

Dataset Documentation:
ELMR Southeast

Dataset Description	
Dataset Title	Estuarine Living Marine Resources: Southeast Regional Distribution and Abundance
Short Title	ELMR Southeast
Abstract	<p>This is the original (1991) Southeast regional component of NOAA's Estuarine Living Marine Resources (ELMR) Project, a national database of ecologically and economically important fishes and invertebrates in the Nation's estuaries. The distribution and relative abundance are depicted in a consistent format for 40 species of fishes and invertebrates, in 20 estuaries in coastal North Carolina, South Carolina, Georgia, and the east coast of Florida. Species were selected according to a set of criteria, which consider their commercial, recreational, and ecological value. For each species, five life stages are considered - adults, juveniles, larvae, spawning, and eggs - with some exceptions based on individual species life history. Each estuary is subdivided into one to three salinity zones (Tidal Fresh, Mixing, and Seawater). Relative abundance was ranked on a five-tier scale by month for each life stage of each species, in each salinity zone of each estuary. Details of the methods for the original Southeast ELMR component can be found in Nelson et al. (1991) and Nelson and Monaco (2000).</p>
Purpose	<p>Estuaries are among the most productive natural systems and are important nursery areas that provide food, refuge from predation, and valuable habitat for many species. In spite of the well documented importance of estuaries to fishes and invertebrates, few consistent and comprehensive data bases exist that allow examinations of relationships between estuarine species found in or among groups of estuaries. In 1985, NOAA launched the Estuarine Living Marine Resources (ELMR) Project to develop a consistent database on the distribution, relative abundance, and life history characteristics of ecologically and economically important fishes and invertebrates in the Nation's estuaries. The project applied consistent data development methods to enable comparisons among species, specific life stages, and times of year within estuarine systems. The database is divided into five study regions: West Coast, Gulf of Mexico, Southeast, Mid-Atlantic, and North Atlantic. The Nationwide ELMR database now includes information for 153 species found in 122 estuaries and coastal bays. A series of reports have been published which summarize the methods and results of the ELMR Program. These include a National report (2000), regional data summary reports for the North Atlantic (1994), Mid-Atlantic (1994), Southeast (1991), Gulf of Mexico (1992), and West Coast (1990), and regional life history summary reports for the West Coast (1991) and Gulf of Mexico (1997). Copies of these reports are available free upon request, and some are available as pdf.</p>
Methods	<p>Twenty (20) estuaries were selected for the ELMR Southeast Region from the National Estuarine Inventory (NEI) Data Atlas-Volume I (NOAA 1985). Data on the spatial and temporal distributions of species were compiled for each estuary, using salinity zones as a spatial framework. Forty (40) species were selected based on the commercial value, recreational value, indicator of environmental stress, and ecological value. A data sheet was developed for each species in each estuary to facilitate the review and presentation of the information. Data compiled for each species/life stage included: (1) the salinity zone(s) it occupies, (2) its monthly distribution in those zones, and (3) its relative abundance in those zones. The integrated quantitative and qualitative relative abundance estimates were then verified through an extensive review process utilizing expert knowledge and field experiences of fisheries scientists, managers, and field biologists. Data sources, references, and expert reviewers are well-documented in the summary report (Nelson et al. 1991). In the late 1990s, ELMR data were reviewed and revised to update Environmental Sensitivity Index (ESI) maps for North Carolina (NOAA 1996) and Georgia (NOAA 1997). Those revisions were based on analysis of pertinent information on estuarine salinity dynamics, fishery survey data, and other sources. The salinity zone framework was refined for North Carolina</p>

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	estuaries, and several species were added for the Georgia estuaries. These revisions are NOT reflected in this original 1991 Southeast ELMR data set, but are included in the revised data sets, published separately. Process Date Range is 1987-1991. For a complete description of the methods and results see Nelson et al. (1991), and Nelson and Monaco 2000.
Cited Publications	<p>Nelson, D.M., M.E. Monaco, C.D. Williams, T.E. Czapla, M.E. Pattillo, L.C. Clements, L.R. Settle, and E.A. Irlandi. 1991. Distribution and abundance of fishes and invertebrates in southeast estuaries. ELMR Rep. No. 9. NOAA/NOS SEA Division, Rockville, MD. 167 p. https://repository.library.noaa.gov/view/noaa/2875</p> <p>Nelson, D.M., and M.E. Monaco. 2000. National overview and evolution of NOAA's Estuarine Living Marine Resources (ELMR) Program. NOAA Tech. Memo. NOS NCCOS CCMA-144. 60 p. https://repository.library.noaa.gov/view/noaa/1701</p> <p>NOAA. 1985. National Estuarine Inventory - Data Atlas, Vol. I: Physical and Hydrologic Characteristics. NOAA/NOS Strategic Assessment Branch, Rockville MD, 103 p. https://www.greateratlantic.fisheries.noaa.gov/habitat/publications/national_estuarine_inventory_-_ne_region1.pdf</p> <p>NOAA. 1996. Sensitivity of Coastal Environments and Wildlife to Spilled Oil - NORTH CAROLINA. NOAA/NOS Office of Response and Restoration, Seattle, WA. http://response.restoration.noaa.gov/maps-and-spatial-data/download-esi-maps-and-gis-data.html</p> <p>NOAA. 1997. Sensitivity of Coastal Environments and Wildlife to Spilled Oil - GEORGIA. NOAA/NOS Office of Response and Restoration, Seattle, WA. http://response.restoration.noaa.gov/maps-and-spatial-data/download-esi-maps-and-gis-data.html</p> <p>Nelson, D. M. and US DOC; NOAA; National Ocean Service (2015). Estuarine Salinity Zones in US East Coast, Gulf of Mexico, and US West Coast from 1999-01-01 to 1999-12-31 (NCEI Accession 0127396). Version 1.1. NOAA National Centers for Environmental Information. Dataset. https://data.nodc.noaa.gov/cgi-bin/iso?id=gov.noaa.nodc:0127396</p>
Webpage	Estuarine Species Database for the NOAA Estuarine Living Marine Resources Program https://coastalscience.noaa.gov/projects/detail?key=107
Web Services	Estuarine Living Marine Resources Database (ELMR) https://products.coastalscience.noaa.gov/elmr/

People & Projects	
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Collaborators	Elizabeth A. Irlandi, Lawrence R. Settle, Linda Coston-Clements The success of the ELMR Project Southeast Component is due to several years of work by staff at the NOAA Beaufort Laboratory, together with the team at NOAA Headquarters in Maryland. Credit and thanks are also due to the 64 individuals at 24 organizations who helped compile and review the species distribution, relative abundance, and life history information. A full list of reviewers is provided in Appendix 3 of Nelson et al. (1991).
Author List	Nelson, David Moe; Monaco, Mark E.; Coston-Clements, Linda; Settle, Lawrence R.; Irlandi, Elizabeth A.
Funding Agency	US DOC; NOAA; NOS; National Centers for Coastal Ocean Science (NCCOS)
Projects	NCCOS Project #107, "Estuarine Species Database for the NOAA Estuarine Living Marine Resources Program"

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Dates, Locations, and Keywords	
Start Date	1987-10-01
End Date	1991-09-30
Northern Boundary	36.8000
Southern Boundary	25.1000
Western Boundary	-81.9000
Eastern Boundary	-75.4000
Sea Areas or Regions	U.S. Southeast Estuaries
Marine Protected Areas	<p>National Estuarine Research Reserves:</p> <p>North Carolina National Estuarine Research Reserve (North Carolina)</p> <p>North Inlet - Winyah Bay National Estuarine Research Reserve (South Carolina)</p> <p>ACE Basin National Estuarine Research Reserve (South Carolina)</p> <p>Sapelo Island National Estuarine Research Reserve (Georgia)</p> <p>National Parks:</p> <p>Cape Hatteras National Seashore (North Carolina)</p> <p>Cape Lookout National Seashore (North Carolina)</p> <p>Fort Sumter National Monument (South Carolina)</p> <p>Fort Pulaski National Monument (Georgia)</p> <p>Fort Frederica National Monument (Georgia)</p> <p>Cumberland Island National Seashore (Georgia)</p> <p>Timucuan Ecological and Historic Preserve (Florida)</p> <p>Canaveral National Seashore (Florida)</p> <p>Biscayne National Park (Florida)</p>
NCCOS Research Priorities	[none]
NCCOS Research Topics	[none]
NCCOS Regions	Marine Spatial Ecology (MSE)
U.S. States and Territories	Ecological/Biological Characterization
NCCOS Geographic Areas	East Coast
NCCOS Research Data Types	North Carolina, South Carolina, Georgia, Florida
ISO Topic Categories	Estuaries

Data File Description	
File Name (Required)	ELMR_Southeast-v1_Data_3-zone.csv
File Format (Required)	CSV
File Size (Required)	1.5 MB
Parameters or Variables	Relative Abundance
Property Type	Calculated
Units	Relative abundance ranking on a scale of 0 to 5
Observation Category	model output
Sampling Instrument	documentation only - no instrument type
Sampling and Analyzing Method	<p>A data sheet was developed for each species in each estuary to facilitate the review and presentation of the information. Data compiled for each species/life stage included: (1) the salinity zone(s) it occupies (Tidal Fresh, Mixing, Seawater), (2) its temporal distribution in those zones by month (Jan-Dec), and (3) its relative abundance in those zones. Relative abundance values are ranked as 0 = not present, n = no information available, 2 = rare, 3 = common, 4 = abundant, and 5 = highly abundant. The abundance of a species life stage was considered relative to that of the same life stage of other "similar" species within a "guild", i.e. with similar life modes and sampling susceptibilities. These guilds are: Sessile Invertebrates, Shrimps and Squids, Large Crustaceans, Shallow Water Fishes, Pelagic Fishes, and Demersal Fishes. The draft relative abundance ranking were then verified through an extensive review process utilizing expert knowledge and field experiences of fisheries scientists, managers, and field biologists. The Southeast ELMR project was launched in 1987, and results published in 1991. For a complete description of the methods and results see Nelson et al. (1991) and Nelson and Monaco (2000).</p>
Data Quality Method	The quality and quantity of available data vary by species, life stage, and estuary. In general, data quality is best for well-studied, commercially- and recreationally-harvested species. Data quality regarding salinity zone

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	<p>boundaries may be affected by factors such as variations in freshwater inflow, wind, and tides. The qualitative nature of distributional data precludes statistical comparisons of species abundances. Data reliability was ranked using the following categories and criteria:</p> <p>(1) Highly certain: Substantial sampling data are available, and distribution, behavior, and preferred habitats are well documented within an estuary.</p> <p>(2) Moderately certain: Some sampling data are available for an estuary, and distribution, preferred habitat, and behavior are well documented in similar estuaries.</p> <p>3) Reasonable inference: Little or no site sampling data are available, but information on distributions, ecology, and preferred habitats are documented in similar estuaries.</p> <p>These rankings of data reliability for each species and estuary are reported in the DATA_RELIABILITY column, and in Table 4 of the ELMR Southeast Report (Nelson et al. 1991).</p>
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Data Dictionary				
Variable Name	Variable Label	Required	Format	Description
ESTUARY_NAME	ESTUARY_NAME	yes	Char (30)	Commonly used name of each of the 20 Southeast estuaries in this data set (e.g. CHARLESTON HARBOR).
SALINITY_ZONE	SALINITY_ZONE	yes	Char (90)	Waters within each estuary are subdivided as a three-zone salinity scheme, based on annual-averaged salinity from head-of-tide to the mouth of the estuary. The three salinity zones are Tidal Fresh (0-0.5 ppt), Mixing (0.5-25 ppt), and Seawater (>25 ppt). Note that some estuaries do not contain all three zones, e.g. ALBEMARLE SOUND has no SEAWATER zone because of relatively high freshwater inflow.
SPECIES_COMMON_NAME	SPECIES_COMMON_NAME	yes	Char (90)	Commonly used name of each of the 40 species in this data set (e.g. ATLANTIC CROAKER)
SPECIES_LATIN_NAME	SPECIES_LATIN_NAME	yes	Char (90)	Generally accepted scientific (Latin) name of each of the 40 species in this data set (e.g. MICROPOGONIAS UNDULATUS)
LIFE_STAGE	LIFE_STAGE	yes	Char (90)	One of the five typical life stages: ADULT, SPAWNING, JUVENILE, LARVAE, and EGGS. There are a few exceptions to these defined life stages for certain species (e.g. MATING instead of SPAWNING for BLUE CRAB).
JANUARY	JAN	yes	Char (1)	Relative abundance ranking (0-5) in the month of January
FEBRUARY	FEB	yes	Char (1)	Relative abundance ranking (0-5) in the month of February
MARCH	MAR	yes	Char (1)	Relative abundance ranking (0-5) in the month of March
APRIL	APR	yes	Char (1)	Relative abundance ranking (0-5) in the month of April
MAY	MAY	yes	Char (1)	Relative abundance ranking (0-5) in the month of May
JUNE	JUN	yes	Char (1)	Relative abundance ranking (0-5) in the month of June
JULY	JUL	yes	Char (1)	Relative abundance ranking (0-5) in the month of July
AUGUST	AUG	yes	Char (1)	Relative abundance ranking (0-5) in the month of August
SEPTEMBER	SEP	yes	Char (1)	Relative abundance ranking (0-5) in the month of September

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Data Dictionary				
Variable Name	Variable Label	Required	Format	Description
OCTOBER	OCT	yes	Char (1)	Relative abundance ranking (0-5)in the month of October
NOVEMBER	NOV	yes	Char (1)	Relative abundance ranking (0-5)in the month of November
DECEMBER	DEC	yes	Char (1)	Relative abundance ranking (0-5)in the month of December
MAXIMUM	MAX	yes	Char (1)	Maximum relative abundance value (0-5)across all twelve months (JAN-DEC)
DATA_RELIABILITY	DATA_RELIABILITY	yes	Char (90)	Data Reliability Ranking (Highly Certain, Moderately Certain, or Reasonable Inference)