential concerns for state and federal fish management agencies.

In addition to the erosional effects of large-wake-producing boats, the ecological effects of these wake-producing recreational activities are an even greater concern. Greater attention to this issue and studies to better inform decisions are needed to protect these important resources for the people of Oregon.