

Identification_Information:

Citation:

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Originator: NOAA Fisheries Service

Publication_Date: 20060805

Title:

Effects of sea-level rise on coastal
secondary production in Galveston Bay, Texas.

Description:

Abstract:

Marsh submergence of about 1-cm per year enhances utilization of food resources by shrimp and crab predators. The apparent near-term effect of submergence is that production of secondary consumers is increased, but the long-term effect is unclear. Marsh subsidence may simulate effects of submergence by the sea, providing a model for predicting change in fisheries attributable to sea-level rise from global warming.

Purpose:

Identify and describe the relationship between fishery productivity and the coastal environment. Specifically, to examine nursery utilization of estuarine marshes by fishery species in relation to differences in salinity among sites.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 19850327

Ending_Date: 19851218

Currentness_Reference: ground condition

Status:

Progress: complete

Maintenance_and_Update_Frequency: Final

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -94.9893

East_Bounding_Coordinate: -94.9790

North_Bounding_Coordinate: 29.2102

South_Bounding_Coordinate: 29.2024

Keywords:

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: abundance

Theme_Keyword: predator

Theme_Keyword: prey

Theme_Keyword: nekton

Theme_Keyword: drop sampler

Theme_Keyword: marsh submergence

Theme_Keyword: sea-level rise

Theme_Keyword: brown shrimp

Theme_Keyword: white shrimp
Theme_Keyword: pink shrimp
Theme_Keyword: Farfantepenaeus aztecus
Theme_Keyword: Litopenaeus setiferus
Theme_Keyword: Farfantepenaeus duorarum
Theme_Keyword: nursery habitat
Theme_Keyword: salt marsh
Theme_Keyword: fish
Theme_Keyword: shrimp
Theme_Keyword: crabs

Place:

Place_Keyword_Thesaurus: Galveston Bay
Place_Keyword: Galveston Island State Park
Place_Keyword: Carancahua Cove
Place_Keyword: Texas
Place_Keyword: Gulf of Mexico

Access_Constraints: None

Use_Constraints:

Data set is not for use in litigation. While efforts have been made to ensure that these data are accurate and reliable, NOAA cannot assume liability for any or damages misrepresentations caused by inaccuracies in these data, or as a result of these data being used on a particular system. NOAA makes no warranty, expressed or implied, nor does distribution constitute any such warranty.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization:

NOAA Fisheries Service, formerly
National Marine Fisheries Service,
Galveston, Texas

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Country: Unites States of America
Contact_Voice_Telephone: 409-766-3500

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report:

Data were entered into spreadsheets and checked against the raw data sheet to avoid entry errors.

Logical_Consistency_Report:

Completeness_Report:

Lineage:

Process_Step:

Process_Description:

Sampling Gear Description:

The cylindrical drop trap was a fiberglass enclosure with a galvanized metal skirt along the bottom. The 1.8-m drop trap enclosed a 2.6-m² area. Traps were deployed from a front-mounted boom on a boat and pushed into the substrate.

Process_Date: unknown

Process_Step:

Process_Description:

Measuring Environmental Variables:

Environmental data were collected immediately after gear deployment and before collection of animals. Water temperature, salinity, and D.O. readings were collected inside the sampler and a water sample was taken and returned to the laboratory for turbidity analysis. Minimum and maximum water depth was recorded to the nearest centimeter. Average water depth was the midpoint between values. Tidal height was obtained from a permanent NOAA tide station on Galveston Island. Field sheets were checked to ensure all required environmental data were recorded correctly.

Process_Date: unknown

Process_Step:

Process_Description:

Sampling of Nekton and Associated Plants:

The engine was turned off once the boat approached the sampling site to minimize site disturbance prior to sampling. The boat drifted or was slowly guided to the sampling site by pushing from the stern. One person in the boat released the trap from the bow. Immediately after drop sampler deployment, field personnel pushed the sampler approximately 15-cm into the sediment to obtain a proper seal along the bottom of the trap to prevent escape of organisms or a trap blow-out. If the sample was taken in a marsh, vascular plants enclosed in the sampler were often clipped at ground level to assist in animal retrieval.

Process_Date: unknown

Process_Step:

Process_Description:

Removal of Animals

DROP TRAPS:

After the drop trap was pushed into the substrate, dip nets were used to sweep the bottom of the trap and remove the nekton. Enclosed water was pumped from the trap and filtered through a 1-mm mesh plankton net. As the water level dropped, the sampler was continually swept with dip nets

because the efficiency of animal capture increases with reduced water depth. Once drained, the sediment was visually and manually inspected for animals remaining on or burrowed into the substrate. Animals taken in dip nets or found during substrate inspection were added to the drop trap catch. Animals and other material (i.e., vegetation, macro-algae, shell hash, and detritus) pumped into the cod end of the plankton net were rinsed and the catch bag was detached. Samples were placed in a 1-mm mesh bag, labeled, fixed and returned to the laboratory for processing.

Process_Date: unknown

Process_Step:

Process_Description:

Care of Nekton Samples in the Field:

Labeled tags were placed inside and attached to the outside of each 1-mm mesh sample bag. Samples were stored in 3 or 5 gallon buckets containing ten percent formalin made by mixing one part full-strength formaldehyde with nine parts water. If animals were too large to fit into the sample bag, the specimen was identified to the lowest taxon, measured, recorded, and released.

Process_Date: unknown

Process_Step:

Process_Description:

Initial Processing of Field Data and Samples:

After returning from the field, samples were recorded in the laboratory log book, which served as a sample inventory and verification of sample arrival and condition. Turbidity samples were analyzed upon return to the laboratory and the information was transferred to the field data sheets. Field data sheets were entered into an electronic database or a database manager. A printout was given to the lab supervisor and primary investigator for review.

Process_Date: unknown

Process_Step:

Process_Description:

SPECIES IDENTIFICATION and MEASUREMENT:

Specimens were identified and the species name was recorded on the appropriate identification sheet. Fish were measured after being placed flat on their side with the mouth closed. TL in fish was the distance from the snout to the tip of the longest caudal fin ray. TL was measured from the tip of the rostrum to the tip of telson in shrimp. If the rostrum was broken, TL was not measured. Carapace

width (CW) of crabs was measured across the widest part of the carapace (from tip to tip of the lateral spines if present). If lateral spines were broken, CW was not measured for that individual. Penaeid shrimp were measured to the nearest mm TL, fish to the nearest 10-mm and non-penaeid crustaceans to the nearest 5-mm lengths. Hermit crabs were not measured.

Process_Date: unknown

Process_Step:

Process_Description:

Marsh Plants:

Samples from the marsh surface included six to eight culms of *Spartina alterniflora*.

Process_Date: unknown

Process_Step:

Process_Description:

Organism Data Entry and Validation:

Laboratory and field data were entered into the computer using a database manager. A text file was created that described these data and any abbreviated variables. Data were printed out, checked against ID sheets and corrections made at this time. A code was assigned to each species using the Fishery Ecology Branch revised species code list. A species not found on the code list was assigned a new code, which was added to the master code list.

Process_Date: unknown

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Descriptive Information for Sample Sites

Entity_Type_Definition: Terms relating to collection of flora and fauna

Entity_Type_Definition_Source:

NOAA Fisheries Service,
Fishery Ecology Branch, Galveston, Texas

Attribute:

Attribute_Label: Miscellaneous Descriptor

Attribute_Definition: Description of sites sampled

Attribute_Definition_Source:

NOAA Fisheries Service,
Fishery Ecology Branch, Galveston, Texas

Attribute_Domain_Values:

Enumerated_Domain:

Enumerated_Domain_Value: Inner

Enumerated_Domain_Value_Definition:

Marsh surface within 2 m of marsh edge

Enumerated_Domain_Value_Definition_Source:

NOAA Fisheries Service,
Fishery Ecology Branch, Galveston, Texas

Enumerated_Domain:

Enumerated_Domain_Value: Outer
Enumerated_Domain_Value_Definition:
Open water within 2 m of marsh edge
Enumerated_Domain_Value_Definition_Source:
NOAA Fisheries Service,
Fishery Ecology Branch, Galveston, Texas

Metadata_Reference_Information:

Metadata_Date: 20060805

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization:

NOAA Fisheries Service,
Fishery Ecology Branch, Galveston, Texas

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Metadata_Standard_Name:

FGDC Content Standard
for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001.1-1999