2014 NOAA Seamap Cruise Stations

Website: https://www.bco-dmo.org/dataset/565679
Version: 03 September 2015
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Project
» Collaborative Research: Consequences of sub-lethal hypoxia exposure for teleosts tracked with biogeochemical markers: a trans-basin comparison (OtolithHypoxia)

Contributors	Affiliation	Role
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Table of Contents

Dataset Description

2014 NOAA Seamap Fall Groundfish Cruise Stations where approximately 20 Atlantic croaker per station were collected for this project.

Methods & Sampling

Sampling and Analytical Methodology:
Trawls were conducted by the NOAA SEAMAP Fall Groundfish Survey according to a stratified random sampling design using a standard SEAMAP 40’ net. Further details about sampling protocols can be found online at: http://www.gsmfc.org/seamap-gomrs.php
At each station, up to 20 Atlantic croaker (*Micropogonias undulatus*) were retained for this project.

Data Processing Description

BCO-DMO Processing Notes
- Generated from original file "2014 Hypoxolith sampling sites UPLOAD.csv" contributed by Benjamin Walther
- Parameter names edited to conform to BCO-DMO naming convention found at Choosing Parameter Name
- ISO Date/Time UTC Generated
- Lat/Lon in degs, mins converted to Lat/Lon in decimal degrees

[table of contents | back to top]

Data Files

File
Sampling_Sites.csv (Comma Separated Values (.csv), 1.54 KB) MD5:e60d7dd5a41479e59e70a5b467537b6b Primary data file for dataset ID 565679

[table of contents | back to top]

Parameters

Parameter	Description	Units
Time	Time of recording in format hh:mm	unitless
Day	Day of month of recording in format dd	unitless
Month	Month of recording (name)	unitless
Year	Year of recording in format yyyy	unitless
Temperature	Temperature recording	degrees Celsius
Intensity	Light intensity recording	Lux

[table of contents | back to top]

Deployments

2014_NOAA_Seamap_Fall_Groundfish_Survey

Website	https://www.bco-dmo.org/deployment/565653
Platform	R/V Oregon II
Start Date	2014-10-21
End Date	2014-11-04

[table of contents | back to top]

Project Information

Collaborative Research: Consequences of sub-lethal hypoxia exposure for teleosts tracked with biogeochemical markers: a trans-basin comparison (OtolithHypoxia)

Coverage: Northern Gulf of Mexico, Baltic Sea, and Lake Erie

Description from NSF award abstract:
Hypoxia occurs when dissolved oxygen concentrations in aquatic habitats drop below levels required by living organisms. The increased frequency, duration and intensity of hypoxia events worldwide have led to impaired health and functioning of marine and freshwater ecosystems. Although the potential impacts of hypoxic exposure are severe, there is little known about the consequences of systemic, sub-lethal exposure to hypoxic events for populations and communities of fishes. The objective of this project is to determine whether sub-lethal exposure to hypoxia during early life stages leads to poor growth and hence increased mortality. This project will use "environmental fingerprint" methods in fish ear stones (otoliths) retrospectively to identify periods of hypoxia exposure. The project will compare consequences of hypoxia exposure in different fish species from the Gulf of Mexico, the Baltic Sea, and Lake Erie, thus examining the largest anthropogenic hypoxic regions in the world spanning freshwater, estuarine, and marine ecosystems.

This project will employ long-term, permanent markers incorporated into fish otoliths to identify life-long patterns of sub-lethal hypoxia exposure far beyond time spans currently achievable using molecular markers.

This work will capitalize on patterns of geochemical proxies such as Mn/Ca and I/Ca incorporated into otoliths and analyzed using laser ablation inductively coupled plasma mass spectrometry to identify patterns of sub-lethal hypoxia exposure. The investigators will then determine whether exposure results in differential growth and survival patterns compared to non-exposed fish by tracking cohorts over time and identifying characteristics of survivors. Because this work involves multiple species in multiple hypoxic regions, it will allow cross-system comparisons among unique ecosystems. The results from this project will thus provide unprecedented insight into effects of hypoxia exposure in three major basins using novel biogeochemical proxies, thereby paving the way for a fuller understanding of the impacts of "dead zones" on coastal resources.

[table of contents | back to top]

Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1433719
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[table of contents | back to top]