Sampling Locations from Menhaden Nurseries multiple sites along the Eastern Coast of the US from 2009-2011 (Contribution of Menhaden Nurseries project)

Website: https://www.bco-dmo.org/dataset/529127
Version: 01 October 2014
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Project
» The impact of multiple nursery areas and adult age structure on the population dynamics of marine fishes (Contribution of Menhaden Nurseries)

Contributors	Affiliation	Role
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Dataset Description

Menhaden Otolith Chemistry - Sampling Locations

Methods & Sampling

Complied by BCO-DMO staff from original Otolith Chemistry spreadsheet

Data Processing Description

Complied by BCO-DMO staff from original Otolith Chemistry spreadsheet

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Data Files

File
Sampling_Locations.csv (Comma Separated Values (.csv), 3.86 KB) MD5:5328e7097222c74b85d35e2b4e29e916 Primary data file for dataset ID 529127

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Parameters

Parameter	Description	Units
Year	Year of data collection	YYYY
State	State (two letter abbreviation) – See “Sample Collection/Collected By” in Acquisition Description	text
River	River/Area of collection - See “Sample Collection/Location” in Acquisition Description	text
Latitude	Latitude of general sampling area (South is Negative)	decimal degrees
Longitude	Longitude of general sampling area (West is Negative)	decimal degrees
Region	Region of collection – See “Method 6: Region Assignment” in Acquisition Description	dimensionless

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Deployments

Menhaden_Nurseries_Collection

Website	https://www.bco-dmo.org/deployment/528566
Platform	Menhaden Nurseries
Start Date	2009-07-01
End Date	2011-10-31
Description	Cruise or Deployment: Collected by Multiple State Agencies - Connecticut Department of Marine Fisheries, Rhode Island Marine Fisheries, New York Department of Environmental Conservation, New Jersey Department of Fish and Wildlife, Maryland Department of Natural Resources Fisheries Service, Chris Newsome, National Marine Fisheries Service, North Carolina Division of Marine Fisheries, South Carolina Department of Natural Resources, and Florida Fish and Wildlife Location: Samples were collected by multiple boats and from multiple sites in the Thames and Essex Rivers in Connecticut, Hudson River in New York, Delaware Bay in Delaware, Potomac, Patuxent, Choptank and Nanticoke Rivers in Maryland, James River in Virginia, Albemarle Sound in North Carolina and Charleston Harbor in South Carolina.

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Project Information

The impact of multiple nursery areas and adult age structure on the population dynamics of marine fishes (Contribution of Menhaden Nurseries)

Coverage: Samples were collected from multiple sites along the Eastern Coast of the US

Description from NSF award abstract:
Many marine populations exhibit complex life histories in which larval and juvenile stages are spatially separated from adults. This is the case for many coastal-spawning, estuarine-dependent fishes which utilize multiple estuaries as nursery grounds to ensure that recruitment failure in any single estuary does not translate to total recruitment failure at the population level. For these species, the location and timing of spawning is believed to regulate the pattern of supply of larvae to potential estuarine nursery areas. Furthermore, many of these species exhibit age-dependent coastal migrations which increase in amplitude with age. Thus, there is the potential that changes in the age structure in the population can affect the pattern of supply of larvae to nursery areas and structure the pattern of recruitment. The investigators will carry out an integrated empirical and simulation approach to study the sources, patterns and consequences of larval supply to estuarine nursery areas for Atlantic menhaden (*Brevoortia tyrannus*) along the East Coast of the US. The first goal will be to quantify the contribution of these nursery areas to coast wide recruitment. Juvenile menhaden from nursery areas from Massachusetts to Georgia will be sampled and the microchemical constituents of their otoliths will be characterized. These chemical signatures will be used to assign the nursery affinities of adult menhaden in the coastwide population. The investigators will test the null hypothesis that the Chesapeake Bay remains the most important source of recruits to the population. By determining the nursery affinities of adults from different year classes in the population they will assess whether the contribution of nurseries varies or has shifted over time. The second goal is use a population model linked to an individual-based coupled physical-biological model of recruitment to evaluate whether the known age-dependent migrations of adult menhaden are sufficient to cause the observed shifts in the distribution of larval menhaden that seed potential nursery areas. The simulation model will assist in evaluating mechanisms behind observed changes in the distribution of juvenile menhaden.

This work will contribute to the fundamental understanding of the regulation of spatially-structured marine populations. The last decade has seen the range extension of several estuarine-dependent marine species with dispersive larvae and the long-term recruitment decline of others. This integrated research program seeks to explore the effects of population demography, oceanographic circulation, and nursery site diversity on subsequent population dynamics. Given the documented changes in habitat quality in many estuarine nursery areas, and the anticipated impacts of climate change on oceanographic circulation, distributional changes in individual species are likely to become more common. Moreover, given the pivotal role that many estuarine-dependent species play in many marine ecosystems, understanding distributional changes will have direct consequences for the structure and function of the ecosystems to which they belong. The project will also train young scientists in areas of research (quantitative fisheries ecology, physical oceanography) for which there is current a national need.

Note: This project is an NSF Collaborative Research project.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0961421
NSF Division of Ocean Sciences (NSF OCE)	OCE-0961827
NSF Division of Ocean Sciences (NSF OCE)	OCE-0961632

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