

# Phytoplankton chlorophyll and nutrient studies from R/V Albatross IV, R/V Endeavor, and R/V Oceanus broadscale cruises in the Gulf of Maine and Georges Bank from 1997-1999 (GB project)

Website: <https://www.bco-dmo.org/dataset/2328>

Data Type: Cruise Results

Version: 1

Version Date: 2015-06-01

## Project

» [U.S. GLOBEC Georges Bank](#) (GB)

## Program

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

Contributors	Affiliation	Role
<a href="#">Townsend, David W.</a>	University of Maine	Principal Investigator
<a href="#">Allison, Dicky</a>	Woods Hole Oceanographic Institution (WHOI)	BCO-DMO Data Manager, BCO-DMO Data Manager

## Abstract

Phytoplankton chlorophyll and nutrient studies from R/V Albatross IV, R/V Endeavor, and R/V Oceanus broadscale cruises in the Gulf of Maine and Georges Bank from 1997-1999

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## Coverage

**Spatial Extent:** N:42.3265 E:-65.811 S:40.0032 W:-69.2707

**Temporal Extent:** 1997-01-13 - 1999-06-27

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## Dataset Description

### Phytoplankton Chlorophyll and Nutrient Studies on Georges Bank

**David W. Townsend, Keska Kemper, Maura A. Thomas,  
Annette L. Brickley and Abigail M. Deitz**

#### ***PROJECT OVERVIEW:***

The project began in the winter of 1997 as part of the [U.S. GLOBEC Georges Bank Program](#). The purpose of our component of that multi-institutional study is to investigate the idea that the growth and production of zooplankton and fish on Georges Bank are limited by the amount of nutrients (especially nitrogen) that is brought onto the Bank from the nutrient-rich, deeper waters around the Bank's edges (cf. Townsend and Pettigrew, 1997).

The sampling period was chosen to bracket the winter-to-spring transition, which is coincident with the Georges Bank GLOBEC broad scale cruises conducted in 1997, 1998 and 1999. The cruise dates were:

1997\*January 13 - 20 (R/V Albatross)  
\*February 11 - 22 (R/V Oceanus)  
\*March 16 - 29 (R/V Oceanus)  
\*April 20 - May 3 (R/V Oceanus)  
\*May 19 - 30 (R/V Albatross)  
\*June 18 - 28 (R/V Albatross)

1998\*February 7 -17 (R/V Oceanus)  
\*March15 - 26 (R/V Oceanus)  
\*April 16 - 26 (R/V Oceanus)  
\*May 10 - 20 (R/V Albatross)  
\*June 17 - 25 (R/V Albatross)

1999\*January 11 - 24 (R/V Albatross)  
\*February 11 - 23 (R/V Oceanus)  
\*March 10 - 23 (R/V Endeavor)  
\*April 16 - 28 (R/V Oceanus)  
\*May 19 - 27 (R/V Albatross)

Water samples were collected on all cruises for the analysis of phytoplankton biomass (chlorophyll a and phaeophytin). In addition, dissolved inorganic nutrient concentrations (NO<sub>3</sub>+NO<sub>2</sub>, SiO<sub>4</sub>, PO<sub>4</sub> and NH<sub>4</sub>) were determined for four of the six Broadscale cruises in 1997, five of six in 1998, and all six in 1999. Water collections were made at various depths at all of the regular hydrographic stations (1-40 or Sta 41 after 1997) using Niskin bottles mounted on the rosette sampler. Additional surface water samples were collected at positions between the regular stations (numbered >41; refer to [Station Location Map](#) for example). Note that because data files are in some cases ordered by station number, time does not necessarily increase monotonically throughout a given data file. Detection limits for ammonia vary for each month of analysis; for details contact Maura Thomas ([mthomas@maine.edu](mailto:mthomas@maine.edu)) or David Townsend ([davidt@maine.edu](mailto:davidt@maine.edu)).

Phytoplankton chlorophyll a and phaeopigments were determined fluorometrically (Parsons et al., 1984). The extracted chlorophyll measurements involved collecting 100ml from all bottle samples taken at depths shallower than 60m, filtering through GF/F filters, and extracting in 90% acetone in a freezer for at least 12 hours. The samples were analyzed at sea using a Turner Model 10 fluorometer.

Water samples for DIN were filtered through 0.45 Millipore cellulose acetate membrane filters and then frozen immediately in 20ml acid-washed polyethylene scintillation vials by first placing the vials in a seawater-ice bath for approximately 10 minutes. Samples were analyzed in the lab following the cruise using a Technicon II 4-Channel Auto-Analyzer.

In addition to dissolved inorganic nutrients and chlorophyll, in 1999 we are also analyzing samples for particulate organic carbon and nitrogen, dissolved organic nitrogen, and particulate and dissolved organic phosphorus.

Results from the vertical profiles taken at each station can be viewed as contour plots (using Surfer Software, Golden Colorado) for [1997](#), [1998](#) and [1999](#). Plotted variables include Temperature and Salinity for the hydrographic data, Chlorophyll a for the pigment analyses and Nitrate plus Nitrite, Silicate, Ammonium and Phosphate for the inorganic nutrient analyses. The hydrographic data were contoured only for the surface(2m). The pigment and inorganic nutrient concentrations were contoured for the surface(2m), 20meter and 60 meter depths.

## **REFERENCES:**

Parsons, T.R., Y. Maita and C.M. Lalli. 1984. A Manual of Chemical and Biological Methods for Seawater Analysis. Pergamon, Oxford. 173pp.

Townsend, D.W. and N.R. Pettigrew. 1997. Nutrient limitation of secondary production on

## Acquisition Description

Phytoplankton Chlorophyll and Nutrient Studies on Georges Bank Water samples were collected on all cruises for the analysis of phytoplankton biomass (chlorophyll a and phaeophytin). In addition, dissolved inorganic nutrient concentrations (NO<sub>3</sub>+NO<sub>2</sub>, SiO<sub>4</sub>, PO<sub>4</sub> and NH<sub>4</sub>) were determined for four of the six BROADSCALE cruises in 1997, five of six in 1998, and all six in 1999. Water collections were made at various depths at all of the regular hydrographic stations (1-40 or Sta 41 after 1997) using Niskin bottles mounted on the rosette sampler. Additional surface water samples were collected at positions between the regular stations (numbered >41; refer to Station Location Map for example). Note that because data files are in some cases ordered by station number, time does not necessarily increase monotonically throughout a given data file. Detection limits for ammonia vary for each month of analysis; for details contact Maura Thomas ([mthomas@maine.edu](mailto:mthomas@maine.edu)) or David Townsend ([davidt@maine.edu](mailto:davidt@maine.edu)).

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## Parameters

Parameter	Description	Units
chl_a	chlorophyll a pigment, in	milligrams per meter cubed(mg/m <sup>3</sup> ) or micrograms per liter (micrograms/l)
day	Day	n/a
depth	Sample depth	meters
flvolt	fluorometer voltage measurement	Volts
lat	Latitude	Decimal degrees
lon	Longitude	Decimal degrees
Month_name	name of month	unitless
NH4	Ammonium	microM or microgram-atm NH <sub>3</sub> -N/l
NO3_NO2	Nitrate and Nitrite	microM or microgram-at NO <sub>3</sub> -N and NO <sub>2</sub> -N/l
phaeo	total phaeopigment	milligrams per meter cubed (mg/m <sup>3</sup> or micrograms per liter (micrograms/l)
PO4	Orthophosphate	microM or microgram-at PO <sub>4</sub> -P/l
press	Pressure	Decibars
sal	Salinity	practical salinity units
SiOH_4	Orthosilicic Acid Si(OH) <sub>4</sub>	microM or microgram-at Si(OH) <sub>4</sub> -Si/l
station_std	Standard station number	n/a
temp	Temperature	Degrees Centigrade
time	Time (local)	n/a
yrday_local	Year day, local time	Decimal number
year	sampling year, format as yyyy, e.g. 1995	unitless
ID	ID referring to cruise monthyear in format mmyy (e.g. apr97)	unitless
month	two-digit month	untiless

## Instruments

<b>Dataset-specific Instrument Name</b>	Niskin Bottle
<b>Generic Instrument Name</b>	Niskin bottle
<b>Dataset-specific Description</b>	Niskin bottles mounted on the rosette sampler.
<b>Generic Instrument Description</b>	<p>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.</p>

<b>Dataset-specific Instrument Name</b>	Turner Model 10 Fluorometer
<b>Generic Instrument Name</b>	Turner Designs Fluorometer -10
<b>Dataset-specific Description</b>	Turner Model 10 fluorometer used to analyzed the Phytoplankton chlorophyll a and phaeopigments samples.
<b>Generic Instrument Description</b>	The Turner Designs Model 10 fluorometer (manufactured by Turner Designs, turnerdesigns.com, Sunnyvale, CA, USA) is used to measure Chlorophyll fluorescence. No information could be found for this specific model.

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## Deployments

**AL9705**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57379">https://www.bco-dmo.org/deployment/57379</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9705/al9705.html">http://globec.who.edu/globec-dir/reports/al9705/al9705.html</a>
<b>Start Date</b>	1997-05-19
<b>End Date</b>	1997-05-27
<b>Description</b>	<p>broad-scale</p> <p><b>Acquisition Description</b></p> <p>Phytoplankton Chlorophyll and Nutrient Studies on Georges Bank Water samples were collected on all cruises for the analysis of phytoplankton biomass (chlorophyll a and phaeophytin). In addition, dissolved inorganic nutrient concentrations (NO<sub>3</sub>+NO<sub>2</sub>, SiO<sub>4</sub>, PO<sub>4</sub> and NH<sub>4</sub>) were determined for four of the six BROADSCALE cruises in 1997, five of six in 1998, and all six in 1999. Water collections were made at various depths at all of the regular hydrographic stations (1-40 or Sta 41 after 1997) using Niskin bottles mounted on the rosette sampler. Additional surface water samples were collected at positions between the regular stations (numbered &gt;41; refer to Station Location Map for example). Note that because data files are in some cases ordered by station number, time does not necessarily increase monotonically throughout a given data file. Detection limits for ammonia vary for each month of analysis; for details contact Maura Thomas (<a href="mailto:mthomas@maine.edu">mthomas@maine.edu</a>) or David Townsend (<a href="mailto:davidt@maine.edu">davidt@maine.edu</a>).</p>

**AL9707**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57380">https://www.bco-dmo.org/deployment/57380</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9707/al9707.html">http://globec.who.edu/globec-dir/reports/al9707/al9707.html</a>
<b>Start Date</b>	1997-06-18
<b>End Date</b>	1997-06-28
<b>Description</b>	<p>broad-scale</p> <p><b>Acquisition Description</b></p> <p>Phytoplankton Chlorophyll and Nutrient Studies on Georges Bank Water samples were collected on all cruises for the analysis of phytoplankton biomass (chlorophyll a and phaeophytin). In addition, dissolved inorganic nutrient concentrations (NO<sub>3</sub>+NO<sub>2</sub>, SiO<sub>4</sub>, PO<sub>4</sub> and NH<sub>4</sub>) were determined for four of the six Broadscale cruises in 1997, five of six in 1998, and all six in 1999. Water collections were made at various depths at all of the regular hydrographic stations (1-40 or Sta 41 after 1997) using Niskin bottles mounted on the rosette sampler. Additional surface water samples were collected at positions between the regular stations (numbered &gt;41; refer to Station Location Map for example). Note that because data files are in some cases ordered by station number, time does not necessarily increase monotonically throughout a given data file. Detection limits for ammonia vary for each month of analysis; for details contact Maura Thomas (<a href="mailto:mthomas@maine.edu">mthomas@maine.edu</a>) or David Townsend (<a href="mailto:davidt@maine.edu">davidt@maine.edu</a>).</p>

**AL9806**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57384">https://www.bco-dmo.org/deployment/57384</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9806/al9806.html">http://globec.who.edu/globec-dir/reports/al9806/al9806.html</a>
<b>Start Date</b>	1998-05-13
<b>End Date</b>	1998-05-22
<b>Description</b>	<p>broad-scale</p> <p><b>Acquisition Description</b></p> <p>Phytoplankton Chlorophyll and Nutrient Studies on Georges Bank Water samples were collected on all cruises for the analysis of phytoplankton biomass (chlorophyll a and phaeophytin). In addition, dissolved inorganic nutrient concentrations (NO<sub>3</sub>+NO<sub>2</sub>, SiO<sub>4</sub>, PO<sub>4</sub> and NH<sub>4</sub>) were determined for four of the six Broadscale cruises in 1997, five of six in 1998, and all six in 1999. Water collections were made at various depths at all of the regular hydrographic stations (1-40 or Sta 41 after 1997) using Niskin bottles mounted on the rosette sampler. Additional surface water samples were collected at positions between the regular stations (numbered &gt;41; refer to Station Location Map for example). Note that because data files are in some cases ordered by station number, time does not necessarily increase monotonically throughout a given data file. Detection limits for ammonia vary for each month of analysis; for details contact Maura Thomas (<a href="mailto:mthomas@maine.edu">mthomas@maine.edu</a>) or David Townsend (<a href="mailto:davidt@maine.edu">davidt@maine.edu</a>).</p>

**AL9808**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57385">https://www.bco-dmo.org/deployment/57385</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9808/al9808.html">http://globec.who.edu/globec-dir/reports/al9808/al9808.html</a>
<b>Start Date</b>	1998-06-16
<b>End Date</b>	1998-06-26
<b>Description</b>	<p>broad-scale</p> <p><b>Acquisition Description</b></p> <p>Phytoplankton Chlorophyll and Nutrient Studies on Georges Bank Water samples were collected on all cruises for the analysis of phytoplankton biomass (chlorophyll a and phaeophytin). In addition, dissolved inorganic nutrient concentrations (NO<sub>3</sub>+NO<sub>2</sub>, SiO<sub>4</sub>, PO<sub>4</sub> and NH<sub>4</sub>) were determined for four of the six Broadscale cruises in 1997, five of six in 1998, and all six in 1999. Water collections were made at various depths at all of the regular hydrographic stations (1-40 or Sta 41 after 1997) using Niskin bottles mounted on the rosette sampler. Additional surface water samples were collected at positions between the regular stations (numbered &gt;41; refer to Station Location Map for example). Note that because data files are in some cases ordered by station number, time does not necessarily increase monotonically throughout a given data file. Detection limits for ammonia vary for each month of analysis; for details contact Maura Thomas (<a href="mailto:mthomas@maine.edu">mthomas@maine.edu</a>) or David Townsend (<a href="mailto:davidt@maine.edu">davidt@maine.edu</a>).</p>

**AL9901**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57386">https://www.bco-dmo.org/deployment/57386</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9901/al9901.html">http://globec.who.edu/globec-dir/reports/al9901/al9901.html</a>
<b>Start Date</b>	1999-01-12
<b>End Date</b>	1999-01-24
<b>Description</b>	<p>broad-scale</p> <p><b>Acquisition Description</b></p> <p>Water samples were collected on all cruises for the analysis of phytoplankton biomass (chlorophyll a and phaeophytin). In addition, dissolved inorganic nutrient concentrations (NO<sub>3</sub>+NO<sub>2</sub>, SiO<sub>4</sub>, PO<sub>4</sub> and NH<sub>4</sub>) were determined for four of the six Broad-scale cruises in 1997, five of six in 1998, and all six in 1999. Water collections were made at various depths at all of the regular hydrographic stations (1-40 or Sta 41 after 1997) using Niskin bottles mounted on the rosette sampler. Additional surface water samples were collected at positions between the regular stations (numbered &gt;41; refer to Station Location Map for example). Note that because data files are in some cases ordered by station number, time does not necessarily increase monotonically throughout a given data file. Detection limits for ammonia vary for each month of analysis; for details contact Maura Thomas (<a href="mailto:mthomas@maine.edu">mthomas@maine.edu</a>) or David Townsend (<a href="mailto:davidt@maine.edu">davidt@maine.edu</a>).</p>

**AL9904**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57387">https://www.bco-dmo.org/deployment/57387</a>
<b>Platform</b>	R/V Albatross IV
<b>Start Date</b>	1999-05-19
<b>End Date</b>	1999-05-27
<b>Description</b>	<p>broad-scale</p> <p><b>Acquisition Description</b></p> <p>Water samples were collected on all cruises for the analysis of phytoplankton biomass (chlorophyll a and phaeophytin). In addition, dissolved inorganic nutrient concentrations (NO<sub>3</sub>+NO<sub>2</sub>, SiO<sub>4</sub>, PO<sub>4</sub> and NH<sub>4</sub>) were determined for four of the six BROADSCALE cruises in 1997, five of six in 1998, and all six in 1999. Water collections were made at various depths at all of the regular hydrographic stations (1-40 or Sta 41 after 1997) using Niskin bottles mounted on the rosette sampler. Additional surface water samples were collected at positions between the regular stations (numbered &gt;41; refer to Station Location Map for example). Note that because data files are in some cases ordered by station number, time does not necessarily increase monotonically throughout a given data file. Detection limits for ammonia vary for each month of analysis; for details contact Maura Thomas (<a href="mailto:mthomas@maine.edu">mthomas@maine.edu</a>) or David Townsend (<a href="mailto:davidt@maine.edu">davidt@maine.edu</a>).</p>

**AL9906**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57388">https://www.bco-dmo.org/deployment/57388</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9906/al9906rpt.html">http://globec.who.edu/globec-dir/reports/al9906/al9906rpt.html</a>
<b>Start Date</b>	1999-06-14
<b>End Date</b>	1999-06-24
<b>Description</b>	<p>broad-scale</p> <p><b>Acquisition Description</b></p> <p>Water samples were collected on all cruises for the analysis of phytoplankton biomass (chlorophyll a and phaeophytin). In addition, dissolved inorganic nutrient concentrations (NO<sub>3</sub>+NO<sub>2</sub>, SiO<sub>4</sub>, PO<sub>4</sub> and NH<sub>4</sub>) were determined for four of the six Broadscale cruises in 1997, five of six in 1998, and all six in 1999. Water collections were made at various depths at all of the regular hydrographic stations (1-40 or Sta 41 after 1997) using Niskin bottles mounted on the rosette sampler. Additional surface water samples were collected at positions between the regular stations (numbered &gt;41; refer to Station Location Map for example). Note that because data files are in some cases ordered by station number, time does not necessarily increase monotonically throughout a given data file. Detection limits for ammonia vary for each month of analysis; for details contact Maura Thomas (<a href="mailto:mthomas@maine.edu">mthomas@maine.edu</a>) or David Townsend (<a href="mailto:davidt@maine.edu">davidt@maine.edu</a>).</p>

**AL9701**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57378">https://www.bco-dmo.org/deployment/57378</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9701/cra19701.htm">http://globec.who.edu/globec-dir/reports/al9701/cra19701.htm</a>
<b>Start Date</b>	1997-01-13
<b>End Date</b>	1997-01-20
<b>Description</b>	<p>broad-scale</p> <p><b>Acquisition Description</b></p> <p>Water samples were collected on all cruises for the analysis of phytoplankton biomass (chlorophyll a and phaeophytin). In addition, dissolved inorganic nutrient concentrations (NO<sub>3</sub>+NO<sub>2</sub>, SiO<sub>4</sub>, PO<sub>4</sub> and NH<sub>4</sub>) were determined for four of the six Broadscale cruises in 1997, five of six in 1998, and all six in 1999. Water collections were made at various depths at all of the regular hydrographic stations (1-40 or Sta 41 after 1997) using Niskin bottles mounted on the rosette sampler. Additional surface water samples were collected at positions between the regular stations (numbered &gt;41; refer to Station Location Map for example). Note that because data files are in some cases ordered by station number, time does not necessarily increase monotonically throughout a given data file. Detection limits for ammonia vary for each month of analysis; for details contact Maura Thomas (<a href="mailto:mthomas@maine.edu">mthomas@maine.edu</a>) or David Townsend (<a href="mailto:davidt@maine.edu">davidt@maine.edu</a>).</p>

EN320

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57427">https://www.bco-dmo.org/deployment/57427</a>
<b>Platform</b>	R/V Endeavor
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/en320new/en320mda.htm">http://globec.who.edu/globec-dir/reports/en320new/en320mda.htm</a>
<b>Start Date</b>	1999-03-10
<b>End Date</b>	1999-03-23
<b>Description</b>	<p>broad-scale</p> <p><b>Acquisition Description</b></p> <p>Water samples were collected on all cruises for the analysis of phytoplankton biomass (chlorophyll a and phaeophytin). In addition, dissolved inorganic nutrient concentrations (NO<sub>3</sub>+NO<sub>2</sub>, SiO<sub>4</sub>, PO<sub>4</sub> and NH<sub>4</sub>) were determined for four of the six Broad-scale cruises in 1997, five of six in 1998, and all six in 1999. Water collections were made at various depths at all of the regular hydrographic stations (1-40 or Sta 41 after 1997) using Niskin bottles mounted on the rosette sampler. Additional surface water samples were collected at positions between the regular stations (numbered &gt;41; refer to Station Location Map for example). Note that because data files are in some cases ordered by station number, time does not necessarily increase monotonically throughout a given data file. Detection limits for ammonia vary for each month of analysis; for details contact Maura Thomas (<a href="mailto:mthomas@maine.edu">mthomas@maine.edu</a>) or David Townsend (<a href="mailto:davidt@maine.edu">davidt@maine.edu</a>).</p>

## OC298

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57444">https://www.bco-dmo.org/deployment/57444</a>
<b>Platform</b>	R/V Oceanus
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/oc298/cruisereport.html">http://globec.who.edu/globec-dir/reports/oc298/cruisereport.html</a>
<b>Start Date</b>	1997-02-11
<b>End Date</b>	1997-02-23
<b>Description</b>	broad-scale

## OC300

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57446">https://www.bco-dmo.org/deployment/57446</a>
<b>Platform</b>	R/V Oceanus
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/oc300/oc300rpt.mr7.html">http://globec.who.edu/globec-dir/reports/oc300/oc300rpt.mr7.html</a>
<b>Start Date</b>	1997-03-16
<b>End Date</b>	1997-03-28
<b>Description</b>	broad-scale

### OC302

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57448">https://www.bco-dmo.org/deployment/57448</a>
<b>Platform</b>	R/V Oceanus
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/oc302/oce302.html">http://globec.who.edu/globec-dir/reports/oc302/oce302.html</a>
<b>Start Date</b>	1997-04-22
<b>End Date</b>	1997-05-02
<b>Description</b>	broad-scale

### OC317

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57451">https://www.bco-dmo.org/deployment/57451</a>
<b>Platform</b>	R/V Oceanus
<b>Start Date</b>	1998-02-06
<b>End Date</b>	1998-02-19
<b>Description</b>	broad-scale

### OC319

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57452">https://www.bco-dmo.org/deployment/57452</a>
<b>Platform</b>	R/V Oceanus
<b>Report</b>	<a href="http://globec.whoi.edu/globec-dir/reports/oc319/oc319new/oc319rpt.8april98.htm">http://globec.whoi.edu/globec-dir/reports/oc319/oc319new/oc319rpt.8april98.htm</a>
<b>Start Date</b>	1998-03-15
<b>End Date</b>	1998-03-27
<b>Description</b>	broad-scale

### OC322

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57454">https://www.bco-dmo.org/deployment/57454</a>
<b>Platform</b>	R/V Oceanus
<b>Report</b>	<a href="http://globec.whoi.edu/globec-dir/reports/oc322/oc322.html">http://globec.whoi.edu/globec-dir/reports/oc322/oc322.html</a>
<b>Start Date</b>	1998-04-15
<b>End Date</b>	1998-04-27
<b>Description</b>	broad-scale

### OC336

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57459">https://www.bco-dmo.org/deployment/57459</a>
<b>Platform</b>	R/V Oceanus
<b>Report</b>	<a href="http://globec.whoi.edu/globec-dir/reports/oc336/oc336cruise-report.html">http://globec.whoi.edu/globec-dir/reports/oc336/oc336cruise-report.html</a>
<b>Start Date</b>	1999-02-11
<b>End Date</b>	1999-02-23
<b>Description</b>	broad-scale

### OC341

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57464">https://www.bco-dmo.org/deployment/57464</a>
<b>Platform</b>	R/V Oceanus
<b>Report</b>	<a href="http://globec.whoi.edu/globec-dir/reports/oc341/reptoc341.html">http://globec.whoi.edu/globec-dir/reports/oc341/reptoc341.html</a>
<b>Start Date</b>	1999-04-16
<b>End Date</b>	1999-04-27
<b>Description</b>	broad-scale

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## Project Information

### U.S. GLOBEC Georges Bank (GB)

**Website:** [http://globec.whoi.edu/globec\\_program.html](http://globec.whoi.edu/globec_program.html)

**Coverage:** Georges Bank, Gulf of Maine, Northwest Atlantic Ocean

The U.S. GLOBEC Georges Bank Program is a large multi-disciplinary multi-year oceanographic effort. The proximate goal is to understand the population dynamics of key species on the Bank - Cod, Haddock, and two species of zooplankton (*Calanus finmarchicus* and *Pseudocalanus*) - in terms of their coupling to the physical environment and in terms of their predators and prey. The ultimate goal is to be able to predict changes in the distribution and abundance of these species as a result of changes in their physical and biotic environment as well as to anticipate how their populations might respond to climate change. The effort is substantial, requiring broad-scale surveys of the entire Bank, and process studies which focus both on the links between the target species and their physical environment, and the determination of fundamental aspects of these species' life history (birth rates, growth rates, death rates, etc). Equally important are the modelling efforts that are ongoing which seek to provide realistic predictions of the flow field and which utilize the life history information to produce an integrated view of the dynamics of the populations. The U.S. GLOBEC Georges Bank Executive Committee (EXCO) provides program leadership and effective communication with the funding agencies.

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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
National Science Foundation (NSF)	<a href="#">unknown GB NSF</a>
National Oceanic and Atmospheric Administration (NOAA)	<a href="#">unknown GB NOAA</a>

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