

Event logs collected from cruises W0306A, W0308C, AT11-17, AT11-30, TUIM14MV, TN200 from the Coastal Waters off Washington State and Vancouver Island; 2003-2006 (ECOHAB-PNW project)

Website: <https://www.bco-dmo.org/dataset/3344>

Version: 27 April 2010

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Project

» [ECOHAB - Pacific Northwest](#) (ECOHAB-PNW)

Contributors	Affiliation	Role
Hickey, Barbara M.	University of Washington (UW)	Principal Investigator
Trainer, Vera L.	Northwest Fisheries Science Center - Seattle (NOAA NWFSC)	Co-Principal Investigator
Kachel, Nancy	University of Washington (UW)	Contact
Gegg, Stephen R.	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

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Dataset Description

Event Logs generated from Table 1 in individual cruise reports located on ECOHAB/PNW web site

Methods & Sampling

Generated from Table 1 in individual cruise reports located on ECOHAB/PNW web site

Data Processing Description

Generated from Table 1 in individual cruise reports located on ECOHAB/PNW web site

BCO-DMO Edits

- ECOHAB/PNW Cruise Id added
- Slight differences in individual cruise data files standardized to make them accessible as one
- Water depth column added (if not in previously)
- Cast depth column added (if not in previously)

- Comments column added (if not in previously)
- Lat/Lon degs, mins converted to decimal degrees
- Lon decimal degrees signed negative (for West longitude)
- Parameter names modified to conform to BCO-DMO convention
- empty cells filled with "nd" (no data)
- date reformatted to YYYYMMDD
- Date_End column added to complement Time_End
- times reformatted to HHMM
- commas replaced with semicolons in misc text fields

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Data Files

File
EventLogs.csv (Comma Separated Values (.csv), 225.91 KB) MD5:6a16cf2db45d08d9d708d61b7eff7394 Primary data file for dataset ID 3344

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Parameters

Parameter	Description	Units
Cruise	ECO HAB-PNW cruise name	text
Event_Number	ECO HAB-PNW Event Number on the individual cruise	integer
Date_Start	Start Date of Event	YYYYMMDD
Time_Start	Start Time of Event	hhmm
Date_End	End Date of Event	YYYYMMDD
Time_End	Endt Time of Event	hhmm
lon	longitude position of sample (West is negative)	decimal degrees
lat	latitude position of sample (South is negative)	decimal degrees
Grid_Station_ID	ECO HAB-PNW grid station Id	text
Event_Description	Event description	text
Samples_Taken	Samples taken at station	text
Water_depth	Water depth	meters
Cast_depth	Cast depth	meters
Comments	Misc comments	text

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Deployments

W0306A

Website	https://www.bco-dmo.org/deployment/58001
Platform	R/V Wecoma
Report	http://bcodata.whoi.edu/ECOHAB_PNW/ECOHAB_Cruise1_Report.pdf
Start Date	2003-06-02
End Date	2003-06-23
Description	W0306A: This is ECOHAB_1 (ECOHAB Cruise 1) First cruise of the 6 ECOHAB/PNW cruises. Numbered sequentially from Cruise_1 - Cruise_6 as ECOHAB_1 - ECOHAB_6. .

W0308C

Website	https://www.bco-dmo.org/deployment/58002
Platform	R/V Wecoma
Report	http://bcodata.whoi.edu/ECOHAB_PNW/ECOHAB_Cruise2_Report.pdf
Start Date	2003-08-30
End Date	2003-09-19
Description	W0308C: This is ECOHAB_2 (ECOHAB Cruise 2). Second cruise of the 6 ECOHAB-PNW cruises. Numbered sequentially from Cruise_1 - Cruise_6 as ECOHAB_1 - ECOHAB_6.

AT11-17

Website	https://www.bco-dmo.org/deployment/58003
Platform	R/V Atlantis
Report	http://bcodata.whoi.edu/ECOHAB_PNW/ECOHAB_Cruise3_Report.pdf
Start Date	2004-09-08
End Date	2004-09-28
Description	AT11-17: This is ECOHAB_3 (ECOHAB Cruise 3). Third cruise of the 6 ECOHAB-PNW cruises. Numbered sequentially from Cruise_1 - Cruise_6 as ECOHAB_1 - ECOHAB_6. Original cruise data are available from the NSF R2R data catalog

AT11-30

Website	https://www.bco-dmo.org/deployment/58004
Platform	R/V Atlantis
Report	http://bcodata.whoi.edu/ECOHAB_PNW/ECOHAB_Cruise4_Report.pdf
Start Date	2005-07-07
End Date	2005-07-27
Description	AT11-30: This is ECOHAB_4 (ECOHAB Cruise 4). Fourth cruise of the 6 ECOHAB-PNW cruises. Numbered sequentially from Cruise_1 - Cruise_6 as ECOHAB_1 - ECOHAB_6 Original cruise data are available from the NSF R2R data catalog

TUIM14MV

Website	https://www.bco-dmo.org/deployment/58005
Platform	R/V Melville
Report	http://bcodata.whoi.edu/ECOHAB_PNW/ECOHAB_Cruise5_Report.pdf
Start Date	2005-09-02
End Date	2005-09-22
Description	Cruise TUIM14MV is also known as ECOHAB_5 (ECOHAB Cruise 5) the fifth cruise of the 6 ECOHAB-PNW cruises; numbered sequentially from Cruise_1 - Cruise_6 as ECOHAB_1 - ECOHAB_6. Cruise information and original data are available from the NSF R2R data catalog.

TN200

Website	https://www.bco-dmo.org/deployment/58006
Platform	R/V Thomas G. Thompson
Report	http://bcodata.whoi.edu/ECOHAB_PNW/ECOHAB_Cruise6_Report.pdf
Start Date	2006-09-11
End Date	2006-10-04
Description	Cruise TN200 is also known as ECOHAB_6 (ECOHAB Cruise 6) the sixth of 6 ECOHAB-PNW cruises that are numbered sequentially from Cruise_1 - Cruise_6 as ECOHAB_1 - ECOHAB_6. Cruise information and original data are available from the NSF R2R data catalog.

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Project Information

ECOHAB - Pacific Northwest (ECOHAB-PNW)

Coverage: Off the Pacific Northwest coast

ECOHAB-PNW is a 5-year multi-disciplinary project that will study the physiology, toxicology, ecology and oceanography of toxic *Pseudo-nitzschia* species off the Pacific Northwest coast.

This program studies the physiology, toxicology, ecology and oceanography of toxic *Pseudo-nitzschia* species off the Pacific Northwest coast, a region in which both macro-nutrient supply and current patterns are primarily controlled by seasonal coastal upwelling processes. Recent studies suggest that the seasonal Juan de Fuca eddy, a nutrient rich retentive feature off the Washington coast serves as a "bioreactor" for the growth of phytoplankton, including diatoms of the genus *Pseudo-nitzschia*. Existing ship of opportunity data are consistent with the working hypothesis that the seasonal Juan de Fuca eddy is an initiation site for toxic *Pseudo-nitzschia* that impact the Washington coast and that upwelling sites adjacent to the coast are less likely to develop toxicity.

The long-term program goal is to develop a mechanistic basis for forecasting toxic *Pseudo-nitzschia* bloom development here and in other similar coastal regions in Eastern Boundary upwelling systems.

Specific study objectives are:

- 1. To determine the physical/biological/chemical factors that make the Juan de Fuca eddy region more viable for growth and sustenance of toxic *Pseudo-nitzschia* than the nearshore upwelling zone;
- 2. To determine the combination of environmental factors that regulate the production, accumulation, and/or release of domoic acid (DA) from *Pseudo-nitzschia* cells in the field;
- 3. To determine possible transport pathways between DA initiation sites and shellfish beds on the nearby coast.

The scientific operations of this study included obtaining multi-disciplinary data from a large scale grid,

sampling water properties while following a drifter, deployment of surface drifters, satellite imagery, laboratory studies using water collected at selected sites, and numerical modeling of both the circulation and chlorophyll concentration. Water samples included macronutrients, iron, particulate and dissolved domoic acid, Pseudo-nitzschia species and numbers. Experiments were done to estimate growth and grazing rates. Moored arrays were deployed to provide time series of currents and water properties from May to October, each year from 2003-2006. Numerical modeling studies on a fine scale grid focused on the seasonal development

of the Juan de Fuca eddy and its change in structure during selected wind conditions. Conditions favorable to release of phytoplankton from the eddy region were assessed.

After four years of field work the research team is able to describe a possible sequence of events necessary to ingestion of domoic acid by coastal shellfish:

(1) Plankton must become concentrated in the bloom source region. ECOHAB PNW studies suggest this requires

a period of downwelling-favorable or lightly fluctuating winds.

(2) Next the plankton must undergo stress sufficient to cause an increase in cellular toxin: in the Juan de Fuca eddy region toxin can be found on any survey of the region in both early and late summer within a 21 day time scale.

(3) Patches of toxic plankton must then escape from the offshore source region. For the Juan de Fuca eddy region

escape is favored during upwelling-favorable wind conditions that allow the geostrophic constraint of the eddy circulation pattern to be broken.

(4) The patch must move alongshore to sites with shellfish populations, and

(5) must retain its toxicity during the time period of transport. For a toxic source in the Juan de Fuca eddy this requires southward advection across the shelf, as occurs during periods of upwelling-favorable winds in summer and early fall. ECOHAB PNW studies show that toxin can be maintained in the 7-14 days required for transport. For an Oregon source such as Heceta bank to impact the Washington shelf, this requires northward

advection across the shelf, as occurs during periods of downwelling-favorable winds in spring.

(6) Last, the toxic patch must move onshore to coastal beaches and/or estuaries,

(7) where it must remain there for a period sufficient for significant ingestion by shellfish.

Cruises/Platforms:

Cruise = ECOHAB-PNW cruises, numbered sequentially from

Cruise_1 - Cruise_6 as ECOHAB_1 - ECOHAB_6.

Cruise_1=ECOHAB_1, R/V Wecoma, W0306A, June 2-23, 2003 [Cruise Report](#)

Cruise_2=ECOHAB_2, R/V Wecoma, W0308C, August 30 - September 19, 2003 [Cruise Report](#)

Cruise_3=ECOHAB_3, R/V Atlantis, AT11-17, September 8-28, 2004 [Cruise Report](#)

Cruise_4=ECOHAB_4, R/V Atlantis, AT11-30, July 7-27,2005 [Cruise Report](#)

Cruise_5=ECOHAB_5, R/V Melville, TUIM14MV, September 2-22, 2005 [Cruise Report](#)

Cruise_6=ECOHAB_6, R/V Thomas G. Thompson, TN200, Sept. 11- Oct. 4, 2006 [Cruise Report](#)

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0234587
National Oceanic and Atmospheric Administration (NOAA)	NA170P2789

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