

Trawl catches, abundance, and biomass from F/V Sea Eagle and F/V Frosti cruises in the Northeast Pacific from 2000-2002 as part of the U.S. GLOBEC program (NEP project)

Website: <https://www.bco-dmo.org/dataset/2465>

Data Type: Cruise Results

Version: 1

Version Date: 2012-06-19

Project

» [U.S. GLOBEC Northeast Pacific](#) (NEP)

Program

» [U.S. GLOBal ocean ECosystems dynamics](#) (U.S. GLOBEC)

Contributors	Affiliation	Role
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Abstract

Trawl catches, abundance, and biomass from F/V Sea Eagle and F/V Frosti cruises in the Northeast Pacific from 2000-2002 as part of the U.S. GLOBEC program

Table of Contents

- [Coverage](#)
- [Dataset Description](#)
 - [Acquisition Description](#)
 - [Processing Description](#)
- [Related Publications](#)

- [Parameters](#)
 - [Instruments](#)
 - [Deployments](#)
 - [Project Information](#)
 - [Program Information](#)
 - [Funding](#)
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Coverage

Spatial Extent: N:44.692 E:-124.1281 S:41.8189 W:-126.007

Temporal Extent: 2000-05-29 - 2002-08-17

Dataset Description

U.S. GLOBEC Northeast Pacific California Current System Mesoscale Process Studies Trawl Catch Data

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During juvenile salmonid trawling cruises, additional sampling included CTD profiles, neuston net tows, and Niskin bottle water collections for chlorophyll a. At most stations, data on all parameters were collected.

Results: Detailed analyses of the nekton trawl catches for 2000 are presented in Brodeur et al. (2004) and for jellyfish for both years in Suchman and Brodeur (2005).

References

Brodeur *et al.*, 2004.

Suchman *et al.*, 2005.

Last modified: March 22, 2005

Acquisition Description

Methods

At each station, a Nordic 264 rope trawl built by Nor'Eastern Trawl Systems, Inc. was towed in surface waters by a chartered fishing vessel (F/V *Sea Eagle* in 2000 and F/V *Frosti* in 2002). It was towed with about 300 m of warp for 30 min at 1.5 m/sec with a pair of 3.0-m foam-filled trawl doors and 90.7-kg weight chains to spread the mouth open. Except for two mid-water trawling events, six A-4 Polyform floats were clipped to wingtips and the headrope to fish the trawl at the surface. The trawl has a maximum mouth opening of approximately 30-m wide x 18-m high. Mesh sizes ranged from 162.6 cm in the throat of the trawl near the jib lines to 8.9 cm in the codend. To maintain catches of small fish and squid, a 6.1-m long, 0.8-cm knotless liner was sewn into the codend. All but several tows were 30 min in duration. The majority of trawls were done during daytime, although a few were done at dawn and dusk and two diel series were completed in 2002.

All juvenile salmon caught were immediately frozen for laboratory analysis. All fish, squid, and large jellyfish caught were counted and up to 50 of them measured at sea. However, when very large catches of a species occurred, a subsample was measured, counted, and weighed; remaining individuals were mass weighed and total count estimated from known number/kg. When the trawl was full, weight of the total catch was estimated and species counts derived from a subsample as just described. Catches were standardized to number per 10^6 m³.

In the laboratory, all frozen juvenile salmonids were weighed prior to dissections for subsamples of growth, condition, pathology, genetic analysis, and food habits. As large subadult/adult salmonids were released shortly after being captured, their weights were estimated from length-weight regressions. Also, common species of non-salmonid fish and squids not weighed at sea had their weights computed from length-weight regressions where their lengths were available. For those individuals without length data, station or cruise-wide average of number/kg was used to estimate weights.

Related Publications

Brodeur, R. D., Fisher, J. P., Teel, D. J., Emmett, R. L., Casillas, E., & Miller, T. W. (2004). Juvenile salmonid distribution, growth, condition, origin, and environmental and species associations in the Northern California Current. *Fishery Bulletin*, 102(1), 24-46.

Suchman, C. L., & Brodeur, R. D. (2005). Abundance and distribution of large medusae in surface waters of the northern California Current. *Deep Sea Research Part II: Topical Studies in Oceanography*, 52(1-2), 51–72. doi:[10.1016/j.dsr2.2004.09.017](https://doi.org/10.1016/j.dsr2.2004.09.017)

[[table of contents](#) | [back to top](#)]

Parameters

Parameter	Description	Units
year	Year.	unitless
cruise_id	Cruise ID.	unitless
cast	Cast number within cruise.	unitless
station_std	Standard station name.	unitless
lat_begin	starting latitude (decimal degrees)	decimal degrees
lon_begin	starting longitude (decimal degrees)	decimal degrees
lat_end	ending latitude (decimal degrees)	decimal degrees
lon_end	ending longitude (decimal degrees)	decimal degrees
depth_w	Bottom depth of station at start of trawl event.	meters
month_local	Local month (01 to 12).	unitless
day_local	Day of month (local time, 0 to 31).	unitless
time_local_begin	Starting local time (24-hr).	unitless
time_local_end	Ending local time (24-hr).	unitless
inst	Sampling instrument.	unitless

gear_area_m2	mouth area of gear (m2).	m2
min_sample_depth	Minimum sampling depth.	meters
max_sample_depth	Maximum sampling depth.	meters
dist_towed	distance towed (km)	km
vol_net_km3	volume of water filtered by trawl (km3)	km3
genus_species	Taxonomic category.	unitless
life_stage	Life stage based on length.	unitless
num_caught	Number of individuals caught by species; zeros indicate presence.	unitless
abund_10sup6m3	Abundance	number/10 ⁶ m ³
comments	comment for species record	unitless
weight_caught	Weight of catch by species (kg).	kilograms
ship	Name of vessel.	unitless

[[table of contents](#) | [back to top](#)]

Instruments

Dataset-specific Instrument Name	Nordic 264 Rope Trawl
Generic Instrument Name	Nordic 264 Rope Trawl
Dataset-specific Description	At each station, a Nordic 264 rope trawl built by Nor'Eastern Trawl Systems, Inc. was towed in surface waters by a chartered fishing vessel (F/V Sea Eagle in 2000 and F/V Frosti in 2002). It was towed with about 300 m of warp for 30 min at 1.5 m/sec with a pair of 3.0-m foam-filled trawl doors and 90.7-kg weight chains to spread the mouth open.
Generic Instrument Description	A Nordic 264 surface rope trawl is a 198-m long, 25-m wide, 35-m vertical trawl net, equipped with a 1.2-cm mesh liner in the cod end and towed at the surface.

[[table of contents](#) | [back to top](#)]

Deployments

SE0005

Website	https://www.bco-dmo.org/deployment/57576
Platform	F/V Sea Eagle
Report	http://globec.who.edu/nep/reports/ccs_cruises/se0005cr.pdf
Start Date	2000-05-29
End Date	2000-06-11
Description	<p>Acquisition Description</p> <p>At each station, a Nordic 264 rope trawl built by Nor'Eastern Trawl Systems, Inc. was towed in surface waters by a chartered fishing vessel (F/V Sea Eagle in 2000 and F/V Frosti in 2002). It was towed with about 300 m of warp for 30 min at 1.5 m/sec with a pair of 3.0-m foam-filled trawl doors and 90.7-kg weight chains to spread the mouth open. Except for two mid-water trawling events, six A-4 Polyform floats were clipped to wingtips and the headrope to fish the trawl at the surface. The trawl has a maximum mouth opening of approximately 30-m wide x 18-m high. Mesh sizes ranged from 162.6 cm in the throat of the trawl near the jib lines to 8.9 cm in the codend. To maintain catches of small fish and squid, a 6.1-m long, 0.8-cm knotless liner was sewn into the codend. All but several tows were 30 min in duration. The majority of trawls were done during daytime, although a few were done at dawn and dusk and two diel series were completed in 2002. All juvenile salmon caught were immediately frozen for laboratory analysis. All fish, squid, and large jellyfish caught were counted and up to 50 of them measured at sea. However, when very large catches of a species occurred, a subsample was measured, counted, and weighed</p> <p>Processing Description</p> <p>remaining individuals were mass weighed and total count estimated from known number/kg. When the trawl was full, weight of the total catch was estimated and species counts derived from a subsample as just described. Catches were standardized to number per 106 m3.</p>

SE0007

Website	https://www.bco-dmo.org/deployment/57577
Platform	F/V Sea Eagle
Report	http://globec.who.edu/nep/reports/ccs_cruises/se0007cr.pdf
Start Date	2000-07-28
End Date	2000-08-12
Description	<p>Acquisition Description</p> <p>At each station, a Nordic 264 rope trawl built by Nor'Eastern Trawl Systems, Inc. was towed in surface waters by a chartered fishing vessel (F/V Sea Eagle in 2000 and F/V Frosti in 2002). It was towed with about 300 m of warp for 30 min at 1.5 m/sec with a pair of 3.0-m foam-filled trawl doors and 90.7-kg weight chains to spread the mouth open. Except for two mid-water trawling events, six A-4 Polyform floats were clipped to wingtips and the headrope to fish the trawl at the surface. The trawl has a maximum mouth opening of approximately 30-m wide x 18-m high. Mesh sizes ranged from 162.6 cm in the throat of the trawl near the jib lines to 8.9 cm in the codend. To maintain catches of small fish and squid, a 6.1-m long, 0.8-cm knotless liner was sewn into the codend. All but several tows were 30 min in duration. The majority of trawls were done during daytime, although a few were done at dawn and dusk and two diel series were completed in 2002. All juvenile salmon caught were immediately frozen for laboratory analysis. All fish, squid, and large jellyfish caught were counted and up to 50 of them measured at sea. However, when very large catches of a species occurred, a subsample was measured, counted, and weighed</p> <p>Processing Description</p> <p>remaining individuals were mass weighed and total count estimated from known number/kg. When the trawl was full, weight of the total catch was estimated and species counts derived from a subsample as just described. Catches were standardized to number per 106 m3.</p>

FR0206-01

Website	https://www.bco-dmo.org/deployment/57497
Platform	F/V Frosti
Report	http://globec.who.edu/nep/reports/ccs_cruises/fr0206/fr0206cr.pdf
Start Date	2002-05-31

End Date	2002-06-08
Description	<p>Event logs provide an overall summary of the sampling activities during a cruise. A hard copy of the event log is also included in the cruise report. Further documentation about event logs is available in Chief Scientist Data Reporting Requirements. For further information contact the Data Management Office Last updated November 03, 2006; gfh 20 May 2011, dld - This cruise consisted of Leg 1 and Leg 2. Metadata is edited to reflect this information which was gleaned from the event log and the cruise report. Leg 1 departed Astoria, OR late on 31 May and ended with a brief port stop in Newport, OR to exchange some science personnel and take on supplies on 8 June. The Chief Scientist was Robert Emmett. Leg 2 began late in the afternoon of 8 June departing from Newport, OR and ended 18 June in Newport, OR. The Chief Scientist was Richard Brodeur.</p> <p>Acquisition Description</p> <p>At each station, a Nordic 264 rope trawl built by Nor'Eastern Trawl Systems, Inc. was towed in surface waters by a chartered fishing vessel (F/V Sea Eagle in 2000 and F/V Frosti in 2002). It was towed with about 300 m of warp for 30 min at 1.5 m/sec with a pair of 3.0-m foam-filled trawl doors and 90.7-kg weight chains to spread the mouth open. Except for two mid-water trawling events, six A-4 Polyform floats were clipped to wingtips and the headrope to fish the trawl at the surface. The trawl has a maximum mouth opening of approximately 30-m wide x 18-m high. Mesh sizes ranged from 162.6 cm in the throat of the trawl near the jib lines to 8.9 cm in the codend. To maintain catches of small fish and squid, a 6.1-m long, 0.8-cm knotless liner was sewn into the codend. All but several tows were 30 min in duration. The majority of trawls were done during daytime, although a few were done at dawn and dusk and two diel series were completed in 2002. All juvenile salmon caught were immediately frozen for laboratory analysis. All fish, squid, and large jellyfish caught were counted and up to 50 of them measured at sea. However, when very large catches of a species occurred, a subsample was measured, counted, and weighed</p> <p>Processing Description</p> <p>remaining individuals were mass weighed and total count estimated from known number/kg. When the trawl was full, weight of the total catch was estimated and species counts derived from a subsample as just described. Catches were standardized to number per 106 m³.</p>

Website	https://www.bco-dmo.org/deployment/57498
Platform	F/V Frosti
Report	http://globec.whoi.edu/nep/reports/ccs_cruises/fr0208/fr0208cr.pdf
Start Date	2002-08-01
End Date	2002-08-17
Description	<p>Acquisition Description</p> <p>At each station, a Nordic 264 rope trawl built by Nor'Eastern Trawl Systems, Inc. was towed in surface waters by a chartered fishing vessel (F/V Sea Eagle in 2000 and F/V Frosti in 2002). It was towed with about 300 m of warp for 30 min at 1.5 m/sec with a pair of 3.0-m foam-filled trawl doors and 90.7-kg weight chains to spread the mouth open. Except for two mid-water trawling events, six A-4 Polyform floats were clipped to wingtips and the headrope to fish the trawl at the surface. The trawl has a maximum mouth opening of approximately 30-m wide x 18-m high. Mesh sizes ranged from 162.6 cm in the throat of the trawl near the jib lines to 8.9 cm in the codend. To maintain catches of small fish and squid, a 6.1-m long, 0.8-cm knotless liner was sewn into the codend. All but several tows were 30 min in duration. The majority of trawls were done during daytime, although a few were done at dawn and dusk and two diel series were completed in 2002. All juvenile salmon caught were immediately frozen for laboratory analysis. All fish, squid, and large jellyfish caught were counted and up to 50 of them measured at sea. However, when very large catches of a species occurred, a subsample was measured, counted, and weighed</p> <p>Processing Description</p> <p>remaining individuals were mass weighed and total count estimated from known number/kg. When the trawl was full, weight of the total catch was estimated and species counts derived from a subsample as just described. Catches were standardized to number per 106 m3.</p>

FR0206-02

Website	https://www.bco-dmo.org/deployment/58670
Platform	F/V Frosti
Report	http://globec.whoi.edu/nep/reports/ccs_cruises/fr0206/fr0206cr.pdf
Start Date	2002-06-08

End Date	2002-06-18
Description	<p>Event logs provide an overall summary of the sampling activities during a cruise. A hard copy of the event log is also included in the cruise report. Further documentation about event logs is available in Chief Scientist Data Reporting Requirements. For further information contact the Data Management Office Last updated November 03, 2006; gfh 20 May 2011, dld - This cruise consisted of Leg 1 and Leg 2. Metadata is edited to reflect this information which was gleaned from the event log and the cruise report. Leg 1 departed Astoria, OR late on 31 May and ended with a brief port stop in Newport, OR to exchange some science personnel and take on supplies on 8 June. The Chief Scientist was Robert Emmett. Leg 2 began late in the afternoon of 8 June departing from Newport, OR and ended 18 June in Newport, OR. The Chief Scientist was Richard Brodeur.</p> <p>Acquisition Description</p> <p>At each station, a Nordic 264 rope trawl built by Nor'Eastern Trawl Systems, Inc. was towed in surface waters by a chartered fishing vessel (F/V Sea Eagle in 2000 and F/V Frosti in 2002). It was towed with about 300 m of warp for 30 min at 1.5 m/sec with a pair of 3.0-m foam-filled trawl doors and 90.7-kg weight chains to spread the mouth open. Except for two mid-water trawling events, six A-4 Polyform floats were clipped to wingtips and the headrope to fish the trawl at the surface. The trawl has a maximum mouth opening of approximately 30-m wide x 18-m high. Mesh sizes ranged from 162.6 cm in the throat of the trawl near the jib lines to 8.9 cm in the codend. To maintain catches of small fish and squid, a 6.1-m long, 0.8-cm knotless liner was sewn into the codend. All but several tows were 30 min in duration. The majority of trawls were done during daytime, although a few were done at dawn and dusk and two diel series were completed in 2002. All juvenile salmon caught were immediately frozen for laboratory analysis. All fish, squid, and large jellyfish caught were counted and up to 50 of them measured at sea. However, when very large catches of a species occurred, a subsample was measured, counted, and weighed</p> <p>Processing Description</p> <p>remaining individuals were mass weighed and total count estimated from known number/kg. When the trawl was full, weight of the total catch was estimated and species counts derived from a subsample as just described. Catches were standardized to number per 106 m³.</p>

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.

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-0002855
National Oceanic and Atmospheric Administration (NOAA)	unknown NEP NOAA

[[table of contents](#) | [back to top](#)]