Rosette Bottle Data (nutrients and chlorophyll) from R/V Alpha Helix cruises HX242, HX244, HX247, HX271, and HX275 to the Coastal Gulf of Alaska from 2001-2003 as part of the U.S. GLOBEC program (NEP project)

Website: https://www.bco-dmo.org/dataset/2474
Data Type: Cruise Results
Version: 1
Version Date: 2007-03-28

Project
» U.S. GLOBEC Northeast Pacific (NEP)

Program
» U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)

Contributors	Affiliation	Role
Strom, Suzanne	Western Washington University (WWU)	Principal Investigator
Allison, Dicky	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Abstract
Rosette Bottle Data (nutrients and chlorophyll) from R/V Alpha Helix cruises HX242, HX244, HX247, HX271, and HX275 to the Coastal Gulf of Alaska from 2001-2003 as part of the U.S. GLOBEC program.

Table of Contents

Coverage

Spatial Extent: **N**:60.595 **E**:-146.6074 **S**:58.097 **W**:-150.419
Temporal Extent: 2001-04 - 2003-08

Dataset Description

Bottle Data (nutrients, salinities, pigments) from rosette casts from CGOA process cruises.

Rosette Bottle Data from Alpha Helix Cruises

Summary prepared by Erin Macri [WWU]; Prepared for serving: H. Batchelder, 2 Sept 2004
Re-served for text or mapserver access Jan 2007, GLOBEC DMO

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Methods & Sampling

Water column chlorophyll samples were size-fractionated using a 'fractionation cascade' . Water passed through a sequential arrangement of three filters: 20 um pore-size polycarbonate (47 mm), 5 um pore-size polycarbonate (47 mm) and 0.7 um effective pore-size glass fiber (25 mm). Preliminary tests showed that 47-mm glass fiber filters had a reduced chlorophyll extraction efficiency compared with filters 25 mm in diameter. Filters were immediately placed in 90% acetone, extracted 24 hr (-20degC, darkness), and analyzed for chlorophyll and phaeopigments a on a Turner TD700 (April, May) or Turner 112 (July) fluorometer. Total chlorophyll concentrations were estimated from the sum of the three size fractions.

Data Processing Description

1. Physical data processed by Tom Weingartner (UAF)
2. Chlorophylls provided by Suzanne Strom (WWU)
3. Nutrient analysis provided by Calvin Mordy (NOAA/PMEL)
4. Dates and times are in Local; Local is +8 hours from GMT e.g., 1100 GMT ==> 0300 Local

[table of contents | back to top]

Data Files

File
bottle_proc.csv (Comma Separated Values (.csv), 231.32 KB) MD5:3aeb30a5f129d6bfea4a72415d0a6ba3 Primary data file for dataset ID 2474

[table of contents | back to top]

Parameters

Parameter	Description	Units
cruiseid	Short-hand name of the cruise.	text
year	4-digit year in YYYY format.	unitless
cast	CTD Cast Number.	dimensionless
station_std	Standard Station Name.	dimensionless
station	Alternate Station Name, used on cruise.	dimensionless

lat	latitude, N is positive	decimal degrees
lon	longitude, W is negative	decimal degrees
date_local	Month/Day/Year.	mm/dd/yy
time_local	Local time, 24-hour clock.	HHMM
yrday_local	Julian day	Jan. 1 = 1, decimal day, for plotting
event	Event number used on cruise.	eg. ev#001 = 1
depth	target depth for bottle to trip	meters
depth_real	actual depth bottle tripped	meters
chla_gt_20um	chlorophyll *a* concentration in water that passed through 20 micron filter	micrograms/liter
chla_5_to_20	chlorophyll *a* concentration in water that passed through 20 micron filter and caught on 5 micron filter	micrograms/liter
chla_lt_5	chlorophyll *a* concentration in water that passed through 5 micron filter	micrograms/liter
chla_total	total chlorophyll *a* concentration	micrograms/liter
PO4	phosphate concentration	micromoles/L
Si	silicate concentration	micromoles/L
NO3	nitrate (after subtracting NO2 from total nitrate)	micromoles/L
NO2	nitrite concentration	micromoles/L
temp	temperature	degrees C
sal	salinity	psu (unitless)

sigma_t	sigma-t density	kg/m³
flvolt	fluorometer reading	volts
par_v	photosynthetically available radiation	volts
month_local	Month, local time.	mm (01 to 12)
day_local	Day of month, local time.	dd (01 to 31)

[table of contents | back to top]

Instruments

Dataset-specific Instrument Name	Niskin Bottle
Generic Instrument Name	Niskin bottle
Dataset-specific Description	Niskin bottle cast, use Bottle_Niskin
Generic Instrument Description	A Niskin bottle (a next generation water sampler based on the Nansen bottle) is a cylindrical, non-metallic water collection device with stoppers at both ends. The bottles can be attached individually on a hydrowire or deployed in 12, 24, or 36 bottle Rosette systems mounted on a frame and combined with a CTD. Niskin bottles are used to collect discrete water samples for a range of measurements including pigments, nutrients, plankton, etc.

[table of contents | back to top]

Deployments

HX242

Website	https://www.bco-dmo.org/deployment/57523
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx242cr.pdf
Start Date	2001-04-17
End Date	2001-05-01
Description	Original cruise data are available from the NSF R2R data catalog **Methods & Sampling** Water column chlorophyll samples were size-fractionated using a 'fractionation cascade' . Water passed through a sequential arrangement of three filters: 20 um pore-size polycarbonate (47 mm), 5 um pore-size polycarbonate (47 mm) and 0.7 um effective pore-size glass fiber (25 mm). Preliminary tests showed that 47-mm glass fiber filters had a reduced chlorophyll extraction efficiency compared with filters 25 mm in diameter. Filters were immediately placed in 90% acetone, extracted 24 hr (-20degC, darkness), and analyzed for chlorophyll and phaeopigments a on a Turner TD700 (April, May) or Turner 112 (July) fluorometer. Total chlorophyll concentrations were estimated from the sum of the three size fractions.

HX244

Website	https://www.bco-dmo.org/deployment/57525
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx244cr.pdf
Start Date	2001-05-17
End Date	2001-05-31
Description	Original cruise data are available from the NSF R2R data catalog **Methods & Sampling** Water column chlorophyll samples were size-fractionated using a 'fractionation cascade' . Water passed through a sequential arrangement of three filters: 20 um pore-size polycarbonate (47 mm), 5 um pore-size polycarbonate (47 mm) and 0.7 um effective pore-size glass fiber (25 mm). Preliminary tests showed that 47-mm glass fiber filters had a reduced chlorophyll extraction efficiency compared with filters 25 mm in diameter. Filters were immediately placed in 90% acetone, extracted 24 hr (-20degC, darkness), and analyzed for chlorophyll and phaeopigments a on a Turner TD700 (April, May) or Turner 112 (July) fluorometer. Total chlorophyll concentrations were estimated from the sum of the three size fractions.

HX247

Website	https://www.bco-dmo.org/deployment/57527
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx247cr.pdf
Start Date	2001-07-12
End Date	2001-07-26
Description	Original cruise data are available from the NSF R2R data catalog **Methods & Sampling** Water column chlorophyll samples were size-fractionated using a 'fractionation cascade' . Water passed through a sequential arrangement of three filters: 20 um pore-size polycarbonate (47 mm), 5 um pore-size polycarbonate (47 mm) and 0.7 um effective pore-size glass fiber (25 mm). Preliminary tests showed that 47-mm glass fiber filters had a reduced chlorophyll extraction efficiency compared with filters 25 mm in diameter. Filters were immediately placed in 90% acetone, extracted 24 hr (-20degC, darkness), and analyzed for chlorophyll and phaeopigments a on a Turner TD700 (April, May) or Turner 112 (July) fluorometer. Total chlorophyll concentrations were estimated from the sum of the three size fractions.

HX271

Website	https://www.bco-dmo.org/deployment/57540
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx271cr.pdf
Start Date	2003-04-24
End Date	2003-05-15
Description	Original cruise data are available from the NSF R2R data catalog **Methods & Sampling** Water column chlorophyll samples were size-fractionated using a 'fractionation cascade' . Water passed through a sequential arrangement of three filters: 20 um pore-size polycarbonate (47 mm), 5 um pore-size polycarbonate (47 mm) and 0.7 um effective pore-size glass fiber (25 mm). Preliminary tests showed that 47-mm glass fiber filters had a reduced chlorophyll extraction efficiency compared with filters 25 mm in diameter. Filters were immediately placed in 90% acetone, extracted 24 hr (-20degC, darkness), and analyzed for chlorophyll and phaeopigments a on a Turner TD700 (April, May) or Turner 112 (July) fluorometer. Total chlorophyll concentrations were estimated from the sum of the three size fractions.

HX275

Website	https://www.bco-dmo.org/deployment/57542
Platform	R/V Alpha Helix
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/hx275cr.pdf
Start Date	2003-07-20
End Date	2003-08-12
Description	Original cruise data are available from the NSF R2R data catalog **Methods & Sampling** Water column chlorophyll samples were size-fractionated using a 'fractionation cascade' . **Processing Description** Water passed through a sequential arrangement of three filters: 20 um pore-size polycarbonate (47 mm), 5 um pore-size polycarbonate (47 mm) and 0.7 um effective pore-size glass fiber (25 mm). Preliminary tests showed that 47-mm glass fiber filters had a reduced chlorophyll extraction efficiency compared with filters 25 mm in diameter. Filters were immediately placed in 90% acetone, extracted 24 hr (-20degC, darkness), and analyzed for chlorophyll and phaeopigments a on a Turner TD700 (April, May) or Turner 112 (July) fluorometer. Total chlorophyll concentrations were estimated from the sum of the three size fractions. Summary prepared by Erin Macri [WWU] Prepared for serving: H. Batchelder, 2 Sept 2004 Re-served for text or mapserver access Jan 2007, GLOBEC DMO 1. Physical data processed by Tom Weingartner (UAF) 2. Chlorophylls provided by Suzanne Strom (WWU) 3. Nutrient analysis provided by Calvin Mordy (NOAA/PMEL)) 4. Dates and times are in Local; Local is +8 hours from GMT e.g., 1100 GMT ==> 0300 Local

[table of contents | back to top]

Project Information

U.S. GLOBEC Northeast Pacific (NEP)

Website: http://nepglobec.bco-dmo.org

Coverage: Northeast Pacific Ocean, Gulf of Alaska

Program in a Nutshell

Goal: To understand the effects of climate variability and climate change on the distribution, abundance and production of marine animals (including commercially important living marine resources) in the eastern North Pacific. To embody this understanding in diagnostic and prognostic ecosystem models, capable of capturing the ecosystem response to major climatic fluctuations.

Approach: To study the effects of past and present climate variability on the population ecology and population dynamics of marine biota and living marine resources, and to use this information as a proxy for how the ecosystems of the eastern North Pacific may respond to future global climate change. The strong temporal variability in the physical and biological signals of the NEP will be used to examine the biophysical mechanisms through which zooplankton and salmon populations respond to physical forcing and biological interactions in the coastal regions of the two gyres. Annual and interannual variability will be studied directly through **long-term observations** and detailed **process studies**; variability at longer time scales will be examined through **retrospective analysis** of directly measured and proxy data. Coupled **biophysical models** of the ecosystems of these regions will be developed and tested using the process studies and data collected from the long-term observation programs, then further tested and improved by hindcasting selected retrospective data series.

[table of contents | back to top]

Program Information

U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)

Website: http://www.usglobec.org/

Coverage: Global

U.S. GLOBEC (GLOBal ocean ECosystems dynamics) is a research program organized by oceanographers and fisheries scientists to address the question of how global climate change may affect the abundance and production of animals in the sea.

The U.S. GLOBEC Program currently had major research efforts underway in the Georges Bank / Northwest Atlantic Region, and the Northeast Pacific (with components in the California Current and in the Coastal Gulf of Alaska). U.S. GLOBEC was a major contributor to International GLOBEC efforts in the Southern Ocean and Western Antarctic Peninsula (WAP).

[table of contents | back to top]

Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0109078
National Oceanic and Atmospheric Administration (NOAA)	unknown NEP NOAA

[table of contents | back to top]