



# RIVER HERRING HABITAT RESTORATION



The Albemarle Sound accounts for the majority of river herring landings in all of North Carolina. However, blueback herring and alewife, collectively known as “river herring,” are facing record declines across the Albemarle Sound watershed due to loss of access to spawning and nursery habitats, fishery pressures, and declining water quality. Decreasing steadily since the 1970s (all across the East Coast), the State Commission of the North Carolina Marine Fisheries recently declared a no-harvest rule for river herring for commercial and recreational fishing, with the exclusion of up to 7,500 pounds, which can be caught exclusively for research purposes.

## THE NATIONAL ESTUARY PROGRAM IN ACTION

## Albemarle-Pamlico National Estuary Program

To help bring river herring back to their former abundance, the Albemarle-Pamlico National Estuary Program (APNEP) and many partners are taking a coordinated approach to carrying out the initial steps to river herring recovery. Having worked individually in the past to rebuild spawning stock size, protect spawning and nursery area habitats, and maintain good water quality in North Carolina’s coastal streams, several entities have joined together to integrate their plans and benefit from the variety of tools each has to offer.

The Basinwide Management Plan addresses water quality is-

ssues. The Coastal Habitat Protection Plan and Wildlife Action Plan aim to protect and restore necessary fish habitats, while the River Herring Fishery Management Plan addresses sustainable fishing issues.

APNEP is collaborating with those and many others to meet the goals of its Comprehensive Conservation and Management Plan, which includes actions to address the issues of degraded or lost herring habitat. In a most recent and ongoing project, APNEP assisted the North Carolina Division of Marine Fisheries (DMF) in developing a herring sample analysis program to

monitor water quality and its effect on herring in the Chowan and Roanoke rivers. Since river herring are currently managed under a no-harvest provision, DMF has established an alternative sampling method in order to continue to sample the river herring population in the Chowan River.

With funding from APNEP, DMF has contracted commercial fishermen to set and fish pound nets in the Chowan River to obtain river herring data and aging samples. The sampling is designed to collect the same type of biological data that was evaluated from the commercial har-

Sorting of a pound net catch from the Chowan River, NC. Photo Credit: North Carolina Division of Marine Fisheries



vest. APNEP is also working with the Environmental Defense Fund (EDF) by funding a multi-phase project to assess river herring habitat and map priority areas for restoration. The EDF designed a GIS-based model to identify and prioritize spawning

and nursery habitat for river herring in the Chowan River Basin, including two sub-watersheds. They also incorporated indicators to assess and prioritize restoration and protection opportunities based on current hydrologic regimen conditions

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and nutrient loadings, including the effect of land-use changes on hydrology and nutrient loading, an increase in drainage networks through stream channelization and ditching, and point sources of pollution from National Pollutant Discharge Elimination System (NPDES) permitted facilities and animal feeding operations.

Outside the Chowan River area, additional evaluation is taking place in the tributaries of a neighboring river basin to determine the model's effectiveness in watersheds with different hydrogeomorphic characteristics. Overall, this work is providing the missing information that is essential to developing a long-term management plan that meets conservation planning efforts and actions contained in APNEP's Comprehensive Conservation and Management Plan. One of the more immediate ben-

efits of the project is that it has been helpful in generating matching funds to purchase 200 targeted acres containing essential river herring habitat. For example, the research presented so far has helped EDF to acquire a 94-acre tract of high-quality bottomland hardwood wetlands located in the Chowan River Core Wetland Reserve.

North Carolina Division of Parks and Recreation manages the land and is currently developing a management plan for the property, which buffers Bennett's Creek—suitable spawning habitat for river herring and neotropical migratory bird species. APNEP is also developing a comprehensive assessment methodology for wetland functionality as the basis for setting goals for wetland extent and condition. The program would support a multitude of possible projects, be used to prioritize short-term

actions, and be an integral part of the long-term implementation plans for state and Federal resource management in the region.

Visit [www.apnep.org](http://www.apnep.org) to learn more about this and other APNEP efforts.

*EPA's National Estuary Program (NEP) is a unique and successful coastal watershed-based program established in 1987 under the Clean Water Act Amendments. The NEP involves the public and collaborates with partners to protect, restore, and maintain the water quality and ecological integrity of 28 estuaries of national significance located in 18 coastal states and Puerto Rico.*

*For more information about the NEP go to [www.epa.gov/owow/estuaries](http://www.epa.gov/owow/estuaries).*