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Dredging, Sand Management and Habitat Restoration of a Jettied Inlet System, Chatham, MA

"Chatham, located at the "elbow" of Cape Cod, has two distinct littoral systems. One system faces east along the Atlantic Ocean; the other is located on Chatham's south side facing Nantucket Sound. Cape Cod is devoid of coastal engineering structures along its Atlantic Ocean coast, however, its Nantucket Sound shoreline is characterized by numerous jetties and groins. Nantucket Sound has a dominant west to east littoral sediment flux due to a prevailing southwest wind regime. Chatham, located at the far eastern end of Nantucket Sound receives reduced sediment supply to its beaches as a result.

Mill Creek is a small, narrow jettied inlet located at the eastern end of Forest Beach which is a barrier spit with a groin field, narrow "scaloped" beaches, and a low dune field. Mill Creek provides tidal flow to a large interior, shallow marsh system and a glacially-formed kettle pond. By 2006, the updrift beach fillet adjacent to the western jetty had become filled to capacity with sand bypassing the jetty tip and into the inlet channel. A large sub-aerial shoal developed across the mouth of the inlet reducing tidal exchange and causing deterioration in water quality and habitat value of the internal ecosystem.

An inlet dredging and sand management program was developed to improve tidal flow and provide for beneficial use of dredged material to address erosion along nearby beaches. The project design included dredging portions of the updrift beach fillet to restore trapping capacity of the western jetty and reduce natural bypassing. However, the area adjacent to the fillet is nesting habitat for Piping Plovers, protected shorebirds under state and federal Endangered Species Acts. Dredging of the fillet received approval conditioned on a unique habitat restoration feature that included removal of a 25m by 165m portion of dune and beach grass vegetation to expand and enhance shorebird nesting habitat.

Dredging the inlet channel to remove the shoal and restore tidal flow was accomplished in 2010. Funding constraints at the time limited the work to channel dredging only, and no work associated with dredging the updrift beach fillet or creation of the shorebird nesting habitat was undertaken. The channel required annual dredging through 2014 since material continued to bypass the western jetty. In 2015 a public/private partnership was established between Chatham and some private homeowners. The homeowners funded dredging of the beach fillet and the habitat restoration in order for the dredged material to be used to address erosion along private shorelines. The project was completed over the winter of 2014-2015 and approximately 11,000 m³ of sand were placed on private beaches at the west end of Chatham. Trapping capacity of the jetty was restored and Plovers successfully nested in the new habitat area during the 2015 nesting season."

Ted Keon is the Director of Coastal Resources with the Town of Chatham, MA, a position he has held since 1998. Mr. Keon is the primary liaison for Chatham's marine and shoreline related activities. He oversees the planning and implementation of projects affecting Chatham's waterways, coastal shorelines and water dependent infrastructure and also provides oversight of Chatham's Town Landings and water related access. Mr. Keon is directly responsible for the Town's comprehensive dredging, shoreline change and sediment management program.