



Fact Sheet

US Army Corps of Engineers
U.S. Army Engineer Research and Development Center

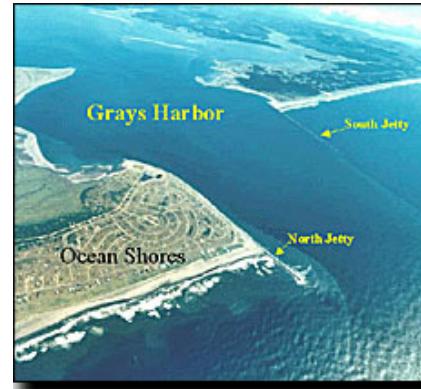
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GRAYS HARBOR NORTH JETTY STUDY

Grays Harbor, located in southwest Washington, is one of the largest estuaries in the continental United States with a correspondingly large tidal prism. Facing towards the Pacific Northwest Ocean, the entrance to Grays Harbor experiences the most extreme wave climate in the continental United States. Changes occur in the tidal channel locations and topographic features at all spatial and temporal scales.

Congress authorized the Grays Harbor Entrance and Navigation Channel in 1896. Since that time, the Corps of Engineers has developed, built, and maintained two rubble-mound jetties, a deep-draft navigation channel, and other navigational features in Grays Harbor. The North Jetty was originally constructed during the period 1907-1913. Its functions are to block southward transport of sediment and to protect and maintain an entrance navigation channel. The North Jetty has decreased in effectiveness as a result of subsidence and deterioration. Sediment is being transported into the channel and on to neighboring shoals, potentially increasing the need for maintenance dredging. Recently, the North Beach has exhibited a tendency to erode, reversing a historic trend of advance. Issues of concern include future channel maintenance requirements, jetty maintenance if the North Beach recedes, sediment supply to the environmentally sensitive Damon Point from the bypassed sediment, and impacts of the navigation project on the beach to the north.



Recently, the Corps of Engineers and non-federal entities have constructed or considered spur attachments to jetties as an innovative means of reducing channel and jetty maintenance. Limited data and experience are available to evaluate the functioning and design requirements of a spur. A study was completed in 2003 for the U.S. Army Engineer District, Seattle (NWS) by the U.S. Army Engineer Research and Development Center (ERDC), Coastal and Hydraulics Laboratory (CHL) to identify and evaluate engineering alternatives for reducing annual maintenance for the Federal navigation channel by reducing the amount of sand bypassing the north jetty. A secondary benefit to this study was protection of north jetty from scour and undermining during times of beach erosion and shoreline recession. The work included field, numerical and physical model studies that are reported in ERDC/CHL Technical Report-03-02 entitled "North Jetty Performance and Entrance Navigation Channel Maintenance, Grays Harbor, Washington". The study revealed many wide-area processes controlling sedimentation in and around Grays Harbor. The scale of change in the southward-directed bypassing of sediment expected to occur after construction of any of the evaluated alternatives was found to be small compared to scale of transport at the Grays Harbor entrance from sources originating outside the entrance or by being reworked and redistributed in the entrance. Modification of the north jetty is one of relatively few options for controlling sedimentation in the outer navigation channel; others include channel realignment and modifications to the south jetty.

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