CTD summary data from phytoplankton monitoring sites in Juneau, AK sampled from 2015-2016 (SEAK-AHAB project)

Website: https://www.bco-dmo.org/dataset/660308
Data Type: Other Field Results
Version: 1
Version Date: 2016-09-30

Project
» Enhancing Sustainability of Shellfish Harvest in Alaska: Addressing the Ecology of Alexandrium Blooms and their Sociocultural Impacts (SEAK-AHAB)

Contributors	Affiliation	Role
Tobin, Elizabeth D.	University of Alaska Fairbanks (UAF-Juneau)	Principal Investigator
Ake, Hannah	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager
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Abstract
CTD summary data from phytoplankton monitoring sites in Juneau, AK sampled from 2015-2016 (SEAK-AHAB project)

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Coverage

Spatial Extent: **N**:58.4916 **E**:-134.6499 **S**:58.3819 **W**:-134.7903
Temporal Extent: 2015-03-10 - 2016-12-15

Dataset Description

Summary CTD data collected approximately weekly from two phytoplankton monitoring sites in Juneau, AK from 2015-2016.

Methods & Sampling

Dock-based CTD casts were completed at approximately weekly intervals at two phytoplankton sampling stations, Auke Bay and Amalga Harbor, in Juneau, AK using a SBE-25 Sealogger CTD equipped with a SBE-3 temperature sensor, SBE-4C conductivity sensor, SBE-29 external pressure sensor, and a WETLabs Fluorometer. The CTD was deployed down to ~1 meter above the seafloor. Local date and time were recorded at the start of each sampling event.

The CTD instrument package was last serviced and calibrated by Sea-Bird Electronics, Inc. in June 2015.

Data Processing Description

CTD casts were uploaded as .hex files and converted to .cnv files using the Seasoft V2 software. The .cnv files were processed in batch (R programming) to calculate summary water column parameters: cast depth (m), sea surface temperature (degrees celsius), surface salinity (psu), bottom salinity (psu), surface density (kg/m3), bottom density (kg/m3) and maximum fluorescence (mg/m3). Sea Surface temperature, surface salinity and surface density were averaged over 0.5 – 2 meters of the water column. Bottom salinity and density are data values recorded at the maximum cast depth. Maximum fluorescence is the peak of the fluorescence signal.

All summary data was referenced with water column profiles plotting using the SeaSoft V2 software.

BCO-DMO Data Processing Notes:

-Reformatted column names to comply with BCO-DMO standards
-Removed spaces from data values and replaced with underscores
-Filled in blank cells with "nd"
-2017-07-25: Updated with data from 2016.

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Data Files

File
CTD_data.csv (Comma Separated Values (.csv), 18.14 KB) MD5:3b1d98dd9784b17643b87384790952d5 Primary data file for dataset ID 660308

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Parameters

Parameter	Description	Units
sampling_event	Sampling event ID	unitless
date	Date sample was taken; YYYYmmdd	unitless
time_zone	Time zone where sample was taken	unitless
time_local	Local time when sampling occurred; HH:MM	unitless
station	Station where sample was taken	unitless
lon	Longitude	decimal degrees
lat	Latitude	decimal degrees
instrument	Instrument used to collect sample	unitless
investigator	Investigator responsible for collecting sample	unitless
cast_depth	Bottom depth of cast	meters
surface_temp	Sea surface temperature	celsius
s_salinity	Surface salinity	practical salinity units (PSU)
b_salinity	Bottom salinity	practical salinity units (PSU)
s_density	Surface density	kilogram per meter cubed (kg/m3)
b_density	Botton density	kilogram per meter cubed (kg/m3)
max_fluor	Maximum fluorescence	milligram per meter cubed (mg/m3)
data_quality	Codes providing information about missing or flagged data	unitless
ISO_DateTime_Local	DateTime local; YYYY-mm-dd HH:MM	unitless
year	Four digit year sample was taken; YYYY	unitless

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Instruments

Dataset-specific Instrument Name	SBE-25 Sealogger CTD
Generic Instrument Name	CTD - profiler
Dataset-specific Description	Dock based CTD casts were used in this survey
Generic Instrument Description	The Conductivity, Temperature, Depth (CTD) unit is an integrated instrument package designed to measure the conductivity, temperature, and pressure (depth) of the water column. The instrument is lowered via cable through the water column. It permits scientists to observe the physical properties in real-time via a conducting cable, which is typically connected to a CTD to a deck unit and computer on a ship. The CTD is often configured with additional optional sensors including fluorometers, transmissometers and/or radiometers. It is often combined with a Rosette of water sampling bottles (e.g. Niskin, GO-FLO) for collecting discrete water samples during the cast. This term applies to profiling CTDs. For fixed CTDs, see https://www.bco-dmo.org/instrument/869934.

Dataset-specific Instrument Name	WETLabs fluorometer
Generic Instrument Name	CTD-fluorometer
Dataset-specific Description	Equipped on CTD
Generic Instrument Description	A CTD-fluorometer is an instrument package designed to measure hydrographic information (pressure, temperature and conductivity) and chlorophyll fluorescence.

Dataset-specific Instrument Name	SBE-29 external pressure sensor
Generic Instrument Name	Pressure Sensor
Dataset-specific Description	Equipped on CTD
Generic Instrument Description	A pressure sensor is a device used to measure absolute, differential, or gauge pressures. It is used only when detailed instrument documentation is not available.

Dataset-specific Instrument Name	SBE-4C conductivity sensor
Generic Instrument Name	Sea-Bird SBE-4 Conductivity Sensor
Dataset-specific Description	Equipped on CTD
Generic Instrument Description	The Sea-Bird SBE-4 conductivity sensor is a modular, self-contained instrument that measures conductivity from 0 to 7 Siemens/meter. The sensors (Version 2; S/N 2000 and higher) have electrically isolated power circuits and optically coupled outputs to eliminate any possibility of noise and corrosion caused by ground loops. The sensing element is a cylindrical, flow-through, borosilicate glass cell with three internal platinum electrodes. Because the outer electrodes are connected together, electric fields are confined inside the cell, making the measured resistance (and instrument calibration) independent of calibration bath size or proximity to protective cages or other objects.

Dataset-specific Instrument Name	SBE-3 temperature sensor
Generic Instrument Name	Water Temperature Sensor
Dataset-specific Description	Equipped on CTD
Generic Instrument Description	General term for an instrument that measures the temperature of the water with which it is in contact (thermometer).

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Deployments

Tobin_2015_2016

Website	https://www.bco-dmo.org/deployment/660315
Platform	shoreside Juneau_Alaska
Start Date	2015-03-10
End Date	2016-12-15
Description	Phytoplankton and CTD sampling was performed here in 2015 and 2016 by E. Tobin.

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Project Information

Enhancing Sustainability of Shellfish Harvest in Alaska: Addressing the Ecology of Alexandrium Blooms and their Sociocultural Impacts (SEAK-AHAB)

Coverage: Southeast Alaska; 58 N, 134 W

Description from NSF award abstract:
The project is supported under the NSF Science, Engineering and Education for Sustainability Fellows (SEES Fellows) program, with the goal of helping to enable discoveries needed to inform actions that lead to environmental, energy and societal sustainability while creating the necessary workforce to address these challenges.

This project focuses on the sustainability of shelfish harvesting in Alaska. In Alaska, paralytic shellfish poisoning caused by the marine alga Alexandrium is a severe and persistent problem that significantly impacts human health and the availability of shellfish resources. This project aims to enhance sustainability of commercial, recreational and subsistence shellfish harvest in Southeast Alaska by addressing the ecology of Alexandrium harmful algal blooms and their sociocultural impacts. Despite the recognized impacts of paralytic shellfish poisoning, little research has been done on the causative organism, Alexandrium, and the sociocultural impacts of toxic Alexandrium blooms in the Southeast Alaska region. This study is a three-pronged effort. First, the project bolsters understanding of the ecological mechanisms that promote Alexandrium blooms by mapping cyst seedbeds (i.e., bloom initiation sites), monitoring cyst emergence, and identifying environmental conditions under which blooms form. This information adds to the body of scientific knowledge about Alexandrium bloom dynamics in coastal, fjord systems, provide early-warning information about toxic bloom development and help focus future paralytic shellfish poisoning testing and harmful algal bloom monitoring efforts in Southeast Alaska. Second, the application of novel in situ sensors will overcome previous benthic emergence monitoring challenges and has the potential to improve harmful algal bloom forecasting capabilities. Third, human dimensions research will generate critical information about how social systems can reduce vulnerability to harmful algal blooms and how local/traditional knowledge can support scientific efforts by establishing strong community partnerships.

The SEES Fellow, Dr. Elizabeth Tobin, works with host mentor Dr. Ginny Eckert at the University of Alaska Fairbanks, and with partner mentor Dr. Thomas Leschine at the University of Washington.

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Funding

Funding Source	Award
NSF Divsion of Integrative and Collaborative Education and Research (NSF ICER)	ICER-1415195

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