

# Infauna biomass from seagrass bed core samples collected in Back Sound, North Carolina in June and July of 2013

**Website:** <https://www.bco-dmo.org/dataset/748852>

**Data Type:** Other Field Results

**Version:** 2

**Version Date:** 2018-06-18

## Project

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

Contributors	Affiliation	Role
<a href="#">Yeager, Lauren</a>	University of Texas - Marine Science Institute (UTMSI)	Principal Investigator, Contact
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## Abstract

Infauna biomass from seagrass bed core samples collected in Back Sound, North Carolina in June and July of 2013.

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## 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 sampled 86 sites within seagrass habitats throughout Back Sound, North Carolina, USA (3442' N to 3439' N, 7637' W to 7631' W during July 2013. Sampling sites were located across 21 seagrass landscapes which were defined by 200m x 80m rectangles (matching common isolated bed size and shape within our system). These landscapes were previously selected to represent independent gradients in both total seagrass cover (260-11,764 m<sup>2</sup>) and landscape patchiness (1-75 individual patches; Yeager et al. 2016). Sampling sites in the current study were haphazardly placed across all 21 landscapes, but always located within seagrass itself, and not the unvegetated matrix.

Seagrass core sampling and laboratory processing:

One core sample was taken from each sampling site. Each core measured 30 cm in diameter and captured the above ground seagrass habitat as well as the top 10 cm of the sediment surface. All cores were taken within 2 h of low tide and the GPS location of each core was marked with a Garmin 72H handheld unit (Garmin International, Olathe, Kansas, USA). Low-tide depth was measured in situ at each site at the time of sampling to the nearest 10 cm.

Core samples were taken back to the lab and screened using a 500-µm sieve; benthic macrofauna were sorted from larger debris and seagrass tissue and transferred to a 70% ETOH solution for storage. These organisms were then identified to the lowest taxon possible, enumerated, dried (48 h at 60 °C), and weighed to the nearest 0.0001g. Only polychaetes with intact anterior appendages were identified and counted for density estimates to prevent overestimation and because these are requisite features for accurate identification.

The core (30-cm diameter, PVC) was gently placed by hand at each site and pushed down to a constant depth of 10 cm into the sediment. The core was gently rotated to break seagrass rhizomes, then dug out by hand, lifted, and placed into a resealable 1.5-gallon plastic bag. The sample was transported back to the laboratory on ice.

## 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
- \* date value "41429" changed to "6/4/2013"
- \* date format converted to ISO 8601 standard format yyyy-mm-dd
- \* data values that were a period, indicating no value, changed to the default missing data identifier in BCO-DMO, "nd" meaning "no data."

Data version 2 (2019-06-18)

- \* species column names updated to correct spelling and unaccepted synonyms. Species name columns and associated species list include accepted correct spellings and associated aphialIDs as of 2019-06-18. Source of species names and accepted synonyms is the World Register of Marine Species. Species names reviewed and any ambiguous names cleared up with feedback from the data submitter.
- \* Date for CP6 5 changed from 2015-07-16 to 2013-07-16

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## Data Files

File
<b>infauna_biomass.csv</b> (Comma Separated Values (.csv), 25.68 KB) MD5:1368caffa2f976359dfbbc7c2c81f284
Primary data file for dataset ID 748852

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## Supplemental Files

File
<b>Core sample infauna species list</b> filename: infauna_abundance_species_list.csv (Comma Separated Values (.csv), 7.57 KB) MD5:1bbcefd631def200766add38026ad8f8
Species list containing the column names used in the dataset with the associated descriptive name of the identification, the lowest identifiable taxa, and the taxonomic identifier (aphialID, World Register of Marine Species) associated with the lowest identifiable taxa.

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## 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*

Yeager, L. A., Keller, D. A., Burns, T. R., Pool, A. S., & Fodrie, F. J. (2016). Threshold effects of habitat fragmentation on fish diversity at landscapes scales. *Ecology*, 97(8), 2157–2166. doi:[10.1002/ecy.1449](https://doi.org/10.1002/ecy.1449)

*Methods*

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## Related Datasets

### IsRelatedTo

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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. (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.*

Yeager, L. (2019) **Trait data for epibenthic and infaunal seagrass macrofauna in North Carolina, USA from peer-reviewed literature and web-based identification guides**. Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2019-06-18 doi:10.1575/1912/bco-dmo.770626.1 [[view at BCO-DMO](#)]  
*Relationship Description: Data from the same core samples*

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## Parameters

Parameter	Description	Units
Site	Sampling location name	unitless
Date	Date (local) where core was taken. Local time zone is Eastern Daylight Time (EDT, UTC-4)	unitless
Replicate	Replicate core number at site	unitless
Latitude	Latitude of location of where core taken	decimal degrees (DD)
Longitude	Longitude of location where core taken	decimal degrees (DD)
Depth	Low tide depth where the core was taken	meters (m)
Solemya_velum	Solemya velum biomass (dry weight of all individuals) within the core [Solemya velum; aphialD:156994]	grams(g)
Ensis_directus	Ensis directus biomass (dry weight of all individuals) within the core [Ensis directus; aphialD:933783]	grams(g)
Ensis_minor	Ensis minor biomass (dry weight of all individuals) within the core [Ensis minor; aphialD:140734]	grams(g)

Modiolus_modiolus	Modiolus modiolus biomass (dry weight of all individuals) within the core [Modiolus modiolus; aphialD:140467]	grams(g)
Macoma_tenta_Macoma_sp	Macoma tenta/ Macoma sp. biomass (dry weight of all individuals) within the core [Macoma; aphialD:138531]	grams(g)
Nucula_proxima	Nucula proxima biomass (dry weight of all individuals) within the core [Nucula proxima; aphialD:156916]	grams(g)
Caryocorbula_contracta	Caryocorbula contracta biomass (dry weight of all individuals) within the core [Caryocorbula contracta; aphialD:420977]	grams(g)
Cumingia_tellinoides	Cumingia tellinoides biomass (dry weight of all individuals) within the core [Cumingia tellinoides; aphialD:156823]	grams(g)
Dallocardia_muricata	Dallocardia muricata biomass (dry weight of all individuals) within the core [Dallocardia muricata; aphialD:381280]	grams(g)
Lyonsia_hyalina	Lyonsia hyalina biomass (dry weight of all individuals) within the core [Lyonsia hyalina; aphialD:156793]	grams(g)
Brachidontes_exustus	Brachidontes exustus biomass (dry weight of all individuals) within the core [Brachidontes exustus; aphialD:397026]	grams(g)
Mytilus_edulis	Mytilus edulis biomass (dry weight of all individuals) within the core [Mytilus edulis; aphialD:140480]	grams(g)
Modiolus_squamosus	Modiolus squamosus biomass (dry weight of all individuals) within the core [Modiolus squamosus; aphialD:420706]	grams(g)
Anadara_transversa	Anadara transversa biomass (dry weight of all individuals) within the core [Anadara transversa; aphialD:156734]	grams(g)
Lucina_multilineata	Lucina multilineata biomass (dry weight of all individuals) within the core [Lucina multilineata; aphialD:758428]	grams(g)
Laevicardium_mortoni	Laevicardium mortoni biomass (dry weight of all individuals) within the core [Laevicardium mortoni; aphialD:156782]	grams(g)
Anadara_brasiliana	Anadara brasiliana biomass (dry weight of all individuals) within the core [Anadara brasiliana; aphialD:504322]	grams(g)
Abra_lioica	Abra lioica biomass (dry weight of all individuals) within the core [Abra lioica; aphialD:156730]	grams(g)
Argopecten_gibbus	Argopecten gibbus biomass (dry weight of all individuals) within the core [Argopecten gibbus; aphialD:394271]	grams(g)
Parvilucina_crenella	Parvilucina crenella biomass (dry weight of all individuals) within the core [Parvilucina crenella; aphialD:420799]	grams(g)
Strigilla_mirabilis	Strigilla mirabilis biomass (dry weight of all individuals) within the core [Strigilla mirabilis; aphialD:420895]	grams(g)
Spisula_solidissima	Spisula solidissima biomass (dry weight of all individuals) within the core [Spisula solidissima; aphialD:156996]	grams(g)
Serratina_aequistriata	Serratina aequistriata biomass (dry weight of all individuals) within the core [Serratina aequistriata; aphialD:877243]	grams(g)
Tagelus_divisus	Tagelus divisus biomass (dry weight of all individuals) within the core [Tagelus divisus; aphialD:156999]	grams(g)
Tagelus_plebeius	Tagelus plebeius biomass (dry weight of all individuals) within the core [Tagelus plebeius; aphialD:157001]	grams(g)
Limaria_pellucida	Limaria pellucida biomass (dry weight of all individuals) within the core [Limaria pellucida; aphialD:420751]	grams(g)

Semele_spp	Semele spp. biomass (dry weight of all individuals) within the core [Semele; aphialD:138476]	grams(g)
Chione_cancellata	Chione cancellata biomass (dry weight of all individuals) within the core [Chione cancellata; aphialD:397040]	grams(g)
Mercenaria_mercenaria	Mercenaria mercenaria biomass (dry weight of all individuals) within the core [Mercenaria mercenaria; aphialD:141919]	grams(g)
Chioneryx_grus	Chioneryx grus biomass (dry weight of all individuals) within the core [Chioneryx grus; aphialD:507508]	grams(g)
Drilonereis_spp	Drilonereis spp. biomass (dry weight of all individuals) within the core [Drilonereis; aphialD:129200]	grams(g)
Arabella_iricolor	Arabella iricolor biomass (dry weight of all individuals) within the core [Arabella iricolor; aphialD:129854]	grams(g)
Lumbrineris_spp	Lumbrineris spp. biomass (dry weight of all individuals) within the core [Lumbrineris; aphialD:129337]	grams(g)
Nereis_spp	Nereis spp. biomass (dry weight of all individuals) within the core [Nereis; aphialD:129379]	grams(g)
Ceratonereis_spp	Ceratonereis spp. biomass (dry weight of all individuals) within the core [Ceratonereis; aphialD:129372]	grams(g)
Platynereis_dumerilii	Platynereis dumerilii biomass (dry weight of all individuals) within the core [Platynereis dumerilii; aphialD:130417]	grams(g)
Nereiphylla_fragilis	Nereiphylla fragilis biomass (dry weight of all individuals) within the core [Nereiphylla fragilis; aphialD:157502]	grams(g)
Marphysa_sanguinea_Marphysa_sp	Marphysa sanguinea/Marphysa sp. biomass (dry weight of all individuals) within the core [Marphysa; aphialD:129281]	grams(g)
Glycera_spp	Glycera spp. biomass (dry weight of all individuals) within the core [Glycera; aphialD:129296]	grams(g)
Artacama_proboscidea	Artacama proboscidea biomass (dry weight of all individuals) within the core [Artacama proboscidea; aphialD:131482]	grams(g)
Maldane_sp	Maldane sp. biomass (dry weight of all individuals) within the core [Maldane; aphialD:129352]	grams(g)
Amphitrite_sp	Amphitrite sp. biomass (dry weight of all individuals) within the core [Amphitrite; aphialD:129686]	grams(g)
Neoamphitrite_figulus	Neoamphitrite figulus biomass (dry weight of all individuals) within the core [Neoamphitrite figulus; aphialD:131504]	grams(g)
Piromis_eruca	Piromis eruca biomass (dry weight of all individuals) within the core [Piromis eruca; aphialD:130114]	grams(g)
Melinna_spp	Melinna spp. biomass (dry weight of all individuals) within the core [Melinna; aphialD:129168]	grams(g)
Amphicteis_gunneri	Amphicteis gunneri biomass (dry weight of all individuals) within the core [Amphicteis gunneri; aphialD:129784]	grams(g)
Diopatra_cuprea	Diopatra cuprea biomass (dry weight of all individuals) within the core [Diopatra cuprea; aphialD:157339]	grams(g)
Kinbergonuphis_sp	Kinbergonuphis sp. biomass (dry weight of all individuals) within the core [Kinbergonuphis; aphialD:173767]	grams(g)
Pista_maculata	Pista maculata biomass (dry weight of all individuals) within the core [Pista maculata; aphialD:868065]	grams(g)
Clymenella_torquata	Clymenella torquata biomass (dry weight of all individuals) within the core [Clymenella torquata; aphialD:130279]	grams(g)

Sabaco_elongatus	Sabaco elongatus biomass (dry weight of all individuals) within the core [Sabaco elongatus; aphialD:157550]	grams(g)
Hobsonia_florida	Hobsonia florida biomass (dry weight of all individuals) within the core [Hobsonia florida; aphialD:333624]	grams(g)
Potamilla_neglecta	Potamilla neglecta biomass (dry weight of all individuals) within the core [Potamilla neglecta; aphialD:130954]	grams(g)
Capitellidae	Capitellidae biomass (dry weight of all individuals) within the core [Capitellidae; aphialD:921]	grams(g)
Lepidametria_commensalis	Lepidametria commensalis biomass (dry weight of all individuals) within the core [Lepidametria commensalis; aphialD:236706]	grams(g)
Sthenelais_limicola	Sthenelais limicola biomass (dry weight of all individuals) within the core [Sthenelais limicola; aphialD:131077]	grams(g)
Sthenelais_boa_Sthenelais_sp	Sthenelais boa/ Sthenelais sp. biomass (dry weight of all individuals) within the core [Sthenelais; aphialD:129595]	grams(g)
Lepidonotus_sp	Lepidonotus sp. biomass (dry weight of all individuals) within the core [Lepidonotus; aphialD:129496]	grams(g)
Phyllodocida_order	Phyllodocida (order) biomass (dry weight of all individuals) within the core [Phyllodocida; aphialD:892]	grams(g)
Melanella_polita	Melanella polita biomass (dry weight of all individuals) within the core [Melanella polita; aphialD:139859]	grams(g)
Astyris_lunata	Astyris lunata biomass (dry weight of all individuals) within the core [Astyris lunata; aphialD:160102]	grams(g)
Bittium_varium	Bittium varium biomass (dry weight of all individuals) within the core [Bittium varium; aphialD:160174]	grams(g)
Crepidula_convexa	Crepidula convexa biomass (dry weight of all individuals) within the core [Crepidula convexa; aphialD:160228]	grams(g)
Terebra_sp	Terebra sp. biomass (dry weight of all individuals) within the core [Terebra; aphialD:160427]	grams(g)
Acteocina_canaliculata	Acteocina canaliculata biomass (dry weight of all individuals) within the core [Acteocina canaliculata; aphialD:160065]	grams(g)
Crepidula_maculosa	Crepidula maculosa biomass (dry weight of all individuals) within the core [Crepidula maculosa; aphialD:419704]	grams(g)
Tritia_trivittata	Tritia trivittata biomass (dry weight of all individuals) within the core [Tritia trivittata; aphialD:737284]	grams(g)
Costoanachis_avara	Costoanachis avara biomass (dry weight of all individuals) within the core [Costoanachis avara; aphialD:160222]	grams(g)
Pyrgocythara_plicosa	Pyrgocythara plicosa biomass (dry weight of all individuals) within the core [Pyrgocythara plicosa; aphialD:160476]	grams(g)
Phrontis_vibex	Phrontis vibex biomass (dry weight of all individuals) within the core [Phrontis vibex; aphialD:877061]	grams(g)
Boonea_sp	Boonea sp. biomass (dry weight of all individuals) within the core [Boonea; aphialD:397023]	grams(g)
Hippolyte_sp	Hippolyte sp. biomass (dry weight of all individuals) within the core [Hippolyte; aphialD:106987]	grams(g)
Palaemon_sp	Palaemon sp. biomass (dry weight of all individuals) within the core [Palaemon; aphialD:107032]	grams(g)

Panopeus_herbistii_Dyspanopeus_sayi	Panopeus herbistii/Dyspanopeus sayi biomass (dry weight of all individuals) within the core [Panopeidae; aphialD:106765]	grams(g)
Callinectes_sapidus	Callinectes sapidus biomass (dry weight of all individuals) within the core [Callinectes sapidus; aphialD:107379]	grams(g)
Callinectes_similis	Callinectes similis biomass (dry weight of all individuals) within the core [Callinectes similis; aphialD:158055]	grams(g)
Pinnixa_spp	Pinnixa spp. biomass (dry weight of all individuals) within the core [Pinnixa; aphialD:158444]	grams(g)
Alpheus_heterochaelis	Alpheus heterochaelis biomass (dry weight of all individuals) within the core [Alpheus heterochaelis; aphialD:158348]	grams(g)
Pagurus_pollicaris_Pagurus_sp	Pagurus pollicaris/Pagurus sp. biomass (dry weight of all individuals) within the core [Pagurus; aphialD:106854]	grams(g)
Upogebia_affinis	Upogebia affinis biomass (dry weight of all individuals) within the core [Upogebia affinis; aphialD:158389]	grams(g)
Caprella_penantis	Caprella penantis biomass (dry weight of all individuals) within the core [Caprella penantis; aphialD:101846]	grams(g)
Amphipod	Amphipod biomass (dry weight of all individuals) within the core [Amphipoda; aphialD:1135]	grams(g)
Erichsonella_spp	Erichsonella spp. biomass (dry weight of all individuals) within the core [Erichsonella; aphialD:157886]	grams(g)
Cyathura_polita	Cyathura polita biomass (dry weight of all individuals) within the core [Cyathura polita; aphialD:157847]	grams(g)
Sphaeroma_sp	Sphaeroma sp. biomass (dry weight of all individuals) within the core [Sphaeroma; aphialD:955716]	grams(g)
Sclerodactyla_briareus	Sclerodactyla briareus biomass (dry weight of all individuals) within the core [Sclerodactyla briareus; aphialD:158532]	grams(g)
Thyonella_gemmata	Thyonella gemmata biomass (dry weight of all individuals) within the core [Thyonella gemmata; aphialD:158534]	grams(g)
Ophioderma_brevispina	Ophioderma brevispina biomass (dry weight of all individuals) within the core [Ophioderma brevispina; aphialD:158073]	grams(g)
Amphioplus_abditus	Amphioplus abditus biomass (dry weight of all individuals) within the core [Amphioplus (Amphioplus) abditus; aphialD:244985]	grams(g)
Chaetopleura_sp	Chaetopleura sp. biomass (dry weight of all individuals) within the core [Chaetopleura; aphialD:138086]	grams(g)
Lagodon_rhomboides	Lagodon rhomboides biomass (dry weight of all individuals) within the core [Lagodon rhomboides; aphialD:159249]	grams(g)
Gobionellus_sp	Gobionellus sp. biomass (dry weight of all individuals) within the core [Gobionellus; aphialD:159751]	grams(g)
Gobiosoma_bosc	Gobiosoma bosc biomass (dry weight of all individuals) within the core [Gobiosoma bosc; aphialD:159767]	grams(g)
UNID_Fish_species	Unidentified Fish species biomass (dry weight of all individuals) within the core [Actinopterygii; aphialD:10194]	grams(g)
UNID_polychaetes	Unidentified polychaete(s) biomass (dry weight of all individuals) within the core [Polychaeta; aphialD:883]	grams(g)
UNID_Bivalve	Unidentified bivalve biomass (dry weight of all individuals) within the core [Bivalvia; aphialD:105]	grams(g)

UNID_Shrimp	Unidentified shrimp biomass (dry weight of all individuals) within the core [Decapoda; aphialD:1130]	grams(g)
UNID_BARNACLE	Unidentified barnacle biomass (dry weight of all individuals) within the core [Cirripedia; aphialD:1082]	grams(g)
UNID_Gastropod	Unidentified Gastropod biomass (dry weight of all individuals) within the core [Gastropoda; aphialD:101]	grams(g)

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## Instruments

<b>Dataset-specific Instrument Name</b>	Garmin 72H handheld unit (Garmin International, Olathe, Kansas, USA)
<b>Generic Instrument Name</b>	GPS receiver
<b>Generic Instrument Description</b>	Acquires satellite signals and tracks your location. This term has been deprecated. Use instead: <a href="https://www.bco-dmo.org/instrument/560">https://www.bco-dmo.org/instrument/560</a>

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## 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 m<sup>2</sup>) 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.

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## Funding

Funding Source	Award
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-1661683</a>

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