



**US Army Corps
of Engineers®**
Engineer Research and
Development Center

National Erosion Control Development and Demonstration Program (Section 227)

Cape Lookout State Park, Oregon

Background

Cape Lookout State Park is a popular campground and day-use area located on the northern Oregon Coast approximately 20 km (12 miles) SW from Tillamook or 1-1/2 hr west of Portland. The park is located on a sand spit between Netarts Bay and the Pacific Ocean at coordinates 45.366 N and -123.962 W. The park is located at the south end of a “pocket beach” littoral cell, immediately north of Cape Lookout.

Problem

Dynamic revetments appear to offer an alternative method of shoreline erosion control that provides a natural-looking solution without any hardened structures. Unfortunately, very little design guidance is available for design of dynamic revetments. The recently-completed dynamic revetment at Cape Lookout provides an opportunity to study the reaction of the revetment to a known wave environment and document the naturally-occurring revetment planforms.



Dynamic cobble revetment, Cape Lookout State Park, Oregon

Technology

A series of surveying transects have been established across the dynamic revetment and beach, and also along areas adjacent to the revetment project and across a naturally-occurring cobble beach. The project includes surveying along the established transects on a regular basis with additional surveys conducted after storms. In addition, the forcing function of incident waves will be calculated with data from an existing offshore wave buoy, and wave runup and overtopping will be estimated based on the incident waves. Characteristics of the revetment including stone size distribution will be determined.

Status

Monitoring work is continuing on the cobble beach fill at Cape Lookout State Park and adjacent shorelines. Survey lines along the project and adjacent sites are taken on a regular basis with additional surveys taken after large storm events. Sediment samples have been studied to determine the cobble size distribution used on the project, and movement of marked stones has provided insight into transport of the cobbles. Incident wave heights, periods, and direction are collected regularly from an offshore wave gauge and numerically shoaled and refracted to the project site.

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**Available
Documentation**

Allan, J. C., and Komar, P. D. (2002). "A dynamic revetment and artificial dune for shore protection at Cape Lookout State Park, Oregon," *Proc. 28th International Conference on Coastal Engineering*, Cardiff, Wales.

Komar, P. D., Allan, J. C., and Winz, R. (2003). "Cobble beaches: the design with nature approach for shore protection." *Proc. 5th International Symposium on Coastal Engineering and Science of Coastal Sediment Processes*, Clearwater Beach, FL.

Allan, J. C., and Komar, P. D. (2004). "A dynamic revetment and artificial dune at Cape Lookout State Park, Oregon: The design with nature approach for shore protection," *Proc. Coastal Structures '03*, ASCE, Reston, VA.

Program Authorization

Water Resources and Development Act of 1996 (Public Law 104-303, 110 Stat. 3658) dated October 12, 1996.

Additional information can be found at <http://chl.erdc.usace.army.mil/section227>.