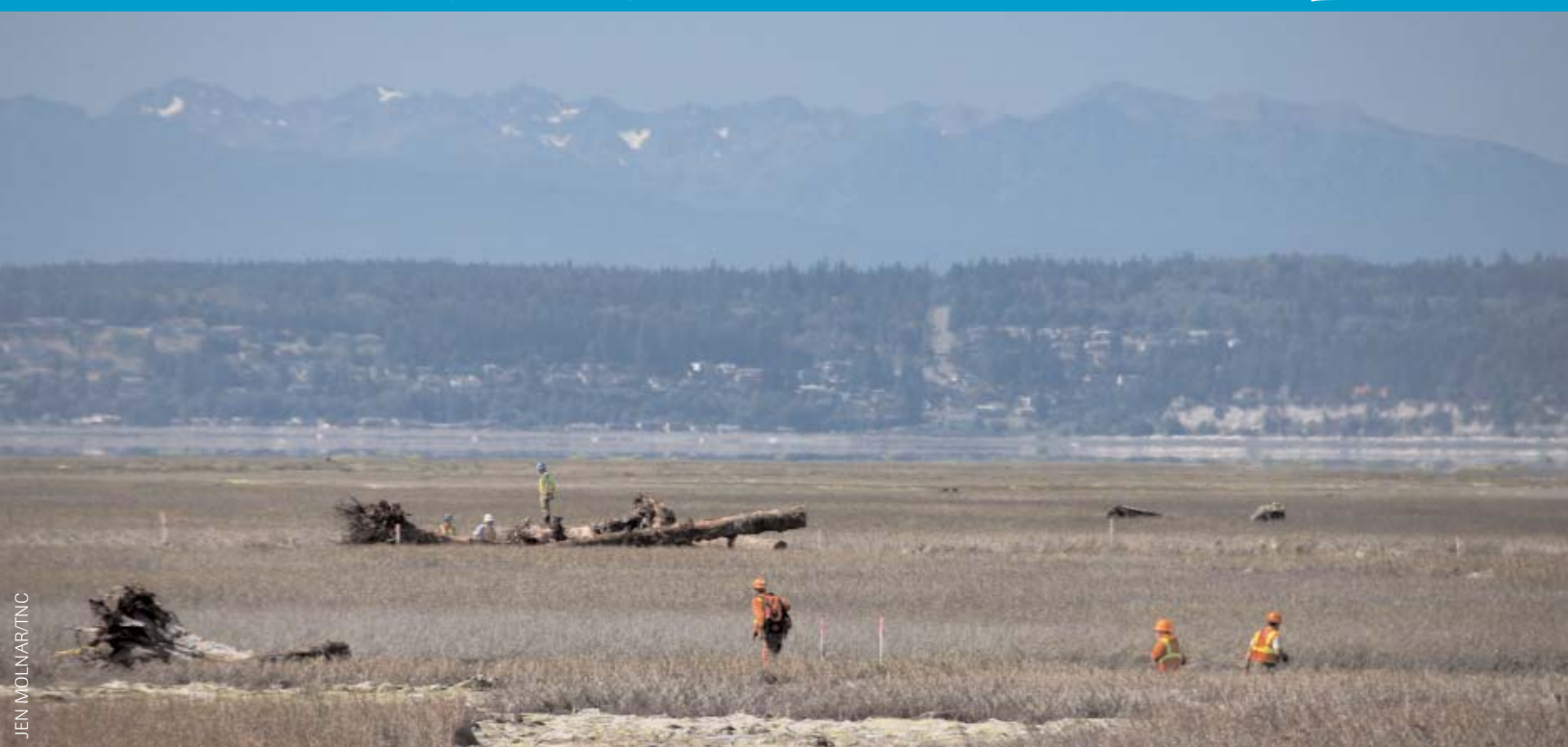


Port Susan Bay

The Nature Conservancy in Washington



Port Susan Bay Large Wood Project

The Stillaguamish River once swept giant Douglas firs, hemlocks, and cedars down its path to Port Susan Bay, where the logs would lodge in the mudflats and play an important role in the estuary's dynamic complexity. The wood created scour pools, trapped sediment, stabilized channels, and diversified habitats for fish, invertebrates, shorebirds, raptors, and marine mammals. But logging and bank armoring in the mountains and floodplain have dramatically reduced the number of trees being swept up in the river's floods and delivered to the estuary.

The Port Susan Bay Large Wood Project is an experiment to discover if placing and anchoring large wood in tidal channels can create conditions that are beneficial to juvenile salmon and other fishes: areas of low water velocity for energy conservation, areas of deeper water for low-tide refuge, structural complexity that offers places to hide, and emergent marshes for abundant prey resources.



Fast Facts

- The Port Susan Bay Preserve protects 4,100 acres of estuarine tidal marshes and flats.
- Chinook use estuaries for juvenile rearing more than other Pacific salmon—fry may remain in the estuary for six weeks or more before heading to sea.
- A 24-inch diameter log and rootwad can weigh more than 10,000 pounds.

Science in Action

In August, 2007, the Conservancy placed tree-sized logs with rootwads in two intertidal channels of the Stillaguamish estuary to test whether this would promote estuarine habitat attributes that are beneficial to juvenile salmon and other fishes, and whether wood of greater size and complexity induces greater habitat response.

Twenty-six logs were transported by helicopter and arranged in six complexes of two to seven pieces each. Concrete ballasts, designed to bury themselves into the channel bed when dropped from the helicopter, were used to help keep the wood in place. As the complexes took shape, ground crews raced the tide to cable everything together and cinch it down tight.

Monitoring: Channel morphology was characterized throughout each tidal channel before wood placement, and will continue to be evaluated two times a year for two years. Data from boat- and ground-based surveys will be used to calculate various measures of channel complexity, including the locations, widths, and depths of the wetted channel, bankfull channel, pools, and sandbars as well as angles of the channel banks. Researchers will also monitor the wood complexes for accumulation, loss and shifting of individual wood pieces.



MARLIN GREENE

Working Together

The wood placement project addresses a priority strategy of the Stillaguamish Implementation Review Committee (SIRC), the community-based council that is charged with overseeing voluntary habitat restoration projects in the watershed. The project will pilot-test one approach for enhancing wood functions in the estuary, and the lessons learned can inform future restoration projects.

Snohomish County Surface Water Management staff collected elevation data in the two channels prior to wood placement. They'll repeat this monitoring in the spring and fall of 2008 and 2009 and generate highly accurate, georeferenced bathymetric grids. County staff also provided guidance on project implementation.

The Stillaguamish Tribe Natural Resources Department has been monitoring juvenile salmon abundance in Port Susan Bay since 2004, and has field-tested other techniques for enhancing large wood functions in the estuary. Tribal staff assisted with implementation planning and led one of the ground crews during project implementation.

The mission of The Nature Conservancy is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive.

For more information

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The National Partnership between the NOAA Community-based Restoration Program and The Nature Conservancy implements innovative conservation activities that benefit marine, estuarine and riparian habitats across the United States. The NOAA Restoration Center has worked with community organizations to support locally-driven projects that provide strong on-the-ground habitat restoration components that offer educational and social benefits for people and their communities, as well as long-term ecological benefits.