Daily average temperature, salinity, conductivity, O2 collected by YSI sensors in Florida lagoons along the East coast of Florida from Fort Matanzas to St. Lucie County in 2008-2009

Website: https://www.bco-dmo.org/dataset/3678
Data Type: Other Field Results
Version: 1
Version Date: 2012-07-25

Project
» Patterns of Larval Dispersal and Postsettlement Selection Shaping Connectivity of Oyster Populations Along an Ecotone (Oyster Connectivity)

Contributors	Affiliation	Role
Hare, Matthew	Cornell University (Cornell)	Principal Investigator, Contact
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Abstract
Daily average temperature, salinity, conductivity, O2 collected by YSI sensors in Florida lagoons along the East coast of Florida from Fort Matanzas to St. Lucie County in 2008-2009. Data include temperature, salinity, dissolved oxygen, pH, and depth at 15 minute intervals.

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Coverage

Spatial Extent: **N**:29.6702 **E**:-80.2627 **S**:27.3149 **W**:-81.2382
Temporal Extent: 2008-04-28 - 2009-08-10

Dataset Description

Data include temperature, salinity, dissolved oxygen, pH, and depth at 15 minute intervals for May through the beginning of August for 2008 and 2009. Data were collected from shallow, near-shore locations in Florida lagoons.

Methods & Sampling

Each sonde was moored to a private or public dock at the edge of the lagoon. Data were recorded at 15 minute intervals during each sampling day. Values were averaged for each day at each location.

Data Processing Description

Data were filtered to remove readings during calibration or other unreliable data. Missing data mostly occur due to instrument or battery failure. No processing was done by the PI beyond calculating averages. For the raw (unaveraged) data, contact the PI, Dr. Matthew Hare (mph75@cornell.edu).

BCO-DMO replaced blanks and 'NA' with 'nd'. Some of the location names (site_descrip) differed from 2008 to 2009 in the original data, though site_id's were the same from year to year. When site_descrip differed, the 2008 name was used. The varying location names are:
BPD = Flagler Private Dock (2008) = Bruce's Dock (2009)
CCD = Fort Pierce Privat Dock (2008) = Carribe Colony (2009)
WAD = Walton Dock (2008) = Kevin's Dock (2009)

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Data Files

File
FLA_lagoon_hydro.csv (Comma Separated Values (.csv), 256.94 KB) MD5:9198e53d4c640af4586bc71c8e783887 Primary data file for dataset ID 3678

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Parameters

Parameter	Description	Units
year	4-digit year	dimensionless
site_id	Code of the sampling site.	dimensionless
site_descrip	Name of the sampling site.	dimensionless
lat	Latitude, in decimal degrees. Positive = north.	decimal degrees
lon	Longitude, in decimal degrees. Negative = west.	decimal degrees
date	Sampling date in mm/dd/yy format.	dimensionless
month_local	Month when sampling occurred (0 to 12).	dimensionless
day_local	Day of month when sampling occurred (0 to 31).	dimensionless
temp_max	Maximum daily water temperature.	degrees C
temp_min	Minimum daily water temperature.	degrees C

temp_avg	Average daily water temperature.	degrees C
temp_stdev	Standard deviation of temp_avg.	degrees C
temp_sterr	Standard error of temp_avg.	degrees C
cond_mS_max	Maximum daily specific conductivity.	mS/cm
cond_mS_min	Minimum daily specific conductivity.	mS/cm
cond_mS_avg	Average daily specific conductivity.	mS/cm
cond_mS_stdev	Standard deviation of cond_mS_avg.	mS/cm
cond_mS_sterr	Standard error of cond_mS_avg.	mS/cm
sal_max	Maximum daily salinity.	ppt
sal_min	Minimum daily salinity.	ppt
sal_avg	Average daily salinity.	ppt
sal_stdev	Standard deviation of sal_avg.	ppt
sal_sterr	Standard error of sal_avg.	ppt
measurements_per_day	Total number of measurements made per day at the sampling site.	dimensionless
O2_max	Maximum daily dissolved O2 saturation (as a percent).	%
O2_min	Minimum daily dissolved O2 saturation (as a percent).	%
O2_avg	Average daily dissolved O2 saturation (as a percent).	%
O2_stdev	Standard deviation of O2_avg.	%
O2_sterr	Standard error of O2_avg.	%

depth_ft_max	Maximum daily sampling depth.	feet
depth_ft_min	Minimum daily sampling depth.	feet
depth_ft_avg	Average daily sampling depth.	feet
depth_ft_stdev	Standard deviation of depth_ft_avg.	feet
depth_ft_sterr	Standard error of depth_ft_avg.	feet

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Instruments

Dataset-specific Instrument Name	YSI Sonde 6-Series
Generic Instrument Name	YSI Sonde 6-Series
Dataset-specific Description	Instruments were YSI SONDE 600. Data were filtered to remove readings during calibration or other unreliable data. Missing data mostly occur due to instrument or battery failure.
Generic Instrument Description	YSI 6-Series water quality sondes and sensors are instruments for environmental monitoring and long-term deployments. YSI datasondes accept multiple water quality sensors (i.e., they are multiparameter sondes). Sondes can measure temperature, conductivity, dissolved oxygen, depth, turbidity, and other water quality parameters. The 6-Series includes several models. More from YSI.

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Deployments

FL_Lagoons_Hare

Website	https://www.bco-dmo.org/deployment/58836
Platform	FL_Docks
Start Date	2008-04-28
End Date	2009-08-10
Description	Sampling locations for the project 'Patterns of Larval Dispersal and Postsettlement Selection Shaping Connectivity of Oyster Populations Along an Ecotone' (PI: Matthew Hare, Cornell University). Instruments were moored to private or public docks at the edge of the lagoons for shallow, near-shore sampling.

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Project Information

Patterns of Larval Dispersal and Postsettlement Selection Shaping Connectivity of Oyster Populations Along an Ecotone (Oyster Connectivity)

Website: http://www2.dnr.cornell.edu/HareLab/Research.html#divzoo

Coverage: East coast of Florida from Fort Matanzas to St. Lucie Co.

From NSF Award Abstract:
Population persistence and the scale of local adaptation are determined by both larval connectivity and post-settlement selection when habitats are spatially heterogeneous for growth and/or reproduction. Unfortunately, the relative importance of factors acting before and after settlement that limit recruitment and gene flow is still unknown for most species and most marine ecosystems. This is partly because the interactions between larval behavior and hydrography are difficult to study, so dispersal constraints are only inferred indirectly. In addition, many marine species are not amenable to strong spatial tests of post-settlement selection and these experiments are difficult to accomplish at the large spatial scales relevant to high dispersal species. Consequently, only a handful of natural systems have yielded results that distinguish pre- and post-settlement constraints on gene flow such that our understanding of mechanisms generating genetic and phenotypic population structure is piece meal.

The intellectual merit of the study is that it achieves this dual goal in an estuarine species inhabiting semi-connected lagoons along eastern Florida where there is a latitudinal gradient in environmental variables, community composition, and potential larval dispersal vectors. Much of the western North Atlantic coastline includes shallow lagoons enclosed by barrier islands, but only a handful of studies have measured connectivity among estuaries, and none among lagoons. This project builds on significant previous research on the eastern oyster, *Crassostrea Virginica* to integrate pre- and post-settlement measurements. High resolution genetic identification of migrants will be used to construct a connectivity matrix among 30 populations in each of three years. Statistical associations will be tested between dispersal patterns and hypothesized dispersal vectors and constraints. Cohort analysis will be used to test for spatial variation in genotype-specific survivorship along the entire coast. Also, in each of two years, relative postsettlement survivorship and performance will be measured in field common gardens in which local individuals, migrants and hybrids are compared. Finally, fertilization efficiency of within- and between-population crosses will be compared to test the hypothesis that gamete incompatibilities limit gene flow. The results will be integrated in models that describe the spatially and/or temporally dynamic balance between dispersal and selection, define the spatial scale of local adaptation along the ecotone, and identify abiotic gene flow constraints that may affect codistributed species.

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0830547

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