UW FHL Temperature & Salinity data taken at Friday Harbor, WA between between January 1, 2010 and January 1, 2016

Website: https://www.bco-dmo.org/dataset/775732
Data Type: Other Field Results
Version: 1
Version Date: 2019-08-20

Project
» Effects of Ocean Acidification on Coastal Organisms: An Ecomaterials Perspective (OA - Ecomaterials Perspective)

Program
» Science, Engineering and Education for Sustainability NSF-Wide Investment (SEES): Ocean Acidification (formerly CRI-OA) (SEES-OA)

Contributors	Affiliation	Role
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Abstract
Hourly seawater temperature and salinity values taken by an SBE 37 MicroCAT at UW FHL (University of Washington, Friday Harbor Laboratories) in Friday Harbor between January 1, 2010 and January 1, 2016.

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Coverage

Spatial Extent: **Lat**:48.5461 **Lon**:-123.0128
Temporal Extent: 2010-01-01 - 2016-01-01

Dataset Description

Hourly seawater temperature and salinity values taken by an SBE 37 MicroCAT at UW FHL (University of Washington, Friday Harbor Laboratories) in Friday Harbor between January 1, 2010 and January 1, 2016.

Portions of the data were published in:

- Murray *et al.,* 2015 (Figure 1)
- Bashevkin *et al.,* 2016 (Figure 1B)

Methods & Sampling

Seawater salinity and temperature were measured continuously each hour at 1.7 m depth at Cantilever Point,

Friday Harbor Laboratories (FHL), Washington, USA (48.546034,-123.007539) using a SBE 37SM (MicroCAT,SEA-Bird Electronics, Bellevue WA)

Data were collected hourly. Data gaps are due to problems associated with deployment and data transfer.

Data Processing Description

BCO-DMO processing notes:

- Added sampling location to the dataset (columns latitude and longitude)
- Added ISO_DateTime_UTC column to the dataset

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Data Files

File
temp_sal.csv (Comma Separated Values (.csv), 3.63 MB) MD5:d1e389e93b84737cb972f22b37e5f5da Primary data file for dataset ID 775732

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Related Publications

Bashevkin, S., Lee, D., Driver, P., Carrington, E., & George, S. (2016). Prior exposure to low salinity affects the vertical distribution of Pisaster ochraceus (Echinodermata: Asteroidea) larvae in haloclines. Marine Ecology Progress Series, 542, 123–140. doi:10.3354/meps11563
Results

Murray, J. W., Roberts, E., Howard, E., O'Donnell, M., Bantam, C., Carrington, E., … Fay, A. (2015). An inland sea high nitrate-low chlorophyll (HNLC) region with naturally high pCO2. Limnology and Oceanography, 60(3), 957–966. doi:10.1002/lno.10062
Results

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Parameters

Parameter	Description	Units
Date	Date and Time in local time: Pacific Standard Time UTC-8:00)	unitless
Temperature	Seawater temperature	degrees Celcius (C)
Salinity	Seawater salinity	PSU
ISO_DateTime_UTC	ISO UTC Date and Time in format YYYY-MM-DDTHH:MM:SSZ	unitless
Latitude	Latitude - south is negative	decimal degrees
Longitude	Longitude - west is negative	decimal degrees

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Instruments

Dataset-specific Instrument Name	SBE 37-SM Microcat (Sea-Bird Electronics, Bellevue WA)
Generic Instrument Name	CTD Sea-Bird MicroCAT 37
Dataset-specific Description	SBE 37-SM Microcat (Sea-Bird Electronics, Bellevue WA)
Generic Instrument Description	The Sea-Bird MicroCAT CTD unit is a high-accuracy conductivity and temperature recorder based on the Sea-Bird SBE 37 MicroCAT series of products. It can be configured with optional pressure sensor, internal batteries, memory, built-in Inductive Modem, integral Pump, and/or SBE-43 Integrated Dissolved Oxygen sensor. Constructed of titanium and other non-corroding materials for long life with minimal maintenance, the MicroCAT is designed for long duration on moorings. In a typical mooring, a modem module housed in the buoy communicates with underwater instruments and is interfaced to a computer or data logger via serial port. The computer or data logger is programmed to poll each instrument on the mooring for its data, and send the data to a telemetry transmitter (satellite link, cell phone, RF modem, etc.). The MicroCAT saves data in memory for upload after recovery, providing a data backup if real-time telemetry is interrupted.

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Project Information

Effects of Ocean Acidification on Coastal Organisms: An Ecomaterials Perspective (OA - Ecomaterials Perspective)

Website: http://depts.washington.edu/fhl/oael.html

Coverage: Friday Harbor, WA

Effects of Ocean Acidification on Coastal Organisms: An Ecomaterials Perspective
This award will support researchers based at the University of Washington's Friday Harbor Laboratories. The overall focus of the project is to determine how ocean acidification affects the integrity of biomaterials and how these effects in turn alter interactions among members of marine communities. The research plan emphasizes an ecomaterial approach; a team of biomaterials and ecomechanics experts will apply their unique perspective to detail how different combinations of environmental conditions affect the structural integrity and ecological performance of organisms. The study targets a diversity of ecologically important taxa, including bivalves, snails, crustaceans, and seaweeds, thereby providing insight into the range of possible biological responses to future changes in climate conditions. The proposal will enhance our understanding of the ecological consequences of climate change, a significant societal problem.

Each of the study systems has broader impacts in fields beyond ecomechanics. Engineers are particularly interested in biomaterials and in each system there are materials with commercial potential. The project will integrate research and education by supporting doctoral student dissertation research, providing undergraduate research opportunities via three training programs at FHL, and summer internships for talented high school students, recruited from the FHL Science Outreach Program. The participation of underrepresented groups will be broadened by actively recruiting URM and female students. Results will be disseminated in a variety of forums, including peer-reviewed scientific publications, undergraduate and graduate course material, service learning activities in K-8 classrooms, demonstrations at FHL's annual Open House, and columns for a popular science magazine.

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Program Information

Science, Engineering and Education for Sustainability NSF-Wide Investment (SEES): Ocean Acidification (formerly CRI-OA) (SEES-OA)

Website: https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503477

Coverage: global

NSF Climate Research Investment (CRI) activities that were initiated in 2010 are now included under Science, Engineering and Education for Sustainability NSF-Wide Investment (SEES). SEES is a portfolio of activities that highlights NSF's unique role in helping society address the challenge(s) of achieving sustainability. Detailed information about the SEES program is available from NSF (https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504707).

In recognition of the need for basic research concerning the nature, extent and impact of ocean acidification on oceanic environments in the past, present and future, the goal of the SEES: OA program is to understand (a) the chemistry and physical chemistry of ocean acidification; (b) how ocean acidification interacts with processes at the organismal level; and (c) how the earth system history informs our understanding of the effects of ocean acidification on the present day and future ocean.

Solicitations issued under this program:
NSF 10-530, FY 2010-FY2011
NSF 12-500, FY 2012
NSF 12-600, FY 2013
NSF 13-586, FY 2014
NSF 13-586 was the final solicitation that will be released for this program.

PI Meetings:
1st U.S. Ocean Acidification PI Meeting(March 22-24, 2011, Woods Hole, MA)
2nd U.S. Ocean Acidification PI Meeting(Sept. 18-20, 2013, Washington, DC)
3rd U.S. Ocean Acidification PI Meeting (June 9-11, 2015, Woods Hole, MA – Tentative)

NSF media releases for the Ocean Acidification Program:

Press Release 10-186 NSF Awards Grants to Study Effects of Ocean Acidification

Discovery Blue Mussels "Hang On" Along Rocky Shores: For How Long?

Discovery nsf.gov - National Science Foundation (NSF) Discoveries - Trouble in Paradise: Ocean Acidification This Way Comes - US National Science Foundation (NSF)

Press Release 12-179 nsf.gov - National Science Foundation (NSF) News - Ocean Acidification: Finding New Answers Through National Science Foundation Research Grants - US National Science Foundation (NSF)

Press Release 13-102 World Oceans Month Brings Mixed News for Oysters

Press Release 13-108 nsf.gov - National Science Foundation (NSF) News - Natural Underwater Springs Show How Coral Reefs Respond to Ocean Acidification - US National Science Foundation (NSF)

Press Release 13-148 Ocean acidification: Making new discoveries through National Science Foundation research grants

Press Release 13-148 - Video nsf.gov - News - Video - NSF Ocean Sciences Division Director David Conover answers questions about ocean acidification. - US National Science Foundation (NSF)

Press Release 14-010 nsf.gov - National Science Foundation (NSF) News - Palau's coral reefs surprisingly resistant to ocean acidification - US National Science Foundation (NSF)

Press Release 14-116 nsf.gov - National Science Foundation (NSF) News - Ocean Acidification: NSF awards $11.4 million in new grants to study effects on marine ecosystems - US National Science Foundation (NSF)

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-1041213

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