

Fish abundance data from MOC-10 trawls from the ARSV Laurence M. Gould, RVIB Nathaniel B. Palmer LMG0104, NBP0104, LMG0203, NBP0204 from the Southern Ocean, 2001-2002 (SOGLOBEC project)

Website: <https://www.bco-dmo.org/dataset/2860>

Data Type: Cruise Results

Version: 1

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Project

» [U.S. GLOBEC Southern Ocean](#) (SOGLOBEC)

Program

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

Contributors	Affiliation	Role
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Abstract

Fish abundance data from MOC-10 trawls from the ARSV Laurence M. Gould, RVIB Nathaniel B. Palmer LMG0104, NBP0104, LMG0203, NBP0204 from the Southern Ocean, 2001-2002 (SOGLOBEC project)

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Coverage

Spatial Extent: N:-65.9533 E:-67.0967 S:-69.7993 W:-76.1433

Temporal Extent: 2001-04-30 - 2002-08-07

Dataset Description

Fish abundance data from MOC-10 trawls.

Acquisition Description

Methodology:

Field work was done on four cruises conducted during the austral fall and winter. Cruises 1 (2001) and 3 (2002) were aboard the Antarctic Research Support Vessel (A.R.S.V.) Laurence M. Gould from April to June; cruises 2 (2001) and 4 (2002) were aboard the Research Vessel Ice Breaker (R.V.I.B.) Nathaniel B. Palmer from July to September.

Samples were collected with a 10m² MOCNESS (MOC-10) outfitted with six 3mm mesh nets. The initial net fished obliquely to depth with each subsequent net fishing a discrete depth layer upward to the surface. At stations with depths >1000 m, layers sampled were 0-1000, 1000-500, 500-200, 200-100, 100-50, and 50-0 m. At stations with depths >500 m, layers sampled were 0-500, 500-300, 300-200, 200-100, 100-50, and 50-0 m. At stations with depths <500 m, sample layers were

modified to provide optimal coverage of the water column with the five discrete-depth nets.

A total of 62 MOC-10 trawls were done, 22 each in the fall of 2001 and 2002, and 9 each in the winter of 2001 and 2002 (Table 1). Trawls were conducted at various times throughout the day. In the fall, 37 trawls occurred at night (18:00-06:00 h), 1 in daylight, and 6 at dusk. In the winter, seven trawls occurred at night, seven in daylight, and four at twilight. Towing speed for all tows was 1.5-2.2 knots. Tows in pack ice were conducted in leads created by the ship's wake with the A-frame in to minimize the chance of hooking the wire on ice floes. When ice conditions dictated, the ship first traversed a trawling transect prior to deployment and then backtracked over the same course through the created lead to insure that adequate speed could be maintained for the duration of the tow.

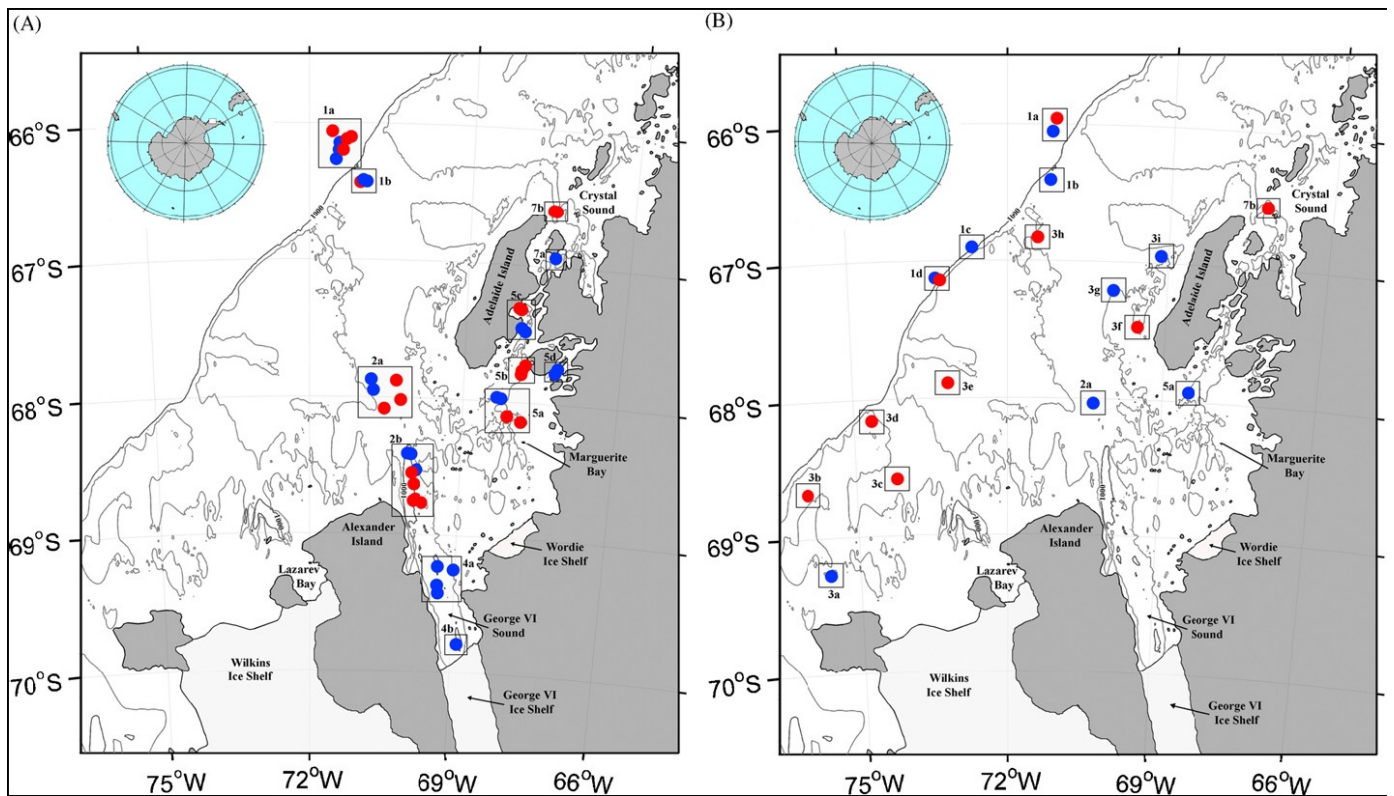


Fig. 1. Trawling sites for (A) fall and (B) winter SO GLOBEC cruises; blue circles: 2001 and red circles: 2002.

Processing Description

All samples were preserved in a 5-10% buffered formaldehyde solution, shipped to the laboratory for analysis, and then stored in 50% isopropanol. Fish were sorted from each sample, identified to lowest possible taxon, enumerated, measured (mm; standard length (SL)), and weighed (mg; wet mass (WM)). WM of formalin preserved specimens has been found to not differ significantly from fresh specimen WM (Lancraft, Donnelly and Torres, unpublished data). For many catches, selected specimens were removed from the sample prior to preservation and stored frozen. These specimens were identified to species and measured prior to freezing and their WM determined from regressions generated from numerous previous datasets (Donnelly and Torres, unpublished data).

Species' abundance and biomass are expressed as normalized values (#, gWM10⁴ m³ water volume filtered). Discrete-depth values were calculated for each species by dividing their number or WM in the catch by the water volume filtered for a particular depth stratum.

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Related Publications

Donnelly, J., & Torres, J. J. (2008). Pelagic fishes in the Marguerite Bay region of the West Antarctic Peninsula continental shelf. *Deep Sea Research Part II: Topical Studies in Oceanography*, 55(3-4), 523–539. doi:[10.1016/j.dsr2.2007.11.015](https://doi.org/10.1016/j.dsr2.2007.11.015)

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Parameters

Parameter	Description	Units
cruiseid	Cruise identifier, e.g. en9402 R/V Endeavor cruise 9402	
year	Year, e.g. 1995.	YYYY
station	Consecutive station number	
tow	MOCNESS_10 tow number	
net	Net number or identification	
depth_range	Observation or sample depth	meters
depth_open	Depth at which the net is opened (specific to MOCNESS tows)	meters
depth_close	Depth at which the net is closed (specific to MOCNESS tows)	meters
vol_filt	volume of water filtered by the net	meters ³
family	Family. One of the levels in the taxonomic system of classification; typically ends in 'ae'.	
species	A binomial that consists of a genus name followed by the species name of an organism.	
count	Number of individuals counted in sample or sample fraction	
abund_integ	Number of the specific taxa/group counted per meter ³	#/m ²
biomass	Wet weight of a specific taxa/group identified, in units milligrams per meter ³	grams 104m ⁻³
biomass_integ	Wet weight of a specific taxa/group identified	grams/m ²
yday_gmt	GMT day and decimal time, as 326.5 for the 326th day, or November 22 at 1200 hours (noon), for start of tow. Decimal portion of yday is from time_start.	
month_gmt	month of year, GMT time , i.e. 01-12 at start of tow	
day_gmt	day, GMT time, e.g. 22, at start of tow.	
time_start	starting time of observation, GMT time, 24 hour clock, GMT time	HHmm
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lat	latitude- north is positive, negative denotes South	decimal degrees
Instruments		
depth_w	water depth	meters
lon	longitude - east is positive, negative denotes West	decimal degrees
date_gmt	GMT sample date formatted as m/d/yyyy	unitless
time_local	sampling time in local time zone; formatted as HHMM	unitless

Dataset-specific Instrument Name	MOCNESS10
Generic Instrument Name	MOCNESS10
Generic Instrument Description	<p>The Multiple Opening/Closing Net and Environmental Sensing System (MOCNESS) is based on the Tucker Trawl principle (Tucker, 1951). The MOCNESS-10 (with 10 m² nets) carries 6 nets of 3.0-mm circular mesh which are opened and closed sequentially by commands through conducting cable from the surface (Wiebe et al., 1976). In this system, "the underwater unit sends a data frame, comprising temperature, depth, conductivity, net-frame angle, flow count, time, number of open net, and net opening/closing, to the deck unit in a compressed hexadecimal format every 2 seconds and from the deck unit to a microcomputer every 4 seconds" (Wiebe et al., 1985).</p>

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Deployments

LMG0104

Website	https://www.bco-dmo.org/deployment/57637
Platform	ARSV Laurence M. Gould
Report	http://www.ccpo.odu.edu/Research/globec/cruises/gould0103_0104.doc
Start Date	2001-04-20
End Date	2001-06-05
Description	<p>Acquisition Description Fish Abundance and Wet Weight from MOCNESS-10 trawls</p> <p>Processing Description Fish Abundance and Wet Weight from MOCNESS-10 trawls Â Â Methodology: Â Â Field work was done on four cruises conducted during the austral fall and winter. Cruises 1 (2001) and 3 (2002) were aboard the Antarctic Research Support Vessel (A.R.S.V.) Laurence M. Gould from April to June; cruises 2 (2001) and 4 (2002) were aboard the Research Vessel Ice Breaker (R.V.I.B.) Nathaniel B. Palmer from July to September. Samples were collected with a 10m2 MOCNESS (MOC-10) outfitted with six 3mm mesh nets. The initial net fished obliquely to depth with each subsequent net fishing a discrete depth layer upward to the surface. At stations with depths>1000 m, layers sampled were 0-1000, 1000-500, 500-200, 200-100, 100-50, and 50-0 m. At stations with depths >500 m, layers sampled were 0-500, 500-300, 300-200, 200-100, 100-50, and 50-0 m. At stations with depths</p>

NBP0104

Website	https://www.bco-dmo.org/deployment/57638
Platform	RVIB Nathaniel B. Palmer
Report	http://www.ccpo.odu.edu/Research/globec/cruises01/nbp0104_menu.html
Start Date	2001-07-22
End Date	2001-08-31

LMG0203

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Project Information

U.S. GLOBEC Southern Ocean (SOGLOBEC)

Website: http://www.ccpo.odu.edu/Research/globec_menu.html

Coverage: Southern Ocean

The fundamental objectives of United States Global Ocean Ecosystems Dynamics (U.S. GLOBEC) Program are dependent upon the cooperation of scientists from several disciplines. Physicists, biologists, and chemists must make use of data collected during U.S. GLOBEC field programs to further our understanding of the interplay of physics, biology, and chemistry. Our objectives require quantitative analysis of interdisciplinary data sets and, therefore, data must be exchanged between researchers. To extract the full scientific value, data must be made available to the scientific community on a timely basis.

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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 Antarctic Sciences (NSF ANT)	ANT-9910100

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