Phytoplankton abudance and physical environmental data from niskin bottles off the coast of Juneau, Alaska from 2015-2016 (SEAK-AHAB project)

Website: https://www.bco-dmo.org/dataset/711846
Data Type: Other Field Results
Version: 1
Version Date: 2017-07-25

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
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Abstract
Phytoplankton abudance and physical environmental data from niskin bottles off the coast of Juneau, Alaska 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: 2015-02-17 - 2016-12-15

Dataset Description

Phytoplankton data and associated environmental conditions collected from niskin bottles approximately weekly from four phytoplankton monitoring sites in Juneau, AK in 2015 and 2016.

Methods & Sampling

Phytoplankton Data:

Dock and beach-based phytoplankton bottle seawater grab (2.2L, horizontal, pvc) samples were collected at approximately weekly intervals at four phytoplankton sampling stations; Auke Bay, Amalga, Eagle Beach and Auke Rec in Juneau, AK. The bottle grab sampler was deployed to depth in the open position and triggered using a messenger.

Environmental Data:

Air temperature was recorded using the GPS mode on the NOAA weather android application. Surface seawater salinity was determined using a refractometer for salinity. Surface seawater temperature was recorded using a waterproof digital thermometer. Tide observations were verified using the GPS mode on the Tides Near Me android application.

Data Processing Description

Grab bottle samples were transferred into a 1 L Nalgene bottle and 100 mL was subsampled into a settling jar, fixed with 25% Glutaraldehyde (final concentration 0.25% Glutaraldehyde) and concentrated 10x. The 10x concentrated seawater sample was counted in a 1mL Sedgewrick Rafter counting chamber to determine concentrations of the target species *Alexandrium* sp., and the Dinoflagellate and Diatom communities.

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"
-Replaced tide and weather codes with the appropriate definitions listed in the metadata
-2017-07-25: Updated with data from 2016.

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Data Files

File
phyto_bottle_data.csv (Comma Separated Values (.csv), 38.20 KB) MD5:14a15c7886a52c771f165928ce50bb98 Primary data file for dataset ID 711846

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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
lat	Latitude	decimal degrees

lon	Longitude	decimal degrees
investigator	Investigator responsible for collecting sample	unitless
site_type	Type of site where sampling occurred; Dock or Beach	unitless
air_temp	Air temperature	celsius
surface_salinity	Surfance salinity	parts per thousand (PPT)
surface_temp	Sea surface temperature	celsius
weather	Observed weather conditions	unitless
tide	Observed tide conditions	unitless
instrument	Instrument used to collect sample	unitless
depth	Depth of sample	meters
dinoflagellates	Algal cell concentration	cells per liter (cells/L)
diatoms	Algal cell concentration	cells per Liter (cells/L)
Alexandrium_sp	Algal cell concentration	cells per Liter (cells/L)
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	Bottle
Generic Instrument Name	Bottle
Dataset-specific Description	2.2L horizontal pvc
Generic Instrument Description	A container, typically made of glass or plastic and with a narrow neck, used for storing drinks or other liquids.

Dataset-specific Instrument Name	Refractometer
Generic Instrument Name	Refractometer
Dataset-specific Description	Measured sea surface salinity
Generic Instrument Description	A refractometer is a laboratory or field device for the measurement of an index of refraction (refractometry). The index of refraction is calculated from Snell's law and can be calculated from the composition of the material using the Gladstone-Dale relation. In optics the refractive index (or index of refraction) n of a substance (optical medium) is a dimensionless number that describes how light, or any other radiation, propagates through that medium.

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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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