Trait data for epibenthic and infaunal seagrass macrofauna in North Carolina, USA from peer-reviewed literature and web-based identification guides

Website: https://www.bco-dmo.org/dataset/770626
Data Type: Other Field Results
Version: 1
Version Date: 2019-06-18

Project
» Collaborative Research: Habitat fragmentation effects on fish diversity at landscape scales: experimental tests of multiple mechanisms (Habitat Fragmentation)

Contributors	Affiliation	Role
Yeager, Lauren	University of Texas - Marine Science Institute (UTMSI)	Principal Investigator, Contact
York, Amber D.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Abstract
Trait data for epibenthic and infaunal seagrass macrofauna in North Carolina, USA from peer-reviewed literature and web-based identification guides.

Table of Contents

Coverage

Spatial Extent: **N**:34.70648 **E**:-76.37371 **S**:34.06503 **W**:-76.62355
Temporal Extent: 2013-06-13 - 2013-07-26

Dataset Description

These data were published in Yeager et al. (2019). See "Related Datasets" section for other datasets from the same core samples.

Methods & Sampling

We identified six traits hypothesized to meditate a species' response to the environment and its functional role in the ecosystem; these traits included: primary trophic mode, microhabitat use, reproductive mode, larval development, mobility, and maximum body size. We assigned species trait values by compiling data from both peer-reviewed literature and web-based identification guides. For species with little or no available information, trait values were estimated using genus- or family-level information.

Data Processing Description

BCO-DMO Data Manager Processing Notes:
* added a conventional header with dataset name, PI name, version date
* modified parameter names to conform with BCO-DMO naming conventions
* taxonomic names checked using the World Register of Marine Species taxa match tool on 2019-06-18.
* two taxa names updated to accepted synonyms, and all associated aphiaID taxaonic identifiers added to the data. Lucina multilineata to Parvilucina crenella. Chione grus to Chioneryx grus. Confirmed this change with the data submitter.
* data values that were a period, indicating no value, changed to the default missing data identifier in BCO-DMO, "nd" meaning "no data."

[table of contents | back to top]

Data Files

File
seagrass_traits.csv (Comma Separated Values (.csv), 8.78 KB) MD5:a31f0778abe50576c9f3b9d398e71b9a Primary data file for dataset ID 770626

[table of contents | back to top]

Supplemental Files

File
References for seagrass trait data filename: References_for_seagrass_macrofauna_trait_data.txt (Octet Stream, 15.06 KB) MD5:0ee0c99cf50642c5cdc458416dcf6ce1 Contains a reference list for peer-reviewed literature and web-based identification guides for seagrass trait data.

[table of contents | back to top]

Related Publications

Yeager, L. A., Geyer, J. K., & Fodrie, F. J. (2019). Trait sensitivities to seagrass fragmentation across spatial scales shape benthic community structure. Journal of Animal Ecology, 88(11), 1743–1754. Portico. https://doi.org/10.1111/1365-2656.13067
Results

[table of contents | back to top]

Related Datasets

IsRelatedTo

Yeager, L. (2018) **Infauna abundance from seagrass bed core samples collected in Back Sound, North Carolina in June and July of 2013.** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 2) Version Date 2018-06-18 doi:10.1575/1912/bco-dmo.748860.2 [view at BCO-DMO]
Relationship Description: Data from the same core samples

Yeager, L. (2018) **Infauna biomass from seagrass bed core samples collected in Back Sound, North Carolina in June and July of 2013.** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 2) Version Date 2018-06-18 doi:10.1575/1912/bco-dmo.748852.2 [view at BCO-DMO]
Relationship Description: Data from the same core samples

Yeager, L. (2019) **Seagrass (Zostera marina and Halodule wrightii) shoot count, biomass and shoot height from seagrass bed core samples collected in Back Sound, North Carolina in June and July**

of 2013. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 2) Version Date 2019-06-18 doi:10.1575/1912/bco-dmo.748842.2 [view at BCO-DMO]
Relationship Description: Data from the same core samples

[table of contents | back to top]

Parameters

Parameter	Description	Units
Taxon_name	Taxonomic name of species or group	unitless
AphiaID	Taxanomic identifier at the World Register of Marine Species	unitless
Primary_trophic_mode	Trait indicating a taxon's major trophic grouping; taxa classified as suspension feeder, deposit feeder, interface feeder, carnivore, omnivore, herbivore, or parasite	unitless
Refernece_code_for_primary_trophic_mode	Code for reference in supplemental reference list used to assign trait value for primary trophic mode	unitless
Microhabitat_use	Trait indicating whether taxon typically uses infaunal (below sediment surface) or epifaunal (on sediment surface) microhabitats	unitless
Reference_code_for_microhabitat_use	Code for reference in supplemental reference list used to assign trait value for microhabitat use	unitless
Reproductive_mode	Trait indicating whether a taxon exhibits internal or external fertilization	unitless
Reference_code_for_reproductive_mode	Code for reference in attached list used to assign trait value for reproductive mode	unitless
Larval_development	Trait indicating whether a taxon exhibits direct larval development of has a planktonic larval stage	unitless
Reference_code_for_larval_development	Code for reference in supplemental reference list used to assign trait value for larval development	unitless
Post_settlement_mobility	Trait indicating the level of mobility of a taxon post-settlement; classified as mobile (moves freely), sedentary (seldom moves), or sessile (attached to the substrate)	unitless
Reference_code_for_post_settlement_mobility	Code for reference in supplemental reference list used to assign trait value for post-settlement mobility	unitless
Maximum_body_size	Maximum recorded body size from the literature	millimeters(mm)
Reference_code_for_maximum_body_size	Code for reference in supplemental reference list used to assign trait value for maximum body size	unitless

[table of contents | back to top]

Project Information

Collaborative Research: Habitat fragmentation effects on fish diversity at landscape scales: experimental tests of multiple mechanisms (Habitat Fragmentation)

Coverage: North Carolina

Amount and quality of habitat is thought to be of fundamental importance to maintaining coastal marine ecosystems. This research will use large-scale field experiments to help understand how and why fish populations respond to fragmentation of seagrass habitats. The question is complex because increased fragmentation in seagrass beds decreases the amount and also the configuration of the habitat (one patch splits into many, patches become further apart, the amount of edge increases, etc). Previous work by the investigators in natural seagrass meadows provided evidence that fragmentation interacts with amount of habitat to influence the community dynamics of fishes in coastal marine landscapes. Specifically, fragmentation had no effect when the habitat was large, but had a negative effect when habitat was smaller. In this study, the investigators will build artificial seagrass habitat to use in a series of manipulative field experiments at an ambitious scale. The results will provide new, more specific information about how coastal fish community dynamics are affected by changes in overall amount and fragmentation of seagrass habitat, in concert with factors such as disturbance, larval dispersal, and wave energy. The project will support two early-career investigators, inform habitat conservation strategies for coastal management, and provide training opportunities for graduate and undergraduate students. The investigators plan to target students from underrepresented groups for the research opportunities.

Building on previous research in seagrass environments, this research will conduct a series of field experiments approach at novel, yet relevant scales, to test how habitat area and fragmentation affect fish diversity and productivity. Specifically, 15 by 15-m seagrass beds will be created using artificial seagrass units (ASUs) that control for within-patch-level (~1-10 m2) factors such as shoot density and length. The investigators will employ ASUs to manipulate total habitat area and the degree of fragmentation within seagrass beds in a temperate estuary in North Carolina. In year one, response of the fishes that colonize these landscapes will be measured as abundance, biomass, community structure, as well as taxonomic and functional diversity. Targeted ASU removals will then follow to determine species-specific responses to habitat disturbance. In year two, the landscape array and sampling regime will be doubled, and half of the landscapes will be seeded with post-larval fish of low dispersal ability to test whether pre- or post-recruitment processes drive landscape-scale patterns. In year three, the role of wave exposure (a natural driver of seagrass fragmentation) in mediating fish community response to landscape configuration will be tested by deploying ASU meadows across low and high energy environments.

[table of contents | back to top]

Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1661683

[table of contents | back to top]