WP2 net meta data from F/V Great Pacific GP0108, GP0207-01, GP0207-02 in the Coastal Gulf of Alaska, Northeast Pacific from 2001-2002 (NEP project)

Website: https://www.bco-dmo.org/dataset/3011
Data Type: Cruise Results
Version: 1
Version Date: 2009-02-20

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

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

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Abstract
WP2 net meta data from F/V Great Pacific GP0108, GP0207-01, GP0207-02 in the Coastal Gulf of Alaska, Northeast Pacific from 2001-2002.

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Coverage

Spatial Extent: **N**:59.8583 **E**:-139.9382 **S**:55.6888 **W**:-155.2753
Temporal Extent: 2001-07-29 - 2002-08-05

Dataset Description

Gulf of Alaska - LTOP
WP2 net - meta data, 2001-2002

PI: all tows are vertical hauls, 253-micron mesh.

GLOBEC 2000: Gulf of Alaska Long-Term Observation Program
T. Weingartner, L. Haldorson, R. Hopcroft, K. Coyle, T. E. Whitledge (all at University of Alaska, Fairbanks), T. Royer (Old Dominion University)

This project is to conduct the Gulf of Alaska Long-Term Observation Program (GOA-LTOP) as part of Phase II of the Northeast Pacific (NEP) GLOBEC program. The GOA shelf supports a rich ecosystem that includes many commercially important fisheries. The basis for this productivity is enigmatic for the GOA shelf is deep, forced by downwelling-favorable winds, and fed by a massive nutrient-poor coastal freshwater discharge. Both the

winds and the freshwater discharge are intimately linked to the strength and position of the Aleutian Low. The GOA ecosystem experiences substantial physical and biological changes on decadal and interannual time scales. Although some of these changes are correlated with various climatic indices a mechanistic understanding of climate change and ecosystem response is unavailable. The generic goal of this LTOP is to understand and quantify temporal (seasonal and interannual) and spatial (cross- and along-shelf) variations in the thermohaline, chemical, and biological properties and relationships of this shelf. Our proposal supports GLOBEC goals that will help: 1) retrospective studies interpret historical data, 2) design a cost-effective long-term monitoring program, 3) provide the seasonal and interannual context for concurrent mesoscale and process studies, and 4) provide boundary conditions and data sets for model evaluation. This 5-year project entails 4 field years and a fifth year for data analyses and synthesis. The field effort involves seven, 9-day interdisciplinary cruises/year in the northern GOA. The study area encompasses the 220-km long, Seward Line (sampled in the 1970s) that extends across the shelf and slope and high resolution sampling of the Alaska Coastal Current (ACC), upstream, downstream, and within Prince William Sound. The ACC is an important shelf habitat for yoy salmon migrating from nursery areas in the sound and into the GOA. The sampling effort (Table A) is year-round and motivated by seasonally significant physical and biological events affecting yoy pink salmon.

Table A. Sampling schedule and rationale for GOA-LTOP. (Key for Winds, Discharge and Stratification: S=strong; M=moderate; W=weak; D=downwelling winds; U=upwelling winds; V=variable; L=low; H=high) Deep water moves onshore during the July-August upwelling period.

Month	Sampling				Physical Rationale			Biological Rationale
	CTD	Nutrients	Zoo	Fish	Winds	Disch	Strat	
March	X	X	X		D S	L	W	Zooplankton migrate from depth (at shelfbreak); transported inshore.
April	X	X	X		D M	L-M	W V	Phytoplankton bloom
May	X	X	X		D M-W	M	M V	Maximum oceanic copepod biomass.
July	X	X	X	X	D/U W	M-H	S	Maximum zooplankton abundance; YOY salmon enter shelf.
August	X	X	X	X	D/U W	M-H	S	Maximum YOY salmon abundance on shelf.
October	X	X	X	X	D S	H	H	YOY salmon on shelf.
December	X	X	X		D S	M	M	Fall-winter pre-conditioning for spring nutrients, small zooplankton.

The sampling protocol follows GLOBEC guidelines and uses gear types and techniques similar to those in the Oregon LTOP that is also a part of the NEP-GLOBEC program. Most of the research will be conducted from the R/V *Alpha Helix*. Fish sampling will be done from a chartered trawler in July, August, and October. Both vessels will work together during these cruises so that the fishing charter can verify fish targets detected on the acoustics array towed from the *Alpha Helix*.

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Methods & Sampling

The OCC/GLOBEC survey occurred along the coastal waters of the Gulf of Alaska and in Shelikof Strait, AK during 2001-2004. Transects sampled during the survey were perpendicular to shore and extended from nearshore across the continental shelf to oceanic waters beyond the 200-m shelf break. The survey was conducted aboard the contract fishing vessel F/V *Great Pacific* during 2001-2002 and 2004, and aboard NOAA Ship *Miller Freeman* during 2003.

Fish samples were collected in a 198-m long mid-water rope trawl with hexagonal mesh wings and body, and a 1.2-cm mesh liner in the codend. The rope trawl was towed at 6.5 to 9.3 km • hour-1, at or near surface, and had a typical spread of 40-m horizontally and 15-m vertically. All tows lasted 30 minutes and covered 2.8 to 4.6 km, and sampling was done during daylight hours; however, tows occurred during night as part of a 24-hour repeat sampling of a single station for one day during 2001 and 2003.

Once the net was hauled aboard, salmon and other fishes were sorted by species and counted. Standard biological measurements including fork length, body weight, and sex were taken from sub-samples of all salmon species. Sub-samples of juvenile pink (*Oncorhynchus gorbuscha*), chum (*O. keta*), and sockeye (*O. nerka*) salmon were frozen whole for laboratory analyses of food habits, otolith hatchery thermal marks (pink and chum salmon), and genetic analysis (chum salmon).

Plankton samples were collected using a 1-m2 Tucker trawl fitted with a 505-um mesh net that was towed near surface (approximately 1 knot) for 5 minutes (2001-2003 surveys). During 2004, plankton samples were collected using a WP-2 net fitted with a 253-um mesh net that was deployed vertically to a depth of 100-m depth. The volume of water filtered by the net was estimated using flow meters. Plankton samples were transferred into vials, preserved in 5% formalin onboard the ship, and stored until a laboratory analysis was completed.

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Data Files

File
WP2_meta.csv (Comma Separated Values (.csv), 3.53 KB) MD5:e6269ade4d20adf8d88f4f44be79d3fa Primary data file for dataset ID 3011

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Parameters

Parameter	Description	Units
haul_id	Tow number/identification.	dimensionless
station	Station code.	dimensionless
yrday_local	Local day and decimal time, as 326.5 for the 326th day of the year, or November 22 at 1200 hours (noon).	dimensionless
year	Year, e.g. 2001. in the format YYYY	unitless
month_local	Month of year, local time. in the format mm	unitless
day_local	Day of month, local time. in the format dd	unitless
time_local_start	starting time of observation, local time , 24 hour clock	
lat_start	latitude at starting time of measurement (west is negative)	decimal degrees
lon_start	longitude at starting time of measurement (west is negative)	decimal degrees
distance_start	{check on this}	
depth_start	{check on this}	meters
depth_tow	maximum depth of tow	meters
comments	free text comments	
cruiseid	Cruise identifier	unitless

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Instruments

Dataset-specific Instrument Name	WP-2 Plankton Net
Generic Instrument Name	WP-2 Plankton Net
Dataset-specific Description	WP-2 net: vertical net tow to 100-m; 0.57-m diameter ring; 0.253-mm mesh; samples frozen for C and N isotope analysis.
Generic Instrument Description	The WP-2 net is a variety of Ring Net for zooplankton but which is capable of being closed by means of a Nansen bottle-type release messenger weighing 0.8 kg and which can be equipped with a digital flow meter for determining the amount of water passing through the plankton net. The rings may have a variety of sizes (57cm, 70cm, 75 cm, or 1m internal diameter) and the nets which make up this device are in two parts, a cylindrical upper part and a conical lower part. The closing ring is between the two net segments. (more at KC Denmark)

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Deployments

GP0108

Website	https://www.bco-dmo.org/deployment/57499
Platform	F/V Great Pacific
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/gp0108cr.pdf
Start Date	2001-07-17
End Date	2001-08-06
Description	The July - August 2001 OCC/GLOBEC cruise focused on salmon (Oncorhynchus spp.), and zooplankton distribution, and physical properties (current, temperature, and salinity) along 11 transects beginning at Icy Point near northern Southeast Alaska and ending at Cape Kaguyak at the western end of Kodiak Island. Sampling along each transect occurred over the continental shelf of the Gulf of Alaska and beyond the 200-m slope and into oceanic depths. The purpose was to investigate the relationships between biological and physical oceanographic processes that affect the distribution of juvenile salmon in the coastal Gulf of Alaska. This deployment was also known as GP0101.

GP0207-01

Website	https://www.bco-dmo.org/deployment/57500
Platform	F/V Great Pacific
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/gp0207cr.pdf
Start Date	2002-07-11
End Date	2002-07-27
Description	NEP GLOBEC gave this cruise the designation GP0207 and NOAA gave this cruise the designation GP0201. The data say 0201. The cruise report, inventory and eventlog say GP0207. 18 May 2011, dld - This cruise consisted of Leg 1 and Leg 2. Metadata is edited to reflect this information gleaned from the event log and the cruise report. The cruise report starts with a transit, not the science. Leg 1 includes the 11-16 July 2002 transit from Dutch Harbor to Yakutat where science personnel and gear were picked up. The Leg ends on 27 July in Seward. Chief Scientist was Edward D. Cokelet. Leg 2 departed Seward on 28 July and arrived in Dutch Harbor on 8 August with Christine Kondzela as Chief Scientist.

GP0207-02

Website	https://www.bco-dmo.org/deployment/58669
Platform	F/V Great Pacific
Report	http://globec.whoi.edu/nep/reports/cgoa_cruises/gp0207cr.pdf
Start Date	2002-07-28
End Date	2002-08-08
Description	NEP GLOBEC gave this cruise the designation GP0207 and NOAA gave this cruise the designation GP0201. The data say 0201. The cruise report, inventory and eventlog say GP0207. 18 May 2011, dld - This cruise consisted of Leg 1 and Leg 2. Metadata is edited to reflect this information gleaned from the event log and the cruise report. The cruise report starts with a transit, not the science. Leg 1 includes the 11-16 July 2002 transit from Dutch Harbor to Yakutat where science personnel and gear were picked up. The Leg ends on 27 July in Seward. Chief Scientist was Edward D. Cokelet. Leg 2 departed Seward on 28 July and arrived in Dutch Harbor on 8 August with Christine Kondzela as Chief Scientist.

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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.

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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).

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Funding

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

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