Responses of Fish Assemblages to the Asbury-Manasquan Inlet Beach Nourishment Project, Northern New Jersey

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Characteristics of surf zone and offshore fish populations are examined with reference to a beach nourishment project that occurred in 1997 along the northern New Jersey shoreline. Fish abundance and distribution patterns are compared from 1995 to 1999 with a close examination of the potential responses to the offshore dredging and intertidal placement of sand in 1997. The offshore fish community was dominated by winter flounder, *Pleuronectes americanus*, summer flounder, *Paralichthys dentatus*, and scup, *Stenotomus chrysops.* Surf zone fish assemblages were dominated by silversides , *Menidia menidia* and *Membras martinica,* bluefish *Pomatomus saltatrix,* and northern kingfish *Menticirrhus saxatilis.* Silversides and bluefish were captured at higher frequencies near rock groins, a tendency which was diminished after the groins were partially buried following beach nourishment. Kingfish abundances were significantly higher at beach nourishment sites than at reference stations, whereas, bluefish were more abundant in the reference area at the time of beach nourishment. Silversides exhibited no change in distribution pattern relative to the beach nourishment project.

Surf zone fish food habits analyses did not reveal any evidence that benthic prey availability was reduced by the beach nourishment project. The prey biomass in the stomachs of silversides and kingfish either did not differ between fish caught in reference and beach nourishment areas or was greater for the beach nourishment fish. The stomach contents of winter flounder, a benthic omnivore, and summer flounder, an epibenthic feeder, did not change appreciably between the baseline time period (1995 and 1996) and the during-dredging (1997) and post-dredging (1998 and 1999) time periods. Fish responses to the beach nourishment project were limited to the changes in distribution of bluefish and kingfish and their less pronounced congregation around the rock groins. These effects were not evident one and two years after the beach nourishment project was completed.