Welcome to the

ECOHAB Pacific Northwest mooring data repository

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

The project was funded jointly through the Ecology and Oceanography of Harmful Algal Blooms program by the National Oceanographic and Atmospheric Administration Coastal Ocean Program Award No. NA17OP2789 and the National Science Foundation (NSF) Award OCE 0234587. Mooring recovery and deployment on the Canadian Coast Guard Offshore Research and Survey Vessel John P. Tully was made possible by Canadian support to Rick Thomson at the Institute of Ocean Sciences. Additional funding was provided by NSF (Awards OCE 0434087, OCE 0910624) and the National Institute for Environmental Health Sciences (P50 ES012762) through the Pacific Northwest Center for Human Health and Ocean Studies.

One of the many components of this project was to design and maintain three surface moorings to collect time series data of water properties and currents in the Juan de Fuca eddy region.

Time series data for 2003, 2004, 2005 and 2006 from the moorings is available in the tables below. In 2003 there were 3 surface moorings, E1, E2, E3 and 1 subsurface mooring near the E2 site. The subsurface mooring had one sensor, an aquamonitor on it which failed to collect any useful data. In 2004, the subsurface mooring at E2 was not deployed. In 2005 and 2006 a shallow subsurface mooring, E4, was deployed inshore of E2. In 2007 and 2008 the E4 subsurface mooring was the only mooring deployed. The data for those years is at the end of the page.

Velocity data

Each surface mooring had a downward looking Teledyne RD Instruments 300 kHz Workhorse Sentinel ADCP. The velocity from the subsurface mooring at E4 was recorded by an upward looking Teledyne RD Instruments 300 kHz Workhorse Sentinel ADCP. Velocity profile data from these instruments is presented in a matrix format. The first row contains column headers, scan counter, date and time, temperature at the instrument heads, followed by the velocity component. The last column is filled with zeros.

Units and abbreviations are:
Depth, meters, m,
u component, v component: cm/sec, true North,
Temperature, T, deg C,
Date and time is listed as GDATE to indicate time in GMT, format mm/dd/yy hh:mm.

Temperature and velocity columns have a header indicating the depth rounded to the nearest meter. For example E1u12 indicates the data is from the E1 mooring, u component at 12m.

Note: in 2005 the mooring at E1 was recovered and redeployed leaving a 20 day gap, thus the velocity at E1 is broken into parts a and b. The rest of the years do not have gaps and the full data set will be found in the 200Xa files.

Note: in 2005 the E2 mooring was moved approximately 13 km inshore from a bottom depth of 90m in 2003, 2004 to a bottom depth of approximately 46m. In the table below E2Du, E2Dv designates the deep site, while E2Su, E2Sv designates the shallower sight.

Positions and bottom depths:
2003
E1: 48-29.303N, 124-41.987W, BD 255m
E2: 47-36.020N, 124-46.051W, BD 89m
E2: subsurface: 47-35.826N, 124-45.955W, BD 91m
E3: 48-17.807N, 125-27.530W, BD 127m

2004
E1: 48-29.308N, 124-41.981W, BD 255m
E2: 47-36.022N, 124-46.056W, BD 90.6m
E3: 48-17.819N, 125-27.542W, BD 128m

2005
E1a: 48-29.331N, 124-41.974W, BD 255m
E1b: 48-29.330N, 124-41.938W, BD 255m
E2: 47-35.789N, 124-35.906W, BD 47m
E4: 47-36.041N, 124-32.009W, BD 35m
E3: 48-17.771N, 125-27.280W, BD 127m

2006
E1: 48-29.391N, 124-41.919W, BD 255m
E2: 47-35.861N, 124-35.415W, BD 45m
E4: 47-36.068N, 124-32.107W, BD 34m
E3: 48-17.725N, 125-27.296W, BD 128m

Velocity data	**2003**	**2004**	**2005**	**2006**
E1 Strait				
u component a	E1u	E1u	E1ua	E1u
u component b	—	—	E1ub	—
v component a	E1v	E1v	E1va	E1v
v component b	—	—	E1vb	—
E2 Washington Coast				
u component	E2Du	E2Du	E2Su	E2Su
v component	E2Dv	E2Dv	E2Sv	E2Sv
E4 Washington Coast subsurface				
u component	—	—	E4u	E4u
v component	—	—	E4v	E4v
E3 Eddy				
u component	E3u	E3u	E3u	E3u
v component	E3v	E3v	E3v	E3v

Water Property Data

Each surface mooring had several instruments measuring water properties. In addition, the subsurface mooring at E4 in 2005 and 2006 had one instrument mounted on the release to measure near bottom water properties. Water property data from these instruments is presented in a matrix format similar to the velocity data. The first row contains column headers, scan counter, date and time, followed by the water properties. The last column is filled with zeros.

Instruments used include Sea-Bird Electronics, Inc. models:
SBE 39, T only,
SBE 37 T, C and occasionally P,
SBE 16*plus* T, C. Some had additional sensors: O (SBE 43), P (Strain gauge).

VEMCO instruments used:
8-bit minilog data loggers, T.

Units and abbreviations are:
Depth, meters, m,
Temperature, T, deg C,
Pressure, P or Pr, db (when pressure was not recorded a constant value equal to the depth was used to compute salinity and sigma-t),
Salinity, S, PSU,
Sigma-t, SG, Kg/m3,
Oxygen, O, ml/l,
Date and time is listed as GDATE and is described above under the velocity section.

Water property data are in columns with headers denoting the mooring ID, year, property and depth. For example, E205.T10 indicates E2 mooring, year 2005, temperature at 10m.

In some instances the instruments' batteries ran out before the end of the deployment. In those cases the time series were filled with zeros. In 2005 the data from the E1 mooring were zero filled during the 20 day gap.

2003 Water properties

Positions and bottom depths:
E1: 48-29.303N, 124-41.987W, BD 255m
E2: 47-36.020N, 124-46.051W, BD 89m
E2: subsurface: 47-35.826N, 124-45.955W, BD 91m
E3: 48-17.807N, 125-27.530W, BD 127m

Notes:
E1: SBE39 @ 20m stopped recording, zero filled beginning 06/15/03 16:00
E1: SBE 16*plus* @ 4m stopped recording early
E2 subsurface: no water property or velocity sensors attached

E1 Strait	
data	**SBE 39 T at 1,10,20,40m**
data	**SBE 16*plus* T,S,SG at 4m**
data	**SBE 37 T,S,SG at 15m & SBE 37 T,S,SG at 245m**
E2 Washington Coast	
data	**SBE 39 T at 1,10,20,40m**
data	**SBE 16*plus* T,S,SG at 4m**
data	**SBE 37 T,S,SG at 15m & SBE 37 T,S,SG at 84m**
E3 Eddy	
data	**SBE 39 T at 1,10,20,40m**

data	**SBE 16*plus* T,S,SG at 4m**
data	**SBE 37 P,T,S,SG at 15m & SBE 37 P,T,S,SG at 120m**

2004 Water properties

Positions and bottom depths:
E1: 48-29.308N, 124-41.981W, BD 255m
E2: 47-36.022N, 124-46.056W, BD 90.6m
E3: 48-17.819N, 125-27.542W, BD 128m

Notes:
E1: SBE39 @ 17m stopped recording, zero filled beginning 08/22/04 20:00
E1: SBE39 @ 37m stopped recording early, zero filled beginning 06/12/04 13:00
E2: SBE39 @ 17m stopped recording early, zero filled beginning 06/29/04 14:00

E1 Strait	
data	**SBE 39 T at 1,8,17,37m**
data	**SBE 16*plus* T,S,SG at 4m**
data	**SBE 37 T,S,SG at 13m & SBE 37 P,T,S,SG at 241m**
E2 Washington Coast	
data	**SBE 39 T at 1,8,17,37m**
data	**SBE 16*plus* T,S,SG at 4m**
data	**SBE 37 T,S,SG at 13m & SBE 37 T,S,SG at 78m**
E3 Eddy	
data	**SBE 39 T at 1,11,20,40m**
data	**SBE 16*plus* T,S,SG at 4m**
data	**SBE 37 P,T,S,SG at 16m & SBE 37 T,S,SG at 117m**

2005 Water properties

Positions and bottom depths:
E1a: 48-29.331N, 124-41.974W, BD 255m
E1a: 48-29.330N, 124-41.938W, BD 255m
E2: 47-35.789N, 124-35.906W, BD 47m
E4: 47-36.041N, 124-32.009W, BD 35m
E3: 48-17.771N, 125-27.280W, BD 127m

E1 Strait	
data	**SBE 39 T at 1,9,19,39m & minilog T at 10m**
data	**SBE 16*plus* T,S,SG at 4m**
data	**SBE 37 T,S,SG at 14m & SBE 37 P,T,S,SG at 245m**
E2 Washington Coast	
data	**SBE 39 T at 1,10,20,29m & minilog T at 11,40m**
data	**SBE 16*plus* T,S,SG at 4m**

data	**SBE 37 T,S,SG at 15m & SBE 37 T,S,SG at 39m**
E4 Washington Coast subsurface	
data	**SBE 16*plus* P,T,S,SG,O at 32m**
E3 Eddy	
data	**SBE 39 T at 1,10,20,40m & minilog T at 11m**
data	**SBE 16*plus* T,S,SG at 4m**
data	**SBE 37 T,S,SG at 15m & SBE 37 T,S,SG at 120m**

2006 Water properties

Positions and bottom depths:
E1: 48-29.391N, 124-41.919W, BD 255m
E2: 47-35.861N, 124-35.415W, BD 45m
E4: 47-36.068N, 124-32.107W, BD 34m
E3: 48-17.725N, 125-27.296W, BD 128m

E1 Strait	
data	**SBE 39 T at 1,10,20,40m & minilog T at 11m**
data	**SBE 16*plus* T,S,SG at 4m**
data	**SBE 37 T,S,SG at 15m & SBE 37 P,T,S,SG at 246m**
E2 Washington Coast	
data	**SBE 39 T at 1,10,20,29m & minilog T at 11,40m**
data	**SBE 16*plus* T,S,SG at 4m**
data	**SBE 37 T,S,SG at 15m & SBE 37 T,S,SG at 39m**
E4 Washington Coast subsurface	
data	**SBE 16*plus* P,T,S,SG,O at 32m**
E3 Eddy	
data	**SBE 39 T at 1,10,21,41m & minilog T at 11,121m**
data	**SBE 16*plus* T,S,SG at 4m**
data	**SBE 37 P,T,S,SG at 16m & SBE 37 P,T,S,SG at 120m**

2007, 2008 E4 subsurface mooring data

Positions and bottom depths:
E4 2007: 47-36.105N, 124-32.215W, BD 34m
E4 2008: 47-36.09 N, 124-31.94 W, BD 33m

May 30, 2017- Please note the 2008 E4 position was previously incorrectly listed as 47-36.09 N, 124-32.94 W. The correct position is listed above.

E4 Washington Coast subsurface	
Water property data 2007	**SBE 16*plus* P,T,S,SG,O at 32m**
Velocity data 2007	**u component**
Velocity data 2007	**v component**
Water property data 2008	**SBE 16*plus* P,T,S,SG,O at 31m**

Velocity data 2008	**u component**
Velocity data 2008	**v component**

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