

Data Documentation

Dataset Information

Dataset Title: NOAA RESTORE Science Program: Linking Community and Food-web Approaches to Restoration: Taxonomic data for marsh infauna associated with natural and restored marshes along a salinity gradient generated from a freshwater diversion at West Pointe a la Hache into eastern Barataria Bay, Louisiana, 2018-05-21 to 2021-05-25

Description:

This dataset contains benthic macroinfauna species identifications and number of individuals collected from surface sediment samples at six sites at various distances from a freshwater diversion in the vicinity of West Pointe a la Hache, Lake Hermitage, and Port Sulphur, Louisiana in May of 2018, 2019, and 2021. Five replicates were collected at each marsh location. Taxonomic identification of individuals was determined to the lowest possible taxonomic level. Salinity data and marsh characterization for each sample location are also included in this dataset. Data are in spreadsheet format.

Purpose:

Macroinfauna community composition is used as an indicator of age of restored marshes and as an indicator of salinity conditions. Additionally, species richness, abundance, diversity, and estimates of biomass are relevant for the structure of local food webs. These data will inform how river diversions may influence ecological trajectory and functionality of natural and created marshes, as well as trophic relationships.

Little is known about how river diversions influence the ecological trajectory, food web structure, and function of natural versus created marshes. To address this gap, this project established sites in the West Point a la Hache (WPH) area (Barataria Bay, in Plaquemines Parish, Louisiana), near the WPH siphon which periodically shunts Mississippi River water into the local marshes. Sites were also established in nearby marshes that were restored as part of the Lake Hermitage Marsh Creation Project, representing an ideal model system to examine how seasonal and spatial shifts in salinity due to river diversions influence species composition and food web structure in both natural and different-aged created marshes. Objectives of the overall project included characterizing species compositions and abundances in multiple trophic levels (microbes to upper trophic level predators) and applying bulk (SIA) and compound-specific stable isotope analysis (CSIA) of amino acids (AA) in producer and consumer tissues to describe and compare the structure and complexity of food webs and reveal aspects of fish residency. Stable isotope and amino acid tissue analysis results are not included in this dataset.

The data in this accession were funded by the NOAA RESTORE Science Program under award NA17NOS4510091 to Louisiana State University.

Methods:

Sampling occurred at one of three transects established at each site (T.1, T.2, T.3). Sediment samples were collected at two locations at each site (10 and 50 meters from marsh edge) for both natural and restored marshes. Five replicates were collected at each location for a total of ten samples per site on a given sample date.

Macroinfauna were collected from the surface sediment with a tulip bulb corer to the approximate depth of 5 centimeters. The sample was placed into a 1-liter jar and preserved with a mixture of 10% formalin and Rose Bengal stain after an initial rinsing through a 500 micrometer sieve. Once the samples were back at the laboratory, each sample was rinsed through a 500 micrometer sieve again with fresh water and placed into a fresh sample jar. This sample was then sorted under a Wild Heerbrugg Stereo Microscope by picking out infauna and placing the specimen into a glass vial of ethanol for identification. The specimens were then identified with a Wild Heerbrugg Stereo Microscope and an Olympus BH-2 Microscope, with accompanying taxonomic literature, and results were recorded.

Associated Datasets:

- Rabalais, Nancy (2023). Linking Community and Food-web Approaches to Restoration: Total organic carbon and sediment grain size at natural and restored marshes and along a salinity gradient generated from a freshwater diversion at West Pointe a la Hache into eastern Barataria Bay, Louisiana, 2018-05-21 to 2021-05-25, NOAA National Centers for Environmental Information. Dataset .(in prep)
- Polito, Michael J.; O'Nuanain, Aine; Bennelli, Allison; Winston, Joseph; Lamb, Katelyn J.; López-Duarte, Paola C.; Roberts, Brian J. (2024). NOAA RESTORE Science Program: Linking Community and Food-web Approaches to Restoration: Organic matter decomposition in restored vs. natural Louisiana marshes near the West Pointe A La Hache siphon, 2018-05-21 to 2021-07-28. NOAA National Centers for Environmental Information. Dataset. (in prep)
- Lopez-Duarte, Paola (2024). NOAA RESTORE Science Program: Linking Community and Food-web Approaches to Restoration: On-marsh nekton community in restored vs. natural Louisiana marshes near the West Pointe A La Hache siphon, 2018-05-17 to 2018-05-23. NOAA National Centers for Environmental Information. Dataset. (in prep)
- Olin, Jill (2024). NOAA RESTORE Science Program: Linking Community and Food-web Approaches to Restoration: Bulk sulfur stable isotopes of on- and off-marsh fish species in restored vs. natural Louisiana marshes near the West Pointe A La Hache siphon, May 2018. NOAA National Centers for Environmental Information. Dataset. (in prep)
- Polito, Michael J.; Lamb, Katelyn J.; López-Duarte, Paola C.; Olin, Jill A.; Martin, Charles W.; Hooper-Bui, Linda M.; Roberts, Brian J. (2024). NOAA RESTORE Science Program: Linking Community and Food-web Approaches to Restoration: Carbon and nitrogen stable isotope values of organisms from created and natural marsh of Lake Hermitage, West Point a la Hache, and Bay Batiste, Louisiana, May 2018. NOAA National Centers for Environmental Information. Dataset. (in prep)

People & Projects

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- US DOC; NOAA; NOS; National Centers for Coastal Ocean Science (NCCOS)
- DOC; NOAA; NOS; NCCOS; RESTORE Science Program
- NOAA RESTORE Science Program award NA17NOS4510091 to Louisiana State University.

Data Documentation
RESTORE Louisiana Marshes: Infauna

Associated Online Resources:

- National Centers for Coastal Ocean Science. 2023. RESTORE Sponsored Research Project: Linking Community and Food-web Approaches to Restoration.
<https://www.fisheries.noaa.gov/inport/item/71399>
- RESTORE Project, Linking community and food-web approaches to restoration: An ecological assessment of created and natural marshes influenced by river diversions
<https://restoreactscienceprogram.noaa.gov/projects/marshes>
- Project Webpage <https://restorefoodweb.lumcon.edu/>
- External source of salinity data in the same geographic region of this current study area (stations near the sampling sites in this dataset are: 0263, 3617, 0260, 0258, 3680, 0282, 0209, 4529, 0226, 0224)
https://lacoast.gov/crms_viewer/Map/CRMSViewer

Extents

Start Date: 2018-05-21

End Date: 2021-05-25

Northern Boundary: 29.5605

Southern Boundary: 29.4759

Western Boundary: -89.8543

Eastern Boundary: -89.8099

Keywords

Sea Areas, Water Bodies, Marine Protected Areas:

- Gulf of Mexico
- West Pointe a la Hache, eastern Barataria Bay, Louisiana
- Lake Hermitage, Louisiana
- Port Sulphur, Louisiana

NCCOS Keywords:

- NCCOS Research Location > Region > Gulf of Mexico
- NCCOS Research Data Type > Field Observation
- NCCOS Research Topic > Restoration

File Information

Total File Size: 177 KB

Data File Format(s):

- Standard spreadsheet format:
 - Excel (.xlsx)

Data Files:

- Rabalais_Infauna_2018-2019-2021v3.xlsx

Documentation Files:

- BrowseGraphic.JPG
- DataDocumentation.PDF

Data Documentation
RESTORE Louisiana Marshes: Infauna

Table 1: Data Dictionary

Column	Variable	Label	Definition	Units	Range
1	Date of Collection	Date of Collection	Date samples were collected in the field	MM/DD/YYYY	05/21/2018 to 05/25/2021
2	Sampling Site	Sampling Site	Identifier assigned to each sampling location	None	N/A
3	Marsh Condition/Type	Marsh Condition/Type (Natural, Restored/Created)	Describes whether site marsh is natural or restored/created	None	N/A
4	Relative Distance from Siphon	Relative Distance from Siphon (Closest, Midway, Farthest, Equidistant)	Describes relative distance of each site from the freshwater siphon (relative salinity gradient)	None	N/A
5	Salinity	Salinity	Salinity of baywater next to marsh edge	ppt	
6	Latitude	LAT	Sample location latitude	Decimal degrees	29.47591 to 29.56051
7	Longitude	LONG	Sample location longitude	Decimal degrees	-89.8585 to -89.78761
8	Transect	Transect	Identifier for one of three transects at each site	None	T.1 to T.3
9	Sample Location	Sample Location	Distance from marsh edge in meters where sample was collected	Meters	10 or 50
10	Replicate	Replicate	Identifier for replicate samples along each transect	None	a-e
11	Group	Group	Highest identifying taxonomic category	None	N/A
12	Family	Family	Mid-level identifying taxonomic category; If Unknown, cell is left blank	None	N/A

Data Documentation
RESTORE Louisiana Marshes: Infauna

Column	Variable	Label	Definition	Units	Range
13	Genus	Genus	Genus level identifying taxonomic category; if Unknown, cell is left blank	None	N/A
14	Species	Species	Lowest level identifying taxonomic category;	None	N/A
15	Common/Informal Name	Common/Informal Name	Common/informal names were listed in those instances where identification to Genus or Species was not possible.	None	N/A
16	Number	Number	Abundances of organisms encountered	Numbers of individuals counted	0 to 1692

Parameter Information

List of major parameters included in this accession:

Parameter Description:

Parameters: Benthic macroinfauna species taxonomic composition
Property Type: Measured
Units: Taxonomic categories and Number of individuals
Observation Category: laboratory analysis
Sampling Instrument: Tulip bulb corer
Sampling and Analyzing Method:
 See Methods section above.
Data Quality Method:
 Identification of macroinfauna was completed and quality controlled by Nancy Rabalais.

Parameter Description:

Parameters: Salinity
Property Type: Measured
Units: ppt
Observation Category: in situ
Sampling Instrument: YSI Model Pro 30
Sampling and Analyzing Method:
 See Methods section above.
Data Quality Method:
 There is no salinity data for site LHC in May 2018.

Document Information

Date: 2023-11-14

Resource Provider: NCCOS Data Manager, nccos.data@noaa.gov, US DOC; NOAA; NOS; National Centers for Coastal Ocean Science (NCCOS)

Comment: This data documentation describes data files archived as a NOAA NCEI data accession, and is intended to provide dataset-level metadata for the purposes of discovery, use, and understanding.

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