1. Identification Information

1.1 Citation Information

8.1 Originator: Dennis Allen
8.1 Originator: Richard Dame
8.1 Originator: Leah Gregory
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and Department of Statistics of the University of South Carolina

8.2 Publication Date: 20040615
8.4 Title: CREEK Project’s Nekton Database for Eight Creeks in the North Inlet Estuary, South Carolina: 1997-1998.
8.6 Geospatial Data Presentation Form: comma delimitated digital data and spreadsheet

8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC   USA
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina

8.10 Online linkage: http://links.baruch.sc.edu/data/

8.11 Larger work citation

8. Originator: Richard Dame
8. Originator: Dave Bushek
8. Originator: Dennis Allen
8. Originator: Don Edwards
8. Originator: Alan Lewitus
8. Originator: Eric Koepfler
8. Originator: Bjorn Kjerfve
8. Originator: Leah Gregory
8. Originator: Department of Marine Science, Coastal Carolina University
8. Originator: Belle W. Baruch Institute for Marine and Coastal Sciences, Department of Marine Science, and Department of Statistics of the University of South Carolina

8.2 Publication Date: 20000730
8.6 Geospatial Data Presentation Form: NSF Proposal
8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina

8.9 Other Citation Details: The CREEK Project (January 1996 – June 2000) was an ecological research program that investigated relationships between oysters and other estuarine subcomponents including nekton, microzooplankton, phytoplankton, oyster diseases, and water chemistry. See cross reference section - this metadata file.

1.2 Description

1.2.1 Abstract:
A group of eight intertidal creeks with high densities of oysters, Crassostrea virginica, in North Inlet Estuary, South Carolina, USA were studied using a replicated BACI (Before - After Control - Incident) design in which all creeks are sampled simultaneously. The study known as the CREEK Project began in January 1996. Based on preliminary geomorphological observations of North Inlet creeks, by fall of 1996, eight creeks similar in size and configuration were selected for the study. Geomorphological observations were made in four stages ranging from general to detailed: 1) a general reconnaissance and the selection of the eight creeks, 2) Chris Corbett and Leroy Humphries conducted detailed survey of the internal geomorphology of the selected eight creeks using GIS equipment, 3) Leah Gregory produced a oyster reef map and oyster biomass determination (referred to as the Oyster Biomass Database), and 4) Dennis Allen measured and classified all creek bottoms (referred to as Internal Creek Habitat Survey). The first three stages occurred before the first nekton measurement, which was in March 1997. In January 1997, oysters were added or removed from each creek to equalize oyster biomass at 8 grams dry body weight per cubic meter of bank full water volume in each creek. This stage of the project is referred to as the "pre-manipulation" period where all creeks have the same amount of oyster biomass. In February 1998, about one year after the first set of water quality, chemistry, nekton and other measurements were made, living oysters were removed from four of the eight creeks (creeks 1, 4, 5, and 8), resulting in zero dry body weight per cubic meter of water at bank full volume. This was done to investigate the role of oyster reefs in controlling levels of dissolved and particulate materials in the water and to evaluate relationships between living oysters and nekton in the creeks. During the year following oyster removal, all measurements made in the first year were repeated. The second year of the project during which four of the creeks were without oyster biomass was known as the "manipulation" stage. The BACI analysis was used to compare data between the two years.
Nekton samples were taken in March, June, August, and in November of 1997 and 1998, always following the same procedures. To sample the nekton present in creeks, a block net was set up at the mouth of each creek starting at a daybreak slack high tide on which the flooding level did not exceed the tops of the marsh banks (=bank full). At low tide, animals in block nets were collected and frozen. Because each creek contained tidal pools, seines were used to obtain nekton from areas retaining water and nekton at low tide. Each pool sample was also frozen. At the time of sampling, additional data such as water temperature, salinity, tidal height and time were recorded. In the months following, block net and pool samples were thawed and animals were sorted and identified to the lowest possible taxonomic level (defined as ‘species’ in the following description). Length data [Standard Length (SL) in mm] were obtained for up to 100 individuals in each taxonomic category. Biomass data were obtained first for the 100 individuals, and then for the entire species sample (total weight for each species). Species abundance was extrapolated from the total weight when more than 100 individuals were collected. This procedure was followed for each species in the sample. For block nets, samples were thawed and split to a manageable volume following the preceding guidelines. Total species biomass and abundance were extrapolated from subsample data. Abundance and biomass calculations per cubic meter were determined using the volume estimates for each creek. See the CREEK Project's Tidal Creek Geomorphology Metadata (Corbett/Humphries GIS Survey) for more information about how the volume estimates for each creek were made.

1.2.2 Purpose: The CREEK Project nekton sampling program was initiated in 1997 to determine relationships between geomorphological features (including the presence of oysters) and nekton use of intertidal creeks in the North Inlet Estuary, Georgetown, South Carolina.

1.2.3. Supplemental Information:
Significant Publications and Presentations:


Estuarine Research Federation (ERF) September 1999, New Orleans, LA.

Linking habitat features and nekton use of intertidal creeks. (Allen, D.M., D. Bushek, R. Dame, B. Milan, and E. Koepfler)

The role of nekton and oysters in controlling tidal creek nutrients. (Dame, R.F., D.M. Allen, A. Lewitus, L. Gregory, D. Edwards, D. Bushek, E. Koepfler)

Fish and shrimp use of intertidal habitats: a mesocosm approach. (Milan, B., D.M. Allen, R. Young, O. Akman, A. Blair, R. Dame)
Southeastern Estuarine Research Society (SEERS).


1997-1998 Creek Water Comparisons

Water temperatures were similar in March (avg. 10°C), June (avg. 25°C), and August (avg. 28°C) for both years; they averaged 16°C in November 1997 and 22°C in November 1998. Water temperatures variations among creeks at the time of the high tide net set never exceeded 2°C. Salinities were >31 ppt on all 8 sampling dates; seasonal variations were <5 ppt, with slightly lower salinities occurring in March. Salinity differences among creeks never exceeded 2 ppt on the same date. Bank full levels of flooding were similar among the first seven dates (March 1997 through August 1998) with less than 20 cm differences being observed. The water level in November 1998 was substantially higher than the first seven collection dates; it was about 30 cm higher than the average for the other seven dates. Each creek exceeded bank full status for about 30 minutes around slack tide; however, this higher level was not high enough to allow mixing with adjacent creeks.

Other Creek Datasets

Several other datasets were collected over varying periods during the four years. Oyster biomass data were collected to determine the natural average biomass of oysters within intertidal creeks so that all creeks could be adjusted to that average level and subsequently to monitor changes in oyster biomass since elucidating the role of oysters was the primary purpose of the overall study. Intensive planktonic - microbial loop sampling and experiments were conducted in selected creeks at various times. Oyster growth was measured monthly during the same period of nekton collections. Infection intensities of the oyster parasite, Perkinsus marinus, were made in fall of the pre-manipulation year and once following the manipulation. See the Creek Project Overview documentation for information on publications, presentations, and other undergraduate and graduate research project topics.

Summary of important results:

Although covering 25-70% (avg.40%) of intertidal creek bottoms, oysters do not dominate faunal biomass or the remineralization of nutrients.

Totally unexpected was the finding that summer nekton (fishes, shrimps, crabs) biomass is higher than oyster biomass.

Nekton prefer certain creeks to others and these distributions are related to creek shape, mean depth, flooding and discharge rate, and distance to upland ridge, but not creek size (volume, area, or length).

A tag / recapture study by a student found that pinfish migrated into flooding creeks but did not move among creeks.
El Niño, a global environmental event, was clearly evident from the analysis of three years of weekly chlorophyll and nutrient data (1997-2000). Utilizing limited literature values and preliminary experiments, a simple budget for ammonium indicated that nekton inputs were considerably greater than oyster excretion as a source to intertidal creeks.

Map of the eight creek sites can be found at http://links.baruch.sc.edu/data/CREEK/CreekOysterBiomass/OysterBio.htm or in the printed version of the Creek Project Overview documentation that is in a Project notebook at the BFML.

1.3 Time Period of Content:

9.3 Range of Dates/Times
9.3.1 Beginning Date:  19970322
9.3.3 Ending Date:  19981103

1.3.1 Currentness Reference:  Ground condition for physical data; however, abundance, biomass, species identification data values were determined a few days to a few months after the blocknet and pool catch collections were made.

1.4 Status:
1.4.1 Progress:  Complete
1.4.2 Maintenance and update frequency:  As needed

99.1.5.1 Description of Geographic Extent:
All eight creeks reside in North Inlet Estuary, four off of Clambank Creek, and four off of Town Creek. The North Inlet Estuary (33.20°N, 79.10°W) lies east of the uplands of Hobcaw Barony (also known as the Belle W. Baruch Foundation Property). The Estuary is located in Georgetown County, South Carolina.

1.5.1.1 West Bounding Coordinate:  -79.192
1.5.1.2 East Bounding Coordinate:  -79.167
1.5.1.3 North Bounding Coordinate:  33.350
1.5.1.4 South Bounding Coordinate:  33.327

1.6 Keywords
1.6.1 Theme
1.6.1.1 Theme Keyword Thesaurus:  None
1.6.1.2 Theme Keyword:  BLOCK NET
1.6.1.2 Theme Keyword:  COASTAL
1.6.1.2 Theme Keyword:  CREEK
1.6.1.2 Theme Keyword:  CREEK PROJECT
1.6.1.2 Theme Keyword:  ECOSYSTEMS
1.6.1.2 Theme Keyword:  ESTUARINE COMMUNITIES
1.6.1.2 Theme Keyword:  ESTUARINE
1.6.1.2 Theme Keyword:  ESTUARY
1.6.1.2 Theme Keyword:  INTERTIDAL CREEK
1.6.1.2 Theme Keyword:  MARSH
1.6.1.2 Theme Keyword:  SALT MARSH
1.6.1.2 Theme Keyword:  NEKTON
1.6.1.2 Theme Keyword:  INTERTIDAL POOL
1.6.1.2 Theme Keyword:  SEINE
1.6.1.2 Theme Keyword:  TIDAL POOL

1.6.2 Place
1.6.2.1 Place Keyword Thesaurus:  None
1.6.2.2 Place Keyword:  NORTH INLET ESTUARY
1.6.2.2 Place Keyword:  SOUTH CAROLINA
1.6.2.2 Place Keyword:  TOWN CREEK
1.6.2.2 Place Keyword:  CLAMBNANK CREEK
1.6.2.2 Place Keyword:  EAST COAST
1.6.2.2 Place Keyword:  SOUTHEAST COAST
1.6.2.2 Place Keyword:  COASTAL
1.6.2.2 Place Keyword:  GEORGETOWN COUNTY
1.6.2.2 Place Keyword:  USA
1.6.3 Stratum
   1.6.3.1 Stratum Keyword Thesaurus: None
   1.6.3.2 Stratum Keyword: WATER COLUMN
   1.6.3.2 Stratum Keyword: DEMERSAL

1.6.4 Temporal
   1.6.4.1 Temporal Keyword Thesaurus: None
   1.6.4.2 Temporal Keyword: 1997
   1.6.4.2 Temporal Keyword: 1998
   1.6.4.2 Temporal Keyword: 1997-1998

99.1.7 Taxonomy
99.1.7.1 Taxonomic Keyword Thesaurus: None
99.1.7.1 Taxonomic Keywords
   99.1.7.1.2 Taxonomic Keywords
      MULTIPLE SPECIES
      ANIMALS
      VERTEBRATES
      INVERTEBRATES
      FISH
      CRAB
      SHRIMP
      NEKTON
      CRUSTACEANS

99.1.7.2 Taxonomic System
99.1.7.2.1 Classification System Citation
8. Citation Information
   8.1 Originator: Hoesee and Moore
   8.2 Publication Date: 199712
   8.4 Title: Fishes of Louisiana and Gulf of Mexico and Adjacent Waters
   8.5 Edition: Second Edition
   8.6 Geospatial Data Presentation Form: Book
   8.8 Publication Information:
      8.8.1 Publication Place: Texas
      8.8.2 Publisher: Texas A&M University Press

99.1.7.2.3 Taxonomic Procedures
All fishes were identified to species, except for the following that were identified to genus: Anchoa ssp., Paralichthys
   spp., Caranx ssp., Syngnathus ssp., Prionotus ssp., Cynoscion ssp., Lutjanus ssp., Astroscopus ssp., Symphurus ssp., and
   Citharichthys ssp. Crabs and shrimp were identified to species, except for Callinectes ssp., and Palaemonetes ssp.
   They were identified only to genus. Callinectes ssp. is mainly composed of Callinectes sapidus. Further, the anchovy category
   includes bay anchovies, striped anchovies and unidentified anchovies. See the Attribute Accuracy Report and the
   Entity and Attribute Information sections for more detailed information about species names and occurrences.

99.1.7.4 Taxonomic Classification
99.1.7.4.1 Taxon Rank Name: unknown
99.1.7.4.1 Taxon Rank Value: unknown

1.7 Access Constraints:
   None; however, it is strongly recommended that these data be acquired directly from the Belle W. Baruch Institute
   for Marine and Coastal Sciences and not indirectly through other sources which may have changed the data in some way.

1.8 Use Constraints:
Following academic courtesy standards, the PIs (originators), the University of South Carolina's Belle W. Baruch
   Institute for Marine and Coastal Sciences, Coastal Carolina University, and Grantor (see Data Set Credit section) should be
   fully acknowledged in any subsequent publications in which any part of these data are used. Use of the data without
   completely reading and understanding the metadata is not recommended. The Baruch Institute, Coastal Carolina University,
   Baruch Institute and Coastal Carolina researchers, and Grantor are not responsible for the use and/or misuse of data from this
   database. See the section on Distribution Liability for more information.
1.9 Point of Contact:

10.2 Contact Organization Primary
10.2.1 Contact Organization: Univ. of South Carolina’s Baruch Institute
10.2.2 Contact Person: Dr. Dennis Allen
10.3 Contact Position: Research Professor

10.4 Contact Address
10.4.1 Address Type: Mailing Address
10.4.2 Address: USC Baruch Marine Field Laboratory
10.4.2 Address: P.O. Box 1630
10.4.3 City: Georgetown
10.4.4 State or Province: South Carolina
10.4.5 Postal Code: 29442
10.4.6 Country: USA

10.5 Contact Voice Telephone: (843) 546-6219
10.7 Contact Facsimile Telephone: (843) 546-1632
10.8 Contact Electronic Mail Address: dallen@belle.baruch.sc.edu
10.9 Hours of Service: 8:30 am to 4:30 pm Mon. - Friday

1.11 Data Set Credit:
Funding was provided by the National Science Foundation, grant DEB_95_0957 to Coastal Carolina University and the University of South Carolina’s Belle W. Baruch Institute, with Dr. Richard Dame as project director. Numerous researchers and students contributed to these datasets.

1.14 Native Data Set Environment
Data are in Microsoft Excel 2000 Professional and csv formats. Metadata are in MS Word 2000 Professional and txt formats. Graphics are in Sigma Plot 8.0 and jpg formats.

1.15 Cross Reference:
8. Citation Information
8.1 Originator: Richard Dame
8.1 Originator: David Bushek
8.1 Originator: Dennis Allen
8.1 Originator: Leah Gregory
8.1 Originator: Don Edwards
8.1 Originator: Alan Lewitus
8.1 Originator: Sarah Crawford
8.1 Originator: Eric Koepfler
8.1 Originator: Bjorn Kjerfve
8.1 Originator: Theo Prins
8.1 Originator: Chris Corbett
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences, Department of Statistics of the University of South Carolina
8.2 Publication Date: 20000730
8.4 Title: The experimental analysis of tidal creeks dominated by oyster reefs: the premanipulation year
8.6 Geospatial Data Presentation Form: Scientific publication
8.8 Publication Information:
8.8.1 Publication Place: Unknown
8.8.2 Publisher: Journal of Shellfish Research
8.9 Other Citation Details: Volume19:1, pages 361-369.

1.15 Cross Reference:
8. Citation Information
8.1 Originator: Richard Dame
8.1 Originator: David Bushek
8.1 Originator: Dennis Allen
8.1 Originator: Alan Lewitus
8.1 Originator: Don Edwards
8.1 Originator: Eric Koepfler
8.1 Originator: Leah Gregory
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and the Department of Statistics of the University of South Carolina
8.2 Publication Date: 200201
8.4 Title: Ecosystem response to bivalve density reduction: management implications
8.6 Geospatial Data Presentation Form: Scientific publication
8.8 Publication Information:
8.8.1 Publication Place: Netherlands
8.8.2 Publisher: Aquatic Ecology
8.9 Other Citation Details: Volume36:1, pages 51-65.

1.15 Cross Reference:
8. Citation Information
8.1 Originator: David Bushek
8.1 Originator: Richard Dame
8.1 Originator: Leah Gregory
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and Department of Statistics of the University of South Carolina
8.2 Publication Date: 20030808
8.4 Title: CREEK Project’s Oyster Biomass Database for Eight Creeks in the North Inlet Estuary, South Carolina: 1996-2000.
8.6 Geospatial Data Presentation Form: comma delimited digital data and spreadsheet
8.8 Publication Information:
8.8.1 Publication Place: Belle W. Baruch Marine Field Laboratory, Georgetown, South Carolina USA
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
8.10 Online linkage: http://links.baruch.sc.edu/data/

1.15 Cross Reference:
8. Citation Information
8.1 Originator: Richard Dame
8.1 Originator: Leah Gregory
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences
8.2 Publication Date: 20000701
8.6 Geospatial Data Presentation Form: comma delimited digital data and spreadsheet
8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
8.10 Online linkage: http://links.baruch.sc.edu/data/

1.15 Cross Reference:
8. Citation Information
8.1 Originator: Richard Dame
8.1 Originator: Alan Lewitus
8.1 Originator: Eric Koepfler
8.1 Originator: Department of Marine Science, Coastal Carolina University
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences and Department of Statistics of the University of South Carolina
8.2 Publication Date: 200410
8.4 Title: CREEK Project’s Microzooplankton Seasonal Monitoring Database for Eight Creeks in the North Inlet Estuary, South Carolina
8.6 Geospatial Data Presentation Form: comma delimited digital data and spreadsheet
8.8 Publication Information:
8.8.1 Publication Place: Baruch Marine Field Laboratory, Georgetown, SC
8.8.2 Publisher: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
2. Data Quality Information

2.1 Attribute Accuracy

2.1.1 Attribute Accuracy Report:
The block nets into which each creek emptied were very efficient and complete in retaining animals; however, the seine net used in the tide pools was less efficient. Irregular bottom shape, oyster rubble, and muddy substrate in which animals could hide and avoid the net, decreased the efficiency of collections in the pools. No efficiency tests were done to determine how efficient the sampling was for the block nets or the pool seining. However, the gear and technique used was very consistently from creek to creek, but not from pool to pool.

Total catch biomass measurements for each creek using the large hanging scale was accurate to plus or minus 15g (based on calibration study of scales on June 2, 1998), and the top loading electronic balance which was used for weighing each species was accurate to plus or minus 0.1gram. Samples were not measured and weighed the same day they were collected or sorted. These samples were originally frozen several months before being thawed and sorted into species groups. At this time, samples were refrozen for several days before being re-thawed, measured, and weighed. No length or weight comparisons between fresh collected samples versus this technique were done during the study, but it is reasonable to estimate that the loss of weight from freezer dehydration was no more than 10%. As a result, the accuracy of total biomass was plus or minus 15g plus 10% of the total weight value.

The accuracy of species identification was very high. Most of the nekton were identified to species level, while few animals were only identified to genus. When the genus name plus the use of “sp.” (to designate the species name) was used, it indicated that no more than one species occurred in the sorted catch. The use of “spp.” was used when more than one species occurred. Typically, only two or three species made up the “spp.” category:

Anchoa spp. = Anchoa mitchilli, A. hepsetus, and unidentified anchovies (A. mitchilli and hepsetus)
Paralichthys spp. = Paralichthys dentatus and P. lethostigma; rarely P. albigutta
Caranx spp. = primarily composed of Caranx hippos and less commonly C. latus
Syngnathus spp. = Syngnathus floridae, S. fuscus, and S. louisianae
Prionotus spp. = Prionotus carolinus, P. evolans, P. scitulus, and P. tribulus
Cynoscion spp. = Cynoscion nebulosus and C. regalis
Lutjanus spp. = Lutjanus griseus and L. synagris
Astroscopus spp. = Astroscopus guttatus and A. y-graecum
Symphurus spp. = primarily composed of Symphurus plagiusa.
Citharichthys spp. = primarily composed of Citharichthys spiloterus; rarely C. macrops (if at all).
Callinecetes spp. = primarily composed of Callinecetes sapidus; less commonly C. similis and rarely C. ornatus.
Palaemonetes spp. = primarily composed of Palaemonetes pugio; less commonly P. vulgaris.
The accuracy estimate of internal creek dimensions and creek volume is in the documentation for that database.

### 2.1.2 Quantitative Attribute Accuracy Assessment

#### 2.1.2.1 Attribute Accuracy Value

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<thead>
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<th>Parameter</th>
<th>Number of Decimal Places</th>
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</thead>
<tbody>
<tr>
<td>NEKTON ABUNDANCE</td>
<td>unknown</td>
</tr>
<tr>
<td>NEKTON BIOMASS</td>
<td>unknown</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Number of Decimal Places</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABUNDANCE</td>
<td>1 (reported in number of individuals per cubic meter)</td>
</tr>
<tr>
<td>BIOMASS</td>
<td>1 (reported in grams of wet weight per cubic meter)</td>
</tr>
</tbody>
</table>

#### 2.1.2.2 Attribute Accuracy Explanation

No efficiency study was done to determine how efficient the sampling was for the blocknets or the pool seining. Investigators estimate that escapement for blocknets was consistently less than 5%. But since the gear and technique was very consistent from creek to creek, the variability from this should be equal among all data, and the variability among data values is due to natural causes. Pool sampling accuracy was not estimated.

ABUNDANCE & BIOMASS values are the result of dividing an abundance and biomass value by the creek volume and are reported with one decimal place. This does not imply that they are accurate to one decimal place, but is a result of the calculation.

Within the Abundance and Biomass Excel Spreadsheet on the Abundance worksheet tab, there are values listed as 0.0; however, most of these values actually represent a very small number and not zero. The values were rounded to one decimal place so that is why the values appear as 0.0.

The pool catch data for creeks 4 and 8 on 3/22/97, 3/12/98, 6/20/97, 8/16/97, and 11/15/97 were extrapolated from the ratio of pool data to stopnet data from the 11/3/98 sample data for the corresponding creeks. November 1998 data was used because the freezer, which stored the unprocessed samples, malfunctioned and the samples were lost. The pool catch data for creeks 1-3 and 5-7 on 3/22/97; were extrapolated from the ratio of pool data to stopnet data from the 3/12/98 collection data. If a particular species occurred during one year, but not in the other, the number of species was not extrapolated. The pool data has the most estimations and extrapolations in it, but the investigators worked very hard to ensure the values were within reasonable limits for each creek/month/year.

Within the directory NEKTON.ORIGINAL.FINAL/Bioabun2002/CREEKfinalabandancesummaryDec02: Atlantic stingray abundance in Creek 5 on 11/15/1997 was listed as 0.0; however the Data Manager verified the value and it should be 0.0022. The value appears as 0.0 once it was rounded.

#### 2.2 Logical Consistency Report:

Directory: NEKTON.ORIGINAL.FINAL: Within each abundance Excel file for Creek 5 on August 16, 1997, both the mummichog and spotfin mojarra are listed as 2 separate dates for August 1997 and 1998. The Rescue data manager verified that the correct date is August 16, 1997 by looking at the original nekton printouts; this correction was made in the data contained in the NEKTON.RESCUE2004.PROCESS and NEKTON.RESCUE2004.FINAL directories. No change was made to any of the ORIGINAL files.

In the File: NEKTON.ORIGINAL.FINAL/Bioabun2001/databiomass/biomass32297: the title for column E is an Estimate for Creek # total pool based on SN/Total pool ratio (3/22/97); however the date should be 3/12/98. Further, this applies to creeks 1-3 and 5-7 in biomass32297 and the date for creeks 4 and 8 should be 11/3/98.

In the File: NEKTON.ORIGINAL.FINAL/Bioabun2001/dataabundance/abundance31298: the date in column A is listed as 3/12/2008; however, it should be 3/12/1998. In the file: abundance32297 the title for creek 4 column E is an Estimate for Creek #4 total pool based on SN/Total pool ratio (3/22/97); however the date should be 11/3/98. In the same file, the title for creek 8 column E is an Estimate for Creek #8 total pool based on SN/Total pool ratio (3/12/98); however the date should be 11/3/98.

In the File: NEKTON.ORIGINAL.FINAL/Bioabun2001/databiomass/biomass31298: the biomass value, 30.2 g/m³, is incorrect. The correct value should be 8.3 g/m³. It appears that the SN/total pool ratio for white shrimp (0.14) was used to calculate the biomass for spot, instead of using the ratio for spot (0.80). The calculations were verified by the Data Manager.
and the values were corrected in the RESCUE2004 Process and Final data. Refer to Section 2.5.3.1 Process Description under the heading, “Abundance & Biomass Extrapolation Calculations to Create Pool Values” for a detailed mathematical calculation of the values listed below.

### NEKTON.ORIGINAL.FINAL (Incorrect Values)

<table>
<thead>
<tr>
<th>CREEK # 4 -- SEINE POOL &amp; STOPNET CATCHES</th>
<th>3/12/98 (Biomass)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Code</td>
</tr>
<tr>
<td>---------------</td>
<td>------</td>
</tr>
<tr>
<td>3/12/1998</td>
<td>4</td>
</tr>
</tbody>
</table>

### NEKTON.RESCUE2004.FINAL (Corrected Values)

<table>
<thead>
<tr>
<th>CREEK # 4 -- SEINE POOL &amp; STOPNET CATCHES</th>
<th>3/12/98 (Biomass)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Code</td>
</tr>
<tr>
<td>---------------</td>
<td>------</td>
</tr>
<tr>
<td>3/12/1998</td>
<td>4</td>
</tr>
</tbody>
</table>

In the File: NEKTON.ORIGINAL.FINAL/Bioabun2001/databiomass/biomass11398: in creek 8 the blue crab ratio for SN/Total Pool ratio is 0.003, which seemed exceptionally low, so the SN/Total Pool(x100=%) value, 0.3, was used instead. This value was the value used in the biomass calculations for the blue crab in creek 8 on 6/20/97, 8/16/97, 6/22/98, and 8/19/98. Otherwise unusually high blue crab values would have been generated. For example, if 0.003 was used on 6/20/97 then the blue crab biomass for creek 8 would have been 117.4 g/m³ which is considerably larger than the original value of 1.4 g/m³.

### NEKTON.ORIGINAL.FINAL (Incorrect Values)

<table>
<thead>
<tr>
<th>CREEK # 8 -- SEINE POOL &amp; STOPNET CATCHES</th>
<th>11/3/98 (Biomass)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Code</td>
</tr>
<tr>
<td>---------------</td>
<td>------</td>
</tr>
<tr>
<td>11/3/1998</td>
<td>5</td>
</tr>
</tbody>
</table>

### NEKTON.ORIGINAL.FINAL (Correct Values)

The SN/Total Pool(x100=%), 0.3, was used here.

<table>
<thead>
<tr>
<th>CREEK # 8 -- SEINE POOL &amp; STOPNET CATCHES</th>
<th>6/20/97 (Biomass)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Code</td>
</tr>
<tr>
<td>---------------</td>
<td>------</td>
</tr>
<tr>
<td>6/20/1997</td>
<td>5</td>
</tr>
</tbody>
</table>

CREEK.NEKTON.FINAL
Example using, 0.003, the SN/Total Pool from 11/3/98.

<table>
<thead>
<tr>
<th>Date</th>
<th>Code</th>
<th>Species</th>
<th>Habitat</th>
<th>SN / Total pool ratio (11/3/98)</th>
<th>SN Cr. #8</th>
<th>Total Catch per species</th>
<th>g / m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/20/1997</td>
<td>5</td>
<td>Blue crab</td>
<td>demersal</td>
<td>166533.3</td>
<td>499.6</td>
<td>167032.9</td>
<td>117.4</td>
</tr>
</tbody>
</table>

Directory: NEKTON.ORIGINAL.FINAL/Bioabun2001: When pool data was missing and extrapolation was necessary: if a species was not collected in the stopnet (SN) in the creek that the SN/Total pool ratio was calculated from, then either the SN value from the sampled creek was used twice or no value was used at all. Further, this applies to both the biomass and abundance data for all eight creeks.

For example, file: adundance31298, using Creek 8. When calculating the spot “Estimate for Creek #8 Total pool based on the 11/3/98 SN/Total pool ratio”, spot were not collected in the stopnet in creek 8 on 11/3/98. Therefore, the “SN Cr. #8” value on 3/12/98 was used instead for the “Estimate for Creek #8 Total pool based on SN /Total pool ratio (11/3/98)”. Note: both files: adundance31298 and abundance62298 are misspelled, but the Rescue Data Manager did not correct the names in the original file.

File: adundance31298

<table>
<thead>
<tr>
<th>Date</th>
<th>Code</th>
<th>Species</th>
<th>Habitat</th>
<th>Estimate for Creek #8 Total pool based on SN /Total pool ratio (11/3/98)</th>
<th>SN Cr. #8</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/12/2008</td>
<td>4</td>
<td>Spot</td>
<td>demersal</td>
<td>6006</td>
<td>6006</td>
</tr>
</tbody>
</table>

File: abundance11398

<table>
<thead>
<tr>
<th>Date</th>
<th>Code</th>
<th>Species</th>
<th>Habitat</th>
<th>Creek #8 Pool #1</th>
<th>Rest of Creek 8 (above pool)</th>
<th>Multiplication Factor (150%) for above pool</th>
<th>Total Pool Abundance</th>
<th>Total Pool / Pool #1</th>
<th>SN Cr. #8</th>
<th>SN / Total Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/3/1998</td>
<td>4</td>
<td>Spot</td>
<td>demersal</td>
<td>1</td>
<td></td>
<td>1</td>
<td>1</td>
<td>1.0</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

2.3 Completeness Report:

**Missing Data:**

No pool catch data exists for 3/22/97 for all eight creeks because the pools were not sampled at all. The reasoning for this was based on the assumption that all transient species in the creeks would move out into the larger subtidal creeks and would be collected in the stopnet. It was later determined that some transient species were influenced by the presence of the stopnet and would “hold-up” in the pools to avoid being captured in the stopnet. Therefore, pool sampling became a part of the regular creek nekton sampling for the rest of study.

Raw grass shrimp datasheets, for *Palaemonetes pugio* and *Palaemonetes vulgaris*, exist for March 1997 and June 1997; however, datasheets do not exist for these species for rest of the sampling dates. It was determined that the bulk of the shrimp collected were *P. pugio*; however, all grass shrimp data are combined in a category named *Palaemonetes* spp.

**Anomalous Data:**

Directory: NEKTON.RESCUE2004.PROCESS/Graphics: Within the March 1997 and 1998 biomass and abundance data, brown shrimp and white shrimp were not graphed because the totals were zero. Also, within the August and November 1997 and 1998 biomass and abundance data, brown shrimp was not graphed because the totals were zero.
2.5 Lineage

2.5.1 Methodology

2.5.1.1 Methodology Type: Field Collection Procedures and Protocols

2.5.1.3 Methodology Description: Overall Field Collection Protocol

Nekton seasonal abundance and biomass were determined for each creek and every creek pool. Simultaneous collections of nekton were made with block nets set at early morning slack high tide at all eight creek mouths. Funnel-shaped block nets (3 mm mesh) were used, and they were similar to those designed by Bozeman and Dean (1980). The block nets were mounted on rectangular PVC frames (2m x 1.6m) which fit into permanently installed wooden and plastic mesh infrastructure that oriented the net perpendicular to the creek and prevented nekton from escaping from the creek once the net was set in place at high tide. The block net system covered the wet cross-sectional area near the mouth of each tidal creek. Only tides with high tide heights less than bankfull were sampled in order to reduce the chance of exchange with other creeks at high water. Only tides that were predicted to fall to mean low water levels, thus completely draining the creeks (except for residual pools), were sampled. Since the nets were always set shortly after daybreak, the creeks loaded during the dark period. At low tide, catches were removed from the block nets, and nekton remaining within pools were seined and added to the catch to provide a complete assessment of nekton (fish and motile macroinvertebrates) occupying the creek. The seines (3 mm mesh) were sufficiently long to cover all submerged bottoms. All samples were frozen. Since pool collections were not made in March 1997, proportions were used from the corresponding 1998 collections to estimate pool biomass and abundance for those dates. To investigate the role of oyster reefs on nekton, live oysters were removed from creeks 1, 4, 5, and 8 in January 1997. In 1998, all eight creeks were again sampled for nekton, following the same procedures established in 1997. Water temperature, salinity, and depth measurements were collected when the nets were set in the morning and again at the time of sample retrieval that afternoon.

2.5.1.4 Methodology Citation:
8.1 Originator: E.L. Bozeman, Jr.
8.1 Originator: J.M. Dean
8.2 Publication Date: 1980
8.4 Title: The abundance of estuarine larval and juvenile fish in a South Carolina intertidal creek
8.6 Geospatial Data Presentation Form: Scientific publication
8.8 Publication Information:
8.8.1 Publication Place: Unknown
8.8.2 Publisher: Estuaries
8.9 Other Citation Details: Volume3: pages 89-97.

2.5.1 Methodology

2.5.1.1 Methodology Type: Laboratory Procedures and Protocols

2.5.1.3 Methodology Description: Overall Laboratory Protocol for Pool and Block net Collections

To determine species biomass and abundance, pool samples from 1997 and 1998 were thawed and animals were sorted by species. Most animals were identified by genus and species; however some were identified only to the genus level. Sample collection processing followed North Inlet Long-Term Ecological Research Nekton protocols set in 1981 (Allen et al., 1992). Limnoterra’s Electronic Fish Measuring Board (FMB) was used to obtain Standard Length (SL) data, to the nearest 2 mm, for each member of a species up to 100 individuals. Biomass (in grams) data were obtained first for the 100 individuals, and then for the entire species sample. Species abundance was then determined by FMB by calculation. This procedure was completed for each species in the pool sample. For block nets, samples were thawed and sub-sampled following the preceding guidelines. Total species biomass and abundance were extrapolated from sub-sample data using the FMB. Total abundances and biomasses were converted to densities by dividing each value by the calculated volume of water in the creek at high tide. These values were expressed as number of individuals per cubic meter and grams wet weight per cubic meter. Refer to the CREEK Project’s: Tidal Creek Geomorphology and Creek Habitat Survey databases to look at how the volume of water in each creek was calculated.

2.5.1.4 Methodology Citation:
8.1 Originator: Dennis Allen
8.1 Originator: Susan Service
8.1 Originator: Ginger Ogburn-Matthews
8.1 Originator: Belle W. Baruch Institute for Marine and Coastal Sciences, University of South Carolina
8.2 Publication Date: 1992
8.4 Title: Factors influencing the collection of efficiency of estuarine fishes
8.6 Geospatial Data Presentation Form: Scientific publication
8.8 Publication Information:
8.8.1 Publication Place: Maryland
2.5.3: Process Step

2.5.3.1 Process Description:

Overall Description
Samples were stored for several months before being thawed and processed. From each sample, up to 100 individuals of each species was measured (SL) to the nearest 2 mm by the FMB. Weight of 100 and total weight of each species was entered into FMB and total number was calculated by FMB software. Printout of each species entry was made. Each species length data and weight was stored into an ASCII text file. All hardcopy datasheets were kept in individual sample files. Biomass and abundance by date per species data were transferred into MS Excel spreadsheets, verified, edited and finalized; therefore, there are separate biomass files and abundance files for each date. Each creek with its pool data were entered on separate sheets within the Excel workbook of each date. Once in Excel form, all files were backed up on floppy disk, zip disk and CD. Length data were derived from the FMB file, and were also imported into an Excel spreadsheet, edited and verified.

Abundance & Biomass Extrapolation Calculations to Create Pool Values
(The Rescue Data Manager in 2004 derived these formulas from the Excel Files in the Directory: Original Final. When looking at the calculations below, it is important to note that the number of pools varies from creek to creek.)

Pool Abundance and Biomass Calculations for Creeks 1-3 and 5-7 on 3/22/97, 6/20/97, 8/16/97, 11/15/97, 3/12/98, 6/22/98, 8/19/98 and 11/3/98. (Note: Creek 1 on 3/22/97 was used as an example. The variable“A” was created by the Rescue Data Manager in order to include a missing step that was not shown in the original Excel files.)

A = SN Cr. #1 (3/12/98) divided by (/) (Creek#1Pool#1 + Creek#1Pool#2 + Creek#1Pool#3 + Creek#1Pool#4 + Creek#1Pool5) (3/12/98)

Estimate for Creek #1 Total pool based on SN/Total pool ratio (3/12/98) = SN Cr. #1 (3/22/97) divided by (/) A

Total catch (abundance or biomass) per species (3/22/97) = SN Cr. #1(3/22/97) plus (+) Estimate for Creek #1 Total pool based on SN/Total pool ratio (3/12/98)

#/m³ or g/m³ = Total catch per species (3/22/97) divided by (/) volume of water in the creeks at high tide (m³), (i.e. 667 m³ for Creek 1)

Pool Abundance and Biomass Calculations for Creeks 4 and 8 on 3/22/97 and 3/12/98
(Note: Creek 4 on 3/22/97 was used as an example. The multiplication factor for Creek 4 is 175% and for Creek 8 is 150%.)

“Multiplication factor (175%) for above pool (11/3/98)” = “Rest of Creek 4 (above pool) (11/3/98)” times (x) 175%

Total Pool Abundance or Biomass (11/3/98) = Creek #4 Pool #1 (11/3/98) plus (+) Multiplication factor (175%) for above pool

SN/Total Pool (11/3/98) = SN Cr. #4 (11/3/98) divided by (/) Total Pool Abundance or Biomass (11/3/98)

Estimate for Creek #4 Total pool based on SN/Total pool ratio (11/3/98) = SN Cr. #4 (3/22/97) divided by (/) SN/Total Pool (11/3/98)

Total catch (abundance or biomass) per species (3/22/97) = Estimate for Creek #4 Total pool based on SN/Total pool ratio (11/3/98) plus (+) SN Cr. #4 (3/22/97)

#/m³ or g/m³ = Total catch per species (3/22/97) divided by (/) volume of water in the creeks at high tide (m³), (i.e. 520 m³ for Creek 4)
Pool Abundance Calculations for Creeks 4 and 8 on 6/20/97, 8/16/97, and Creek 4 on 11/15/97 & Pool Biomass Calculations for Creeks 4 and 8 on 6/20/97 and 11/15/97
(Note: Creek 4 on 6/20/97 was used as an example. The multiplication factor for Creek 4 is 175% and for Creek 8 is 150%.)

“Multiplication factor (175%) for above pool (11/3/98)” = “Rest of Creek 4 (above pool) (11/3/98)” times (x) 175%

Total Pool Abundance or Biomass (11/3/98) = Creek #4 Pool #1 (11/3/98) plus (+) “Multiplication factor (175%) for above pool”

SN/Total Pool (11/3/98) = SN Cr. #4 (11/3/98) divided by (/) Total Pool Abundance or Biomass (11/3/98)

SN/Total pool ratio (11/3/98) = SN Cr. #4 (6/20/97) divided by (/) SN/Total Pool (11/3/98)

Total Catch per species (6/20/97) = SN/Total pool ratio (11/3/98) plus (+) SN Cr. #4 (6/20/97)

#/m³ or g/m³ = Total catch per species (6/20/97) divided by (/) volume of water in the creeks at high tide (m³), (i.e. 520 m³ for Creek 4)

Pool Biomass Calculations for Creeks 4 and 8 on 8/16/97
(Note: Creek 4 on 8/16/97 was used as an example. The multiplication factor for Creek 4 is 175% and for Creek 8 is 150%.)

“Multiplication factor (175%) for above pool (11/3/98)” = “Rest of Creek 4 (above pool) (11/3/98)” times (x) 175%

Total Pool Biomass (11/3/98) = Creek #4 Pool #1 (11/3/98) plus (+) “Multiplication factor (175%) for above pool”


[SN/Total pool ratio (11/3/98) = total pool catch] = SN Cr. #4 (8/16/97) divided by (/) SN/Total Pool (11/3/98)

Total Catch per species (8/16/97) = SN/Total pool ratio (11/3/98) plus (+) SN Cr. #4 (8/16/97)

g/m³= Total catch per species (8/16/97) divided by (/) volume of water in the creeks at high tide (m³), (i.e. 520 m³ for Creek 4)

Pool Abundance Calculations for Creek 8 on 11/15/97

Multiplication factor (150%) for above pool (11/3/98) = Rest of Creek 8 (above pool) (11/3/98) times (x) 150%

Total Pool Abundance (11/3/98) = Creek #8 Pool #1 (11/3/98) plus (+) Multiplication factor (150%) for above pool

Total Pool/Pool #1 (11/3/98) = Total Pool Abundance (11/3/98) divided by (/) Creek #8 Pool #1 (11/3/98)

[SN/Total Pool ratio (11/3/98)=total pool catch] = SN Cr. #8 (11/15/97) divided by (/) SN/Total Pool (11/3/98)

Total Catch per species (11/15/97) = SN/Total pool ratio (11/3/98) plus (+) SN Cr. #8 (11/15/97)

#/m³= Total catch per species (11/15/97) divided by (/) volume of water in the creeks at high tide (m³), (i.e. 1423 m³ for Creek 8)

Pool Abundance and Biomass Calculations for Creeks 4 and 8 on 6/22/98 and 8/19/98
(Note: Creek 4 on 6/22/98 was used as an example. The multiplication factor for Creek 4 is 175% and for Creek 8 is 150%.)

“Multiplication factor (175%) for above pool (11/3/98)” = “Rest of Creek 4 (above pool) (11/3/98)” times (x) 175%

Total Pool Abundance or Biomass (11/3/98) = Creek #4 Pool #1 (11/3/98) plus (+) Multiplication factor (175%) for above pool

Total Pool/Pool #1 (11/3/98) = Total Pool Abundance or Biomass (11/3/98) divided by (/) Creek #4 Pool #1 (11/3/98)
[Total pool/pool #1 ratio (11/3/98)=total pool catch] = Creek #4 Pool #1 (6/22/98) times (x) Total Pool/Pool #1 (11/3/98)

Total Catch per species (6/22/98) = [Total pool/pool #1 ratio (11/3/98)=total pool catch] plus (+) SN Cr. #4 (6/22/98)

#/m³ or g/m³ = Total catch per species (6/22/98) divided by (/) volume of water in the creeks at high tide (m³), (i.e. 520 m³ for Creek 4)

**Pool Abundance and Biomass Calculations for Creeks 4 and 8 on 11/3/98**

(Note: Creek 4 on 11/3/98 was used as an example. The multiplication factor for Creek 4 is 175% and for Creek 8 is 150%.)

“Multiplication factor (175%) for above pool (11/3/98)” = “Rest of Creek 4 (above pool) (11/3/98)” times (x) 175%

Total Pool Abundance or Biomass (11/3/98) = Creek #4 Pool #1 (11/3/98) plus (+) Multiplication factor (175%) for above pool

Total Pool/Pool #1 (11/3/98) = Total Pool Abundance (11/3/98) divided by (/) Creek #4 Pool #1 (11/3/98)

SN/Total Pool (11/3/98) = SN Cr. #4 (11/3/98) divided by (/) Total Pool Abundance or Biomass (11/3/98)

[SN/Total Pool (x100=%%)] (11/3/98) = SN/Total Pool (11/3/98) times (x) 100%

Total catch per species (11/3/98) = Creek #4 Pool #1 (11/3/98) plus (+) Multiplication factor (175%) for above pool plus (+) SN Cr. #4

#/ m³ or g/ m³ = Total catch per species divided by (/) volume of water in the creeks at high tide (m³), (i.e. 520 m³ for Creek 4)

Listed below is the volume of water (m³) in the creeks at high tide. These values were calculated by the CREEK Project’s Tidal Creek Geomorphology project.

Creek 1 = 667 m³
Creek 2 = 231 m³
Creek 3 = 527 m³
Creek 4 = 520 m³
Creek 5 = 446 m³
Creek 6 = 491 m³
Creek 7 = 623 m³
Creek 8 = 1423 m³

**Abundance and Biomass Data Rescue and Archival (May 2004):**

Abundance and biomass data were sorted and rearranged by date and creek within MS excel spreadsheets by the Rescue Data Manager. The same month of each year was grouped together in Excel, i.e. March data from 1997 and 1998 was placed together on the same Excel worksheet tab. Pool data were reviewed and errors in the files were corrected as noted in the above paragraphs. The Pool extrapolation equations were also determined and documented in the above documentation. The species categories used for final graphing were anchovy, Atlantic silverside, blue crab, brown shrimp, grass shrimp, mummichog, pinfish, spot, striped mullet, white mullet, white shrimp, and others. The others category contains the remaining nekton species that did not fall into the main categories. These species categories were chosen based on the CREEK Project’s Nekton manuscript by Dennis Allen et al. which is currently in preparation. Bar graphs for each month, which included both years, were created using Excel.

All final documentation, graphics, and data were printed out in hardcopy and placed into the CREEK Project’s 3-ring binder; the digital version of the final products are also kept on Baruch’s Web Site. The 3-ring binder and the web site are maintained at the Baruch Marine Field Laboratory (BMFL) in Georgetown, SC. Also, all of the rescue products for the Nekton database which include raw data and scans of raw data sheets were copied to Compact Disk; one set of the CDs are kept with the hardcopy printouts and the other set is kept in the fireproof cabinet in the Data Manager’s Office at the BMFL. The entire rescue project is also archived on the BMFL’s Rescue Server’s Hard Drive.
3 Spatial Data Organization Information:

3.1 Indirect Spatial Reference:
North Inlet Estuary which is part of Hobcaw Barony is located in Georgetown County, South Carolina, USA

3.2 Direct Spatial Reference Method:  Point

5. Entity_and_Attribute_Information:

5.2 Overview_Description:

5.2.1 Entity_and_Attribute_Overview:
Each CREEK subproject had its own database attribute naming conventions, abbreviations, and meanings. See each subproject’s metadata for details. But, there were some names and meanings common to the entire Creek project.

Creek = The numbering identification of each tidal creek within North Inlet Estuary where water samples were collected; creeks 1-4 were creeklets running into Clambank Creek; creeks 5-8 were creeklets running into Town Creek. See map for creek numbering and location within North Inlet Estuary (located in the Supplemental Information).

Date = The date on which the sample was collected (not necessarily processed or analyzed) in m/d/yyyy format.

The following terms are found within the original raw scanned documents:
Species Code = number assigned to a specific species (see list below)

Pool Number = number assigned to pools within each creek. (i.e. number 1 was closest to mouth of creek)

SN = stop net (used in the collection of nekton). Synonymous with “blocknet”

The following terms are found within either the original final or the rescue process or the rescue final MS Excel files:

Abundance = Total number of individuals per cubic meter (#/m³)

Biomass = Grams of wet weight for each species per cubic meter (g/ m³)

Note: The cubic meters (m³) are based on the volume of the creek (including tributaries) at bank full tide level. Calculations were based on survey measurements of creek length, width, and depth at bank full.

Creek # = The Creek #’s were abbreviated to C1 for Creek #1, and this is consistent for all 8 creeks.

Others = The others category contains the sum of the remaining nekton species that did not fall into the main categories of anchovy, Atlantic silverside, blue crab, brown shrimp, grass shrimp, mummichog, pinfish, spot, striped mullet, white mullet, and white shrimp.

Dry wt / m³ = Grams of dry weight for each species per cubic meter (g/ m³). The values were not derived directly during this study, but from literature values.

Habitat = refers to where the nekton are located. Nekton are characterized by being either demersal or water column.

Total Catch per species = total biomass or abundance by species for a creek, including stop net and pools.

Total Biomass = total biomass of both demersal and water column by pool and by stop net.

Total Creek Biomass = total biomass by creek.
Below is a species list sorted by common name, which were identified during the Nekton project.

<table>
<thead>
<tr>
<th>Species Code</th>
<th>Common name</th>
<th>Scientific Name</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>122</td>
<td>American eel</td>
<td>Anguilla rostrata</td>
<td>demersal</td>
</tr>
<tr>
<td>58</td>
<td>Atlantic brief</td>
<td>Lolliguncula brevis</td>
<td>water column</td>
</tr>
<tr>
<td>34</td>
<td>Atlantic bumper</td>
<td>Chloroscombrus chrysurus</td>
<td>water column</td>
</tr>
<tr>
<td>18</td>
<td>Atlantic butterfish</td>
<td>Peprilus triacanthus</td>
<td>water column</td>
</tr>
<tr>
<td>7</td>
<td>Atlantic menhaden</td>
<td>Brevoortia tyrannus</td>
<td>water column</td>
</tr>
<tr>
<td>107</td>
<td>Atlantic needlefish</td>
<td>Strongylura marina</td>
<td>water column</td>
</tr>
<tr>
<td>9</td>
<td>Atlantic silverside</td>
<td>Menidia menidia</td>
<td>water column</td>
</tr>
<tr>
<td>15</td>
<td>Atlantic spadefish</td>
<td>Chaetodipterus faber</td>
<td>water column</td>
</tr>
<tr>
<td>42</td>
<td>Atlantic stingray</td>
<td>Dasyatis sabina</td>
<td>demersal</td>
</tr>
<tr>
<td>146</td>
<td>Atlantic thread herring</td>
<td>Opisthonomia oglinum</td>
<td>water column</td>
</tr>
<tr>
<td>104</td>
<td>bandtail puffer</td>
<td>Spaoeroides spengleri</td>
<td>demersal</td>
</tr>
<tr>
<td>12</td>
<td>bay anchovy</td>
<td>Anchoa mitchilli</td>
<td>water column</td>
</tr>
<tr>
<td>37</td>
<td>bay whiff</td>
<td>Citherichthys spiopterus</td>
<td>demersal</td>
</tr>
<tr>
<td>91</td>
<td>bighead searobin</td>
<td>Prionotus tribulus</td>
<td>demersal</td>
</tr>
<tr>
<td>133</td>
<td>black drum</td>
<td>Pogonias cromis</td>
<td>demersal</td>
</tr>
<tr>
<td>113</td>
<td>blackcheek tonguefish</td>
<td>Symphysurus plagusa</td>
<td>demersal</td>
</tr>
<tr>
<td>5</td>
<td>blue crab</td>
<td>Callinectes spp.</td>
<td>demersal</td>
</tr>
<tr>
<td>83</td>
<td>bluefish</td>
<td>Penaeus aztecus</td>
<td>demersal</td>
</tr>
<tr>
<td>1</td>
<td>brown shrimp</td>
<td>Synagnathus louisiane</td>
<td>demersal</td>
</tr>
<tr>
<td>111</td>
<td>chain pipefish</td>
<td>Synagnathus floridae</td>
<td>demersal</td>
</tr>
<tr>
<td>55</td>
<td>crested blenny</td>
<td>Hypeurochilus gemenitus</td>
<td>demersal</td>
</tr>
<tr>
<td>14</td>
<td>crevalle jack</td>
<td>Caranx hippos</td>
<td>water column</td>
</tr>
<tr>
<td>50</td>
<td>darter goby</td>
<td>Gobionellus bolesoma</td>
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<td>109</td>
<td>dusky pipefish</td>
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<td>56</td>
<td>feather blenny</td>
<td>Hypsoblennius hentzi</td>
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<tr>
<td>136</td>
<td>freshwater goby</td>
<td>Gobionellus shufeldti</td>
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<tr>
<td>74</td>
<td>gag</td>
<td>Mycteroperca microlepis</td>
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<tr>
<td>61</td>
<td>grass shrimp</td>
<td>Palaemonetes spp.</td>
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<tr>
<td>82</td>
<td>harvestfish</td>
<td>Peprilus alepidotus</td>
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</tr>
<tr>
<td>112</td>
<td>inshore lizardfish</td>
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<td>125</td>
<td>ladyfish</td>
<td>Elops saurus</td>
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<tr>
<td>62</td>
<td>lane snapper</td>
<td>Lutjanus synagris</td>
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</tr>
<tr>
<td>97</td>
<td>lookdown</td>
<td>Selene vomer</td>
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<tr>
<td>129</td>
<td>mosquitofish</td>
<td>Gambusia affinis</td>
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<tr>
<td>8</td>
<td>mummichog</td>
<td>Fundulus heteroclitus</td>
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<td>49</td>
<td>naked goby</td>
<td>Gobiosoma bosci</td>
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<td>110</td>
<td>northern pipefish</td>
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<td>103</td>
<td>northern puffer</td>
<td>Spheroideas maculatus</td>
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<td>19</td>
<td>ocellated flounder</td>
<td>Ancylopsetta quadrocellata</td>
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<td>77</td>
<td>oyster toadfish</td>
<td>Opsanus tau</td>
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<td>pigfish</td>
<td>Orthoprists chrysoptera</td>
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<td>pinfish</td>
<td>Lagodon rhomboidei</td>
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<td>17</td>
<td>pink shrimp</td>
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<td>planehead filefish</td>
<td>Monocanthus hispidus</td>
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<td>134</td>
<td>red drum</td>
<td>Sciaenops ocellatus</td>
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<td>sailfin molly</td>
<td>Poecilia latipinna</td>
<td>water column</td>
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<td>128</td>
<td>sharptail goby</td>
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<td>sheepshead</td>
<td>Archosargus probatocephalus</td>
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<td>123</td>
<td>sheepshead minnow</td>
<td>Cyprinodon variegatus</td>
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<td>13</td>
<td>silver perch</td>
<td>Bairdiella chrysoura</td>
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<tr>
<td>80</td>
<td>southern flounder</td>
<td>Paralichthys lethostigma</td>
<td>demersal</td>
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</table>
98 Spanish mackerel  Scomberomorus maculatus  water column
4 spot  Leiostomus xanthurus  demersal
10 spotfin mojarra  Eucinostomus argenteus  demersal
11 striped anchovy  Anchoa hepsetus  water column
149 striped blenny  Chasmodes bosquianus  demersal
33 striped burrfish  Chilomycterus schoepfi  water column
76 striped cusk-eel  Ophidion marginatum  demersal
16 striped killifish  Fundulus majalis  demersal
2 striped mullet  Mugil cephalus  water column
20 summer flounder  Paralichthys dentatus  demersal
46 threadfin shad  Dorosoma petenense  water column
95 unidentified anchovy  Anchoa spp.  water column
78 unidentified flounder  Paralichthys spp.  demersal
28 unidentified jack  Caranx spp.  water column
108 unidentified pipefish  Syngnathus spp.  demersal
87 unidentified searobin  Prionotus spp.  demersal
38 unidentified seatrout  Cynoscion spp.  water column
150 unidentified snapper  Lutjanus spp.  water column
25 unidentified stargazer  Astroscopus spp.  demersal
151 unidentified tonguefish  Sympnthurus spp.  demersal
35 unidentified whiff  Citharichthys spp.  demersal
6 white mullet  Mugil curema  water column
3 white shrimp  Penaeus setiferus  demersal

5.2.2 Entity and Attribute Detail Citation:
Definitions were developed by the Baruch Institute’s and Coastal Carolina University’s researchers, data managers, and technicians; no published standards for entity definitions were used to define the entities used in this dataset. However, some of the entity type definitions are standard for the field of estuarine ecology.

6. Distribution Information
6.1 Distributor:
10.2 Contact Organization Primary
10.1.2 Contact Organization:  Univ. of South Carolina’s Baruch Institute
10.1.1 Contact Person:  Ginger Ogburn-Matthews
10.3 Contact Position:  Research Data Manager & Analyst
10.4 Contact Address
10.4.1 Address Type:  Mailing Address
10.4.2 Address:  USC Baruch Marine Field Lab
10.4.2 Address:  PO Box 1630
10.4.3 City:  Georgetown
10.4.4 State or Province:  South Carolina
10.4.5 Postal Code:  29442
10.4.6 Country:  USA
10.5 Contact Voice Telephone:  (843) 546-6219
10.7 Contact Facsimile Telephone:  (843) 546-1632
10.8 Contact Electronic Mail Address:  ginger@belle.baruch.sc.edu
10.9 Hours of Service:  8:30 am to 4:30 pm EST/EDT Mon. - Friday

6.2 Resource Description:
CREEK Project’s Nekton Database
CREEK Project’s Fish, Shrimp, and Crab Database

Dataset Identification names:
Directory: NEKTON.ORIGINAL.RAW: (Total size 210 Mb, 21 Folders, 524 files)
This directory contains raw and scanned Fish Measuring Board printout versions of the raw data. The directory also includes scanned grass shrimp, pool, sampling, shrimp, and stopnet hand written notes from 1997 and 1998.

Directory: FISH MEASURING BOARD: all are text files with a .dat extension.
This directory includes the raw digital data from the fish measuring board (FMB) FMB data exists for each date except only partial data exists for August 1998, and no data exists for November 1998.

All files in the Directories below are scanned images from the original data sheets and are in the .jpg format.

Directory: GRASS SHRIMP NOTES all files are in .jpg format.
GRASS SHRIMP NOTES includes the length, weight and amount of grass shrimp collected for each creek and date.

Directory: POOL NOTES: all files are in .jpg format.
POOL NOTES includes the digital printouts of the lengths of the different species that were identified from pools within each creek. (Note: In the pool notes, it is noted that creek 8 was not seined in November 1997 and that creek 4 was not seined in June, August, and November of 1997.

Directory: SAMPLING NOTES: all files are in .jpg format.
SAMPLING NOTES includes field process notes, temperature and salinity notes, and tidal height notes.

Directory: SHRIMP NOTES: all files are in .jpg format.
SHRIMP NOTES includes the weight and amount of shrimp collected on June 20, 1997.

Directory: STOPNET: all files are in .jpg format.
STOPNET includes the digital printouts of the lengths of the different species that were collected with the stopnet from each creek.

Directory: NEKTON.ORIGINAL.FINAL: (Total size 3.11 Mb, 4 Folders, 171 files)

Directory: Bioabun2001: all files are in Microsoft excel and Comma Separate Value (.csv) format.
   Directory: dataabundance: This directory contains files (named by date) of the abundance, total catch per species, total abundance, and total creek abundance from 1997 through 1998 for all eight creeks.
   Directory: databiomass: This directory contains files (named by date) of the biomass, total catch per species, total biomass, and total creek biomass from 1997 through 1998 for all eight creeks.

Directory: Bioabun2002: all files are in Microsoft excel and Comma Separate Value (.csv) format. This directory contains summary and analyzed nekton catch data (organized by date/creek) including the biomass and abundance (per cubic meter) from 1997 through 1998 for all eight creeks.

Directory: NEKTON.RESCUE2004.PROCESS: (Total size 830 Kb, 1 Folders, 16 files)
All files are in Microsoft excel and Comma Separate Value (.csv) format. The data in this directory was derived from the NEKTON.ORIGINAL.FINAL/Bioabun2002 files. The Abundance and Biomass files contain all final abundance and biomass data (per cubic meter) from 1997 and 1998 for all eight creeks. Both Excel files contain separate tabs for each month’s data and graphics. The Nekton List file contains the species code, common name, scientific name, and habitat.


Directory: NEKTON.RESCUE2004.FINAL: (Total size 21.2 Mb, 3 Folders, 22 files)
   Directory: FINALDATA: all files are in Microsoft excel and Comma Separate Value (.csv) format.
      FINALDATA contains all biomass and abundance data from 1997 through 1998 for all eight creeks.
   Directory: FINALDOCUMENTATION: the file is in Microsoft word format, text, .pdf.
      CREEK.NEKTON.FINAL
   Directory: FINALGRAPHICS: all files are in .jpg format.
      The Graphics Folder contains biomass and abundance graphs.

6.3 Distribution Liability:
The datasets are only as good as the quality assurance and quality control procedures outlined in the Metadata. The user bears all responsibility for its subsequent use in any further analyses or comparisons. No warranty expressed or implied is made regarding the accuracy or utility of any data collected, managed, or disseminated for general or scientific purposes by the Belle W. Baruch Institute for Marine and Coastal Sciences. This disclaimer applies both to individual use of the data and aggregate use with other data. It is strongly required that these data be directly acquired from the Belle W. Baruch Institute for Marine and Coastal Sciences and not indirectly through other sources which may have changed the data in some way. It is strongly recommended that careful attention be paid to the contents of the metadata file associated with these data. Neither the Belle W. Baruch Institute for Marine and Coastal Sciences, Coastal Carolina University, nor the National Science Foundation shall be held liable for the use and/or misuse of the data described and/or contained herein.
6.4 Standard Order Process

6.4.2 Digital Form

6.4.2.1 Digital Transfer Information

6.4.2.1.1 Format Name: EXCEL (.XLS) or WORD (.DOC) format as well as .CSV or .TXT (text only) format.

6.4.2.1.2 Format Version Number: Microsoft Office Professional 2000

6.4.2.1.6 File Decompression Technique: No compression applied

6.4.2.2 Digital Transfer Option

6.4.2.2.1 Computer Contact Information

6.4.2.2.1.1 Network Address

6.4.2.2.1.1.1 Network Resource Name: http://links.baruch.sc.edu/data/

6.4.3 Fees: None

6.5 Custom Order Process:

If requesting Non-digital (Paper hard copy) printout, a fee of $50 per hour (with a one-hour minimum) plus the cost of supplies will be imposed. As an offline option, CD-ROMs are available at the cost of $5.00 each. This fee pays for the CD, the creation of the CD, and mailing charges.

7. Metadata Reference Information

7.1 Metadata Date: 20000730

7.2 Metadata Review Date: 20040823

7.4 Metadata Contact:

10.2 Contact Organization Primary

10.2.1 Contact Organization: Univ. of South Carolina’s Baruch Institute

10.2.1.1 Contact Person: Ginger Ogburn-Matthews

10.3 Contact Position: Research Data Manager & Analyst

10.4 Contact Address

10.4.1 Address Type: Mailing Address

10.4.2 Address: USC Baruch Marine Field Lab

10.4.2 Address: PO Box 1630

10.4.3 City: Georgetown

10.4.4 State or Province: South Carolina

10.4.5 Postal Code: 29442

10.4.6 Country: USA

10.5 Contact Voice Telephone: (843) 546-6219

10.7 Contact Facsimile Telephone: (843) 546-1632

10.8 Contact Electronic Mail Address: ginger@belle.baruch.sc.edu

10.9 Hours of Service: 8:30 am to 4:30 pm EST/EDT Mon. - Friday

7.5 Metadata Standard Name:

Content Standard for Digital Geospatial Metadata, Part 1: Biological Data Profile