

# Biomaper-II environmental data from R/V Endeavor and R/V Oceanus cruises EN307, EN330, EN331, OC332 and OC334 to Georges Bank and the Gulf of Maine in 1997-1999 (GB project)

**Website:** <https://www.bco-dmo.org/dataset/2295>

**Data Type:** Cruise Results

**Version:** 1

**Version Date:** 2005-11-15

## Project

» [U.S. GLOBEC Georges Bank](#) (GB)

## Program

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

Contributors	Affiliation	Role
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## Abstract

Biomaper-II environmental data from R/V Endeavor and R/V Oceanus cruises EN307, EN330, EN331, OC332 and OC334 to Georges Bank and the Gulf of Maine in 1997-1999

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## Coverage

**Temporal Extent:** 1997-10-09 - 1999-12-12

## Dataset Description

### Georges Bank BIOMAPERII Environmental (CTD+) Data

These data are from the Environmental Sensing System (ESS) part of the BIO-Optical Multi-frequency Acoustical and Physical Environmental Recorder or BIOMAPER II.\* (1)

"The system consists of a multi-frequency sonar (up-looking and down-looking pairs of transducers operating at five frequencies: 43,120,200,420, and 1000kHz), a video plankton recorder system (VPR), an environmental sensor system (CTD, fluorometer, transmissometer), and several other bio-optical sensors (down- and upwelling spectral radiometers, spectral attenuation, and backscattering, and absorption meters)." \*(2)

## References

\*(1) Wiebe, P.H., et al., 2002, BIOMAPER-II: An Integrated Instrument Platform for Coupled Biological and Physical Measurements in Coastal and Oceanic Regimes. IEEE Journal of Oceanic Engineering, **27(3)**:700-716.

\*(2) Fofonoff and Millard, 1983, UNESCO technical papers in Marine Sciences, #44

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*updated November 15, 2005; gfh*

**Methods & Sampling**

These data are from the Environmental Sensing System (ESS) part of the BIO-Optical Multi-frequency Acoustical and Physical Environmental Recorder or BIOMAPER II.

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**Data Files**

File
<b>BMP2_ess.csv</b> (Comma Separated Values (.csv), 94.21 MB) MD5:0a85f14ca8c34b223b85c8b43b795660 Primary data file for dataset ID 2295

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**Parameters**

Parameter	Description	Units
cruiseid	cruise identification, e.g. EN330, for Endeavor cruise 330	
year	year, four digit	
brief_desc	Brief cruise description, such as broad-scale, process, mooring	
tow	Tow number	
day_local	day of month, local time (1 - 31)	
month_local	month of year, local time (1 - 12)	
station	station number, from event log	

station_std	standard station number, from eventlog	
yrday_local	year day, (i.e. Jan 1 at noon equals year day 1.5), local time	decimal year
time_local	local time using 24 hour clock	decimal hour
press	depth of sample	decibars
temp	temperature	degrees C
potemp	potential temperature <sup>2</sup>	degrees C
sal	salinity	PSU
sigma_0	potential density <sup>2</sup>	
flvolt	fluorescence (0-5 volts)	volts
angle	angle of towbody relative to vertical (0-89 degrees)	
vtvel	vertical tow velocity	meters/minute
trans_v	transmissometry or light transmission (0-5 volts)	volts
oxycurrent	oxygen sensor current (0-5 volts)	volts
oxytemp	oxygen sensor internal temperature (0-5 volts)	volts
o2	dissolved oxygen	milliliter/liter
lite	downwelling light	volts
tempco	light sensor thermistor	volts
lat	latitude, negative = South	decimal degrees
lon	longitude, negative = West	decimal degrees

## Instruments

<b>Dataset-specific Instrument Name</b>	Blo-Optical Multi-frequency Acoustical and Physical Environmental Recorder II
<b>Generic Instrument Name</b>	Blo-Optical Multi-frequency Acoustical and Physical Environmental Recorder II
<b>Dataset-specific Description</b>	BIO-optical Multi-frequency Acoustical and Physical Environmental Recorder version 2, see also ESS_BiomaperII. The system consists of a multi-frequency sonar (up-looking and down-looking pairs of transducers operating at five frequencies: 43,120,200,420, and 1000kHz), a video plankton recorder system (VPR), an environmental sensor system (CTD, fluorometer, transmissometer), and several other bio-optical sensors (down- and upwelling spectral radiometers, spectral attenuation, and backscattering, and absorption meters).
<b>Generic Instrument Description</b>	BIOMAPER II is a set of sensors on a long aluminum frame that resembles the tail of a World War II airplane. A research vessel tows the instrument through the water on a specialized tow cable that sends power to the sensors and brings data back to the ship. People use BIOMAPER II to learn about phytoplankton and zooplankton over areas that are too large to study with the traditional net-and-microscope method. Whereas nets can sample areas up to about 5 meters (16 feet) on a side, BIOMAPER II can record data from 500 meters (1,640 feet) or more of the water column at a time. The instrument's standard suite of sensors were chosen for studying plankton: a five-frequency sonar system, a video plankton recorder and an environmental sensor system (ESS, like the one on MOCNESS). The ESS measures water temperature, salinity, oxygen, chlorophyll and light levels. BIOMAPER II also has room for attaching other instruments for specific uses. The instrument's official name is BIOMAPER-II: the Bio-Optical Multi-frequency Acoustical and Physical Environmental Recorder. The Roman numeral II indicates that it's a redesign of the original BIOMAPER, a prototype that was invented and tested in the mid 1990s. (more information).

## Deployments

### EN307

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57424">https://www.bco-dmo.org/deployment/57424</a>
<b>Platform</b>	R/V Endeavor
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/en307/greenrpt.html">http://globec.who.edu/globec-dir/reports/en307/greenrpt.html</a>
<b>Start Date</b>	1997-10-08
<b>End Date</b>	1997-10-17
<b>Description</b>	process <b>Methods &amp; Sampling</b> These data are from the Enviromental Sensing System (ESS) part of theBIO-Optical Multi-frequency Acoustical and Physical Environmental Recorder or BIOMAPER II.

### EN330

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57433">https://www.bco-dmo.org/deployment/57433</a>
<b>Platform</b>	R/V Endeavor
<b>Report</b>	<a href="http://globec.whoi.edu/globec-dir/reports/en330/en330new.htm">http://globec.whoi.edu/globec-dir/reports/en330/en330new.htm</a>
<b>Start Date</b>	1999-10-16
<b>End Date</b>	1999-10-26
<b>Description</b>	process <b>Methods &amp; Sampling</b> These data are from the Enviromental Sensing System (ESS) part of theBIO-Optical Multi-frequency Acoustical and Physical Environmental Recorder or BIOMAPER II.

### EN331

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57434">https://www.bco-dmo.org/deployment/57434</a>
<b>Platform</b>	R/V Endeavor
<b>Report</b>	<a href="http://globec.whoi.edu/globec-dir/reports/en331/en331rpt.6sept2000.html">http://globec.whoi.edu/globec-dir/reports/en331/en331rpt.6sept2000.html</a>
<b>Start Date</b>	1999-12-04
<b>End Date</b>	1999-12-13
<b>Description</b>	process <b>Methods &amp; Sampling</b> These data are from the Enviromental Sensing System (ESS) part of theBIO-Optical Multi-frequency Acoustical and Physical Environmental Recorder or BIOMAPER II.

### OC332

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57456">https://www.bco-dmo.org/deployment/57456</a>
<b>Platform</b>	R/V Oceanus
<b>Report</b>	<a href="http://globec.whoi.edu/globec-dir/reports/oc332/oc332rpt.html">http://globec.whoi.edu/globec-dir/reports/oc332/oc332rpt.html</a>
<b>Start Date</b>	1998-10-19
<b>End Date</b>	1998-10-30
<b>Description</b>	process <b>Methods &amp; Sampling</b> These data are from the Enviromental Sensing System (ESS) part of theBIO-Optical Multi-frequency Acoustical and Physical Environmental Recorder or BIOMAPER II.

### OC334

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57458">https://www.bco-dmo.org/deployment/57458</a>
<b>Platform</b>	R/V Oceanus
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/oc334/cruise-report.html">http://globec.who.edu/globec-dir/reports/oc334/cruise-report.html</a>
<b>Start Date</b>	1998-12-03
<b>End Date</b>	1998-12-13
<b>Description</b>	process <b>Methods &amp; Sampling</b> These data are from the Enviromental Sensing System (ESS) part of theBIO-Optical Multi-frequency Acoustical and Physical Environmental Recorder or BIOMAPER II.

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## Project Information

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

**Website:** [http://globec.who.edu/globec\\_program.html](http://globec.who.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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