

Analyses of otoliths from juvenile black sea bass						
Year Released to Public	2010					
Distribution URL for file	<a href="http://links.baruch.sc.edu/data/accessfiles/Juvenile_Black_Sea_Bass_Otolith_Database_Collected_from_Estuaries_in_SC_FL_NJ_and_NY_2008_2009.zip">http://links.baruch.sc.edu/data/accessfiles/Juvenile_Black_Sea_Bass_Otolith_Database_Collected_from_Estuaries_in_SC_FL_NJ_and_NY_2008_2009.zip</a>					
<b>DATASET TITLE:</b>	Analyses of otoliths from juvenile black sea bass collected from estuaries in SC, FL, NJ, and NY: 2008-2009					
<b>INVESTIGATOR INFORMATION :</b>	<b>Investigator 1</b>	<b>Data Manager</b>				
First Name	Dennis	Franklin				
Last Name	Allen	Anoruo				
Address line 1	Baruch Marine Field Laboratory	Baruch Marine Field Laboratory				
Address line 2	University of SC	University of SC				
Address line 3	PO Box 1630	PO Box 1630				
City	Georgetown	Georgetown				
State	SC	SC				
Zip Code	29442	29442				
Country	USA	USA				
<b>OTHERS:</b>	Joe Quattro					
Data Set Credit	Support provided by NOAA/National Marine Fisheries Service's MARFIN grant NA07NMF4330118.					
<b>DATA FILE INFORMATION:</b>	<p><i>This condensed metadata is from the original, more extensive metadata</i> created on 9/22/2010 by Ginger Ogburn-Matthews.</p> <p>If needed, the original may be accessed at: <a href="http://links.baruch.sc.edu/Data/BlackSeaBass/metadata/BlackSeaBass.Metadata.pdf">http://links.baruch.sc.edu/Data/BlackSeaBass/metadata/BlackSeaBass.Metadata.pdf</a></p> <p>Links and email addresses in the <b>original</b> have not been updated as those locations and people may no longer be available.</p> <p>The data manager identified on this page should be contacted for any questions about the data.</p>					
Data File Name	Juvenile_Black_Sea_Bass_Otolith_Database_Collected_from_Estuaries_in_SC_FL_NJ_and_NY_2008_2009.zip					
Beginning Date	01-Jul-2008					
End Date	14-Oct-2009					
Number of Data Records	654					
<b>RESEARCH LOCATION:</b>	<b>North Inlet Town Creek (NITC):</b>	<b>Apalachicola (AP):</b>	<b>Cedar Key (CK):</b>	<b>Stone Harbor (SH)</b>	<b>Great Bay (GB)</b>	<b>Shinnecock Bay (SB):</b>
Geographic Description	Collections were made in the: (1) North Inlet Estuary (Georgetown County) South Carolina, (2) Little Egg Estuary (Great Bay, Ocean County) New Jersey (3) Hereford Inlet Estuary (Stone Harbor, Cape may County) New Jersey, (4) Shinnecock Bay Estuary (Southampton, Suffolk County) New York, (5) Apalachicola Bay Estuary (Franklin County) Florida, and Cedar Key (Levy County) Florida. The following Lat/Long fish collection site values were obtained by Dennis Allen and Ginger Ogburn-Matthews using Google Earth.					
<b>Location Bounding Box</b>						
West Bounding Coordinate	-84.771					
East Bounding Coordinate	-72.467					
North Bounding Coordinate	40.874					
South Bounding Coordinate	29.605					
<b>OR if single point location</b>						
Latitude	33° 20' 11" N	29° 47' 00" N	29° 36' 20" N	39° 03' 28" N	39° 30' 31" N	40° 52' 29" N
Longitude	79° 11' 35" W	84° 46' 16" W	83° 25' 48" W	74° 45' 28" W	74° 19' 29" W	72° 28' 02" W
Elevation						
<b>TAXONOMIC COVERAGE:</b>						
Taxonomic Protocols						
Organisms studied	Black sea bass ( <i>Centropristis striata</i> )					

<b>KEYWORD INFORMATION</b>					
<p>EARTH SCIENCE, BIOSPHERE, ZOOLOGY, FISH, COASTAL, ESTUARINE, ESTUARY, STANDARD LENGTH, TOTAL LENGTH, FISH BIOMASS, NORTH INLET, OTOLITH COUNTS, BLACK SEA BASS FISHERY, AGE STRUCTURE, SAGITTAE, NORTH AMERICA, EAST COAST, WESTERN ATLANTIC, SOUTH CAROLINA, NORTH INLET ESTUARY, TOWN CREEK, FLORIDA, APALACHICOLA, CEDAR KEY, NEW JERSEY, STONE HARBOR, GREAT BAY, NEW YORK, SHINNECOCK BAY, DEMERSAL, VERTEBRATES, FISH, NEKTON, GROUPER, BLACK SEA BAS, CENTROPRISTIS STRIATA, Kingdom, Animalia</p>					
<b>ABSTRACT:</b>					
<p><b>Abstract:</b>  Snappers/Groupers have traditionally been some of the most desired demersal fishes in the South Atlantic Bight and are the most abundant and diverse group of large predatory fishes inhabiting tropical and subtropical coral reefs and rocky reef habitats in U.S. territorial waters. Included in the snapper/grouper fishery management plan is the black sea bass fishery. Black sea bass (<i>Centropristis striata</i>) support valuable recreational and commercial fisheries from Georgia to Cape Cod. The overarching goals of the study have been to determine genetic stock structure and test the assumption that different stocks exist north and south of Cape Hatteras, NC. The genetics work was conducted in Joe Quattro's lab on the USC campus.  The specific goals of the substudy described here for Dennis Allen's work on juvenile black sea bass (collected from 6 estuaries from Apalachicola, FL to Southampton, NY) have been to determine if geographic differences exist for: (1) morphometric and meristic characters, (2) age based on otolith counts, and (3) growth rates based on size and age. Tissue from each individual was provided to Dr. Quattro's lab to compare the genetics within and between geographic locations. Together the otolith and genetic data address questions about origins of recruited juveniles relative to offshore spawning populations. Age and growth information could facilitate an understanding of the direction and time of dispersal.</p> <p><b>Purpose:</b>  The initial goal of the otolith research was to compare the following measured features among individual juvenile black sea bass collected at six sites from Apalachicola, FL to Southampton (Long Island), NY : (1) body length (standard and total) and weight, (2) dorsal and anal fin counts, and (3) otolith length, weight, and ring counts (core and total). Analyses of these data yielded age and growth of individuals within and among locations. Fin clips were provided to the genetics lab so that relationships between parental stock, morphology, age, and growth rates could be explored in a broad spatial framework.</p>					
<b>METHODS:</b>					
<p><b>Field Collections (Fish Collection)</b>  Samples were collected from each site using differing sampling techniques. All Town creek samples were collected using hook and line (HL). All Apalachicola and Cedar Key samples were collected using trawl nets (gear codes 300, 301) and seine nets (gear codes 20 &amp; 160). All Stone Harbor samples were collected using hook and line (HL). All Great Bay samples were collected using chevron trap (TRAP). All Shinnecock Bay samples were collected using seine net (Seine).</p> <p><b>Laboratory (Black Sea Bass Processing)</b>  Each fish was measured for total length (TL), standard length (SL), weight (W), and fin counts (rays and spines) for dorsal and anal fins. Collection dates and processing dates were also recorded. A fin clip from the dorsal rays was extracted and placed into sample vials, labeled with a sample number, date collected, latitude/longitude coordinates, collection site, and preserved in ethanol. Each fish was then given a corresponding sample number and placed in a separate Ziploc bag for further processing of otoliths.</p> <p><b>Laboratory (Black Sea Bass Otolith Processing)</b>  Using a No. 10 disposable scalpel, the sagittae bones were removed from each sample and cleaned using a 1:10 bleach/water solution. Upon removal of sagittae, fish carcasses were disposed of. After air drying, each left and right sagittae were measured for length to the nearest 0.01 mm using an INOX waterproof IP54 caliper (LSL, RSL). Each sagittae were also measured for weight to the nearest 0.0001 gm using a Mettler AM100 scale (LSW, RSW). Left and right sagittae were labeled with the appropriate sample number (1L, 1R, 2L, 2R, etc...) and stored separately in a 24 well Falcon brand tissue culture plate, covered with a cotton ball, and taped around the lid to prevent mixing. Each tissue culture plate was labeled on top with sample numbers found in each plate (1-12, 13-24, etc...). Approximately 40-42 sagittae were used from each site for polishing. Of those 40-42, only 30 sagittae were chosen for each site, the extras were backups for use in case of polishing error. When possible, only the left sagittae were used in the polishing process. Also, when possible, only the sagittae from fish approximately 90mm SL or less were used in the polishing process. Each sagittae were then placed into a Pelco 105 mold using West System 105 Epoxy Resin and 206 Hardener. After hardening, each sample was processed for ring counting using guidelines set forth in the Manual for Otolith Removal and Preparation for Microstructural Examination (Secor et al. 1991). After polishing, samples were counted using an Olympus BX50 light microscope at 60X magnification.</p> <p><b>Study Archival and Storage (Black Sea Bass Otoliths)</b>  All otolith samples are stored at the BMFL in 24 well Falcon brand tissue culture plates and labeled according to sample number. Extra samples that were unused during the counting process have been previously embedded and are stored with the loose samples in the correct sample number well. All storage plates are labeled on top with the corresponding samples found in each plate and on bottom with the specific sample number. All storage plates, slide cases, and processing equipment are boxed up and labeled accordingly in BMFL room 131.</p>					
<b>VARIABLE DESCRIPTIONS:</b>					
<b>Variable Name</b>	<b>Variable Description</b>	<b>Units</b>	<b>Measurement Scale</b>	<b>Code Information</b>	<b>Number Type</b>
Sample	sample number for each black sea bass processed for otoliths counts. The first sample fish was assigned 1, then 2, and so forth in ascending order until the end of the project. The fish were processed by Location.	1 to 468, sequential number in ascending order	ordinal		integer
Data Sheet (DS)	the field collection datasheet which contains information about the capture of the processed fish. Only locations AP and CK had these sheets, and the sheet number changed when the gear or date changed. NDS = no data sheet available for that fish.	A1-A14, CK1-CK42, NDS	nominal		integer

Location	physical collection site where black sea bass were collected. Abbreviated as NITC (North Inlet Town Creek); Apalachicola (AP); Cedar Key (CK); Great Bay (GB); Stone Harbor (SH); Shinnecock Bay (SB).	AP, CK, GB, NITC, SB, SH	nominal		
Latitude & Longitude	the degrees of latitude and longitude where the sea bass was captured. Numbers are separated by a /.	29/83, 29/84, 30/84, 33/74, 39/74, 40/72 degrees	nominal		integer
Gear	types of gear used to collect black sea bass samples. Codes 20 & 160 denote seine nets, and 300 and 301 denote trawl nets used at sites Apalachicola (AP) and Cedar Key (CK). Other gear types were HL = Hook & Line and Trap= Chevron Trap	20, 160, 300, 301, HL, Seine, Trap	nominal		integer
Date Collected	the calendar date that black sea bass were collected at each location. Both sites, GB & SB, had fish collected over several months placed in the same bag. So no fish at these sites have a collection date for them	01-12, 01-31, 2007-2009; (mm/dd/yyyy)	datetime		
Date Processed	the calendar date that the black sea bass and its otoliths were processed for counting.	01-12, 01-31, 2007-2009; (mm/dd/yyyy)	datetime		
Total length (TL)	total length of each black sea bass sample, in millimeters, measured from tip of mouth to end of tail.	39 to 240 millimeters	ratio		real
Standard length (SL)	standard length of each black sea bass sample, in millimeters, measured from tip of mouth to precaudal fork.	30 to 190 millimeters	ratio		real
Weight (W)	total weight of each black sea bass sample to the nearest tenth of a gram.	0.8 to 240.6 grams	ratio		real
Fin Count	DX, 11 AIII, 7= D=Dorsal fin spine, ray count, A=Anal fin spine, ray count. Roman numerals = spine count, Arabic numbers = ray counts	DX, 11 AIII, 6-8	nominal		integer
Left sagitta length (LSL)	total length, in millimeters, of each left sagitta collected.	1.77 to 9.29 millimeters	ratio		real
Left sagitta weight (LSW)	total weight, in grams, of each left sagitta collected.	0.0001 to 0.0472 grams	ratio		real
Right sagitta length (RSL)	total length, in millimeters, of each right sagitta collected.	1.99 to 9.14 millimeters	ratio		real
Right sagitta weight (RSW)	total weight, in grams, of each right sagitta collected.	0.0001 to 0.0503 grams	ratio		real
# Sagittae (collected)	number of sagittae collected and condition when removed from the sea bass for otoliths counts. Letter abbreviation gives condition: L=Lost or B=Broken during processing.	1-2, Letter abbreviation: L or B	nominal		integer
Whole Otolith Mean count	geometric mean of growth rings counted for ENTIRE polished sagitta, based on 3 counts. Whole Otolith counts included the core counts past the annulus, if it occurred. Based on the technician who did the counts, rings outside the annulus were only counted in a few of the largest fish. The majority of the fishes' otoliths did not have an annulus	83.5 to 253.5	ratio		real
Standard Deviation (Whole Otolith S.D.)	deviation from mean for counts.	0.5 to 19.3	ratio		real
Coefficient of variation (Whole Otolith C.V.)	standard deviation divided by the mean count multiplied by 100.	0.2 to 9.1	ratio		real
Otolith side (counted)		L, R (left or right)	nominal		
Core Otolith Mean counts	geometric mean of growth rings counted from sagitta core to settlement ring, based on 3 counts.	13.6 to 37.3	ratio		real
Standard Deviation (Core Otolith S.D.)	deviation from mean for counts.	<0.0001 to 2.5	ratio		real
Coefficient of variation (Core Otolith C.V.)	standard deviation divided by the mean count multiplied by 100.	<0.0001 to 9.2	ratio		real
Presumed spawn date	estimation of actual spawning date for black sea bass samples, calculated by taking the mean count for each polished sample and back calculating from the date collected.	12/24/2007 to 02/11/2009; (mm/dd/yyyy)	datetime		

Comments	text describes broken otolith(s).	Text verifying that sp id & broken otolith, etc	nominal			
----------	-----------------------------------	---	---------	--	--	--