

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 |
|------------------------------------|---|---------------------------|
| Brodeur, Richard D | Northwest Fisheries Science Center - Newport (NOAA NWFSC) | Co-Principal Investigator |
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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

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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

Contacts for this data set are:

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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

Methods & Sampling

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 m^3 .

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.

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Data Files

File**trawl.csv**(Comma Separated Values (.csv), 431.18 KB)

MD5:905af176a9386301e1ecbd7b5efdf600

Primary data file for dataset ID 2465

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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. <http://fishbull.noaa.gov/1021/brodeur.pdf>
Results

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)
Results

[\[table of contents \]](#) | [\[back to top \]](#)**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 (m ²). | m ² |
| 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 (km ³) | km ³ |
| 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 |

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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. |

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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>Methods & Sampling</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.whoi.edu/nep/reports/ccs_cruises/se0007cr.pdf |
| Start Date | 2000-07-28 |
| End Date | 2000-08-12 |
| Description | <p>Methods & Sampling 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 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>Methods & Sampling 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 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> |

FR0208

| | |
|--------------------|---|
| Website | https://www.bco-dmo.org/deployment/57498 |
| Platform | F/V Frosti |
| Report | http://globec.who.edu/nep/reports/ccs_cruises/fr0208/fr0208cr.pdf |
| Start Date | 2002-08-01 |
| End Date | 2002-08-17 |
| Description | <p>Methods & Sampling 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 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>Methods & Sampling 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 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> |

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

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