

# Oxygen Isotope data from 37 R/V Albatross IV, R/V Endeavor, R/V Oceanus, and R/V Parizeau (Canadian) cruises in the Gulf of Maine and Georges Bank, the Gulf of St. Lawrence and Scotian Shelf from 1994-1999 (GB project)

**Website:** <https://www.bco-dmo.org/dataset/2397>

**Data Type:** Cruise Results

**Version:** 1

**Version Date:** 2004-11-15

## Project

» [U.S. GLOBEC Georges Bank](#) (GB)

## Program

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

Contributors	Affiliation	Role
<a href="#">Houghton, Robert W.</a>	Lamont-Doherty Earth Observatory (LDEO)	Principal Investigator
<a href="#">Allison, Dicky</a>	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

## Abstract

Oxygen Isotope data from 37 R/V Albatross IV, R/V Endeavor, R/V Oceanus, and R/V Parizeau (Canadian) cruises in the Gulf of Maine and Georges Bank, the Gulf of St. Lawrence and Scotian Shelf from 1994-1999 (GB project)

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## Coverage

**Spatial Extent:** N:50.08 E:-55.83 S:40.45 W:-69.28

**Temporal Extent:** 1994-05-31 - 1999-06-24

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## Dataset Description

### Oxygen Isotope data, GLOBEC and Canadian Cruises 1994-1998

Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio  $\text{H}_2^{18}\text{O}/\text{H}_2^{16}\text{O}$  is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO, and presented in  $\delta^{18}\text{O}$  notation where:

- Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033.

- The content of the data file varies according to source, degree of editing, and some arbitrary formatting

changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file.

- Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography.

- The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.

#### **Contributors:**

Bob Houghton and Rick Fairbanks

#### **Any questions, contact:**

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*Updated: November 15, 2004; gfh*

### **Methods & Sampling**

Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.

### **Data Processing Description**

Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033.

The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file.

Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography.

The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.

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### **Data Files**

<b>File</b>
<b>delta_O_18.csv</b> (Comma Separated Values (.csv), 199.28 KB) MD5:b2701a07f3dc5806c99c0a5d06349e21
Primary data file for dataset ID 2397

## Parameters

Parameter	Description	Units
month_begin	starting month of cruise	
day_begin	starting day of cruise	
month_end	ending month of cruise	
day_end	ending day of cruise	
si	name of contributing scientist(s)	
location	sampling program/area	
event	event number, combination of cruiseid and cast number	
station_std	standard station number	
cast	CTD/bottle cast number	
bottle	bottle number/identification	
lat	latitude, negative = South	decimal degrees
lon	longitude, negative = West	decimal degrees
delta_O_18	isotope ratio H218O/H216O, presented in delta18O notation	
temp	temperature	degrees centigrade
sal	salinity, PSS	
trans_v	light transmission	volts
cond_mM	conductivity	milliMhos/centimeter
depth_w	water depth	meters
depth	depth of sample	meters
diff_delta_O_18	difference range between replicates	
comments	identifies repeated analysis	
cruiseid	cruise identification	
year	Year of cruise, 4 digit year	
flvolt	fluorescence, from CTD mounted fluorometer	volts

## Instruments

<b>Dataset-specific Instrument Name</b>	Mark 5 CTD
<b>Generic Instrument Name</b>	CTD Neil Brown Mark 5
<b>Dataset-specific Description</b>	Mark 5 CTD.
<b>Generic Instrument Description</b>	The Neil Brown Instrument Systems Mark 5 CTD is used to measure conductivity, temperature, and depth of sea water. The MK5 profiler has a higher sampling rate than the SeaBird SEACAT. (For the GLOBEC Georges Bank project the Mark 5 was instrumented with an expanded suite of sensors and deployed almost exclusively at GLOBEC Standard stations.)

<b>Dataset-specific Instrument Name</b>	CTD Seabird 911
<b>Generic Instrument Name</b>	CTD Sea-Bird 911
<b>Dataset-specific Description</b>	CTD measurements taken by a SBE911 (SeaBird) CTD instrument package
<b>Generic Instrument Description</b>	The Sea-Bird SBE 911 is a type of CTD instrument package. The SBE 911 includes the SBE 9 Underwater Unit and the SBE 11 Deck Unit (for real-time readout using conductive wire) for deployment from a vessel. The combination of the SBE 9 and SBE 11 is called a SBE 911. The SBE 9 uses Sea-Bird's standard modular temperature and conductivity sensors (SBE 3 and SBE 4). The SBE 9 CTD can be configured with auxiliary sensors to measure other parameters including dissolved oxygen, pH, turbidity, fluorescence, light (PAR), light transmission, etc.). More information from Sea-Bird Electronics.

<b>Dataset-specific Instrument Name</b>	VG Prism II Mass-Spectrometer
<b>Generic Instrument Name</b>	Isotope-ratio Mass Spectrometer
<b>Dataset-specific Description</b>	The isotope ratio H <sub>2</sub> 18O/H <sub>2</sub> 16O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.
<b>Generic Instrument Description</b>	The Isotope-ratio Mass Spectrometer is a particular type of mass spectrometer used to measure the relative abundance of isotopes in a given sample (e.g. VG Prism II Isotope Ratio Mass-Spectrometer).

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## Deployments

AL9404

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57369">https://www.bco-dmo.org/deployment/57369</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9404/AL9404.htm">http://globec.who.edu/globec-dir/reports/al9404/AL9404.htm</a>
<b>Start Date</b>	1994-05-31
<b>End Date</b>	1994-06-10
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

#### AL9505

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57371">https://www.bco-dmo.org/deployment/57371</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9505/al9505rot.pdf">http://globec.who.edu/globec-dir/reports/al9505/al9505rot.pdf</a>
<b>Start Date</b>	1995-05-09
<b>End Date</b>	1995-05-18
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**AL9506**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57372">https://www.bco-dmo.org/deployment/57372</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.whoi.edu/globec-dir/reports/al9506/al9506new.html">http://globec.whoi.edu/globec-dir/reports/al9506/al9506new.html</a>
<b>Start Date</b>	1995-06-05
<b>End Date</b>	1995-06-15
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**AL9508**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57373">https://www.bco-dmo.org/deployment/57373</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9508/a9508rp2.HTM">http://globec.who.edu/globec-dir/reports/al9508/a9508rp2.HTM</a>
<b>Start Date</b>	1995-07-10
<b>End Date</b>	1995-07-20
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**AL9605**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57375">https://www.bco-dmo.org/deployment/57375</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9605/al9605.html">http://globec.who.edu/globec-dir/reports/al9605/al9605.html</a>
<b>Start Date</b>	1996-05-06
<b>End Date</b>	1996-05-17
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**AL9607**



<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57376">https://www.bco-dmo.org/deployment/57376</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9607/AL9607.pdf">http://globec.who.edu/globec-dir/reports/al9607/AL9607.pdf</a>
<b>Start Date</b>	1996-06-03
<b>End Date</b>	1996-06-13
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</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>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**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>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</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>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

## EN261

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57401">https://www.bco-dmo.org/deployment/57401</a>
<b>Platform</b>	R/V Endeavor
<b>Start Date</b>	1995-02-10
<b>End Date</b>	1995-02-20
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**EN263**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57403">https://www.bco-dmo.org/deployment/57403</a>
<b>Platform</b>	R/V Endeavor
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/en263/EN263.pdf">http://globec.who.edu/globec-dir/reports/en263/EN263.pdf</a>
<b>Start Date</b>	1995-03-13
<b>End Date</b>	1995-03-24
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**EN265**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57405">https://www.bco-dmo.org/deployment/57405</a>
<b>Platform</b>	R/V Endeavor
<b>Start Date</b>	1995-04-11
<b>End Date</b>	1995-04-22
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**EN276**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57413">https://www.bco-dmo.org/deployment/57413</a>
<b>Platform</b>	R/V Endeavor
<b>Report</b>	<a href="http://globec.whoi.edu/globec-dir/reports/en276/EN276.pdf">http://globec.whoi.edu/globec-dir/reports/en276/EN276.pdf</a>
<b>Start Date</b>	1996-01-10
<b>End Date</b>	1996-01-22
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**EN278**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57414">https://www.bco-dmo.org/deployment/57414</a>
<b>Platform</b>	R/V Endeavor
<b>Start Date</b>	1996-02-13
<b>End Date</b>	1996-02-25
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**EN282**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57415">https://www.bco-dmo.org/deployment/57415</a>
<b>Platform</b>	R/V Endeavor
<b>Start Date</b>	1996-04-08
<b>End Date</b>	1996-04-20
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**OC275**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57440">https://www.bco-dmo.org/deployment/57440</a>
<b>Platform</b>	R/V Oceanus
<b>Start Date</b>	1996-03-11
<b>End Date</b>	1996-03-22
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</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>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub>18O/H<sub>2</sub>16O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**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>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**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>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**PAR95-010**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57473">https://www.bco-dmo.org/deployment/57473</a>
<b>Platform</b>	R/V Parizeau
<b>Report</b>	<a href="http://globec.whoi.edu/globec-dir/reports/par95010/PAR95-010.pdf">http://globec.whoi.edu/globec-dir/reports/par95010/PAR95-010.pdf</a>
<b>Start Date</b>	1995-06-06
<b>End Date</b>	1995-06-13
<b>Description</b>	<p>long term mooring turn-around</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

#### PAR95-034

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57474">https://www.bco-dmo.org/deployment/57474</a>
<b>Platform</b>	R/V Parizeau
<b>Report</b>	<a href="http://globec.whoi.edu/globec-dir/reports/par95034/PAR95034.pdf">http://globec.whoi.edu/globec-dir/reports/par95034/PAR95034.pdf</a>
<b>Start Date</b>	1995-11-24
<b>End Date</b>	1995-12-03
<b>Description</b>	<p>long term mooring turn-around</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**PAR96-024**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57475">https://www.bco-dmo.org/deployment/57475</a>
<b>Platform</b>	R/V Parizeau
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/par9624/par9624.htm">http://globec.who.edu/globec-dir/reports/par9624/par9624.htm</a>
<b>Start Date</b>	1996-09-23
<b>End Date</b>	1996-09-30
<b>Description</b>	<p>long term mooring turn-around</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub>18O/H<sub>2</sub>16O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**PAR97-025**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57476">https://www.bco-dmo.org/deployment/57476</a>
<b>Platform</b>	R/V Parizeau
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/par9725/par9725.htm">http://globec.who.edu/globec-dir/reports/par9725/par9725.htm</a>
<b>Start Date</b>	1997-06-27
<b>End Date</b>	1997-07-04
<b>Description</b>	<p>long term mooring</p> <p><b>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**AL9801**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57382">https://www.bco-dmo.org/deployment/57382</a>
<b>Platform</b>	R/V Albatross IV
<b>Report</b>	<a href="http://globec.who.edu/globec-dir/reports/al9801/al9801.html">http://globec.who.edu/globec-dir/reports/al9801/al9801.html</a>
<b>Start Date</b>	1998-01-07
<b>End Date</b>	1998-01-19
<b>Description</b>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

### 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>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**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.who.edu/globec-dir/reports/oc319/oc319new/oc319rpt.8april98.htm">http://globec.who.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>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub>18O/H<sub>2</sub>16O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

**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.who.edu/globec-dir/reports/oc322/oc322.html">http://globec.who.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>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</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>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</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>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</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/a19901/a19901.html">http://globec.who.edu/globec-dir/reports/a19901/a19901.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>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

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.who.edu/globec-dir/reports/oc336/oc336cruise-report.html">http://globec.who.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>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</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>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

#### 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.who.edu/globec-dir/reports/oc341/reptoc341.html">http://globec.who.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>	<p>broad-scale</p> <p><b>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H218O/H216O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</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>Methods &amp; Sampling</b> Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub>18O/H<sub>2</sub>16O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b> Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</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>Methods &amp; Sampling</b>  Oxygen isotope data are derived from water samples collected on GLOBEC broad-scale and contemporaneous Canadian cruises 1994-1998. The isotope ratio H<sub>2</sub><sup>18</sup>O/H<sub>2</sub><sup>16</sup>O is measured, using a VG Prism II mass-spectrometer operated by Rick Mortlock and maintained by Rick Fairbanks at LDEO.</p> <p><b>Processing Description</b>  Replicates of each water sample are analyzed. The data presented is the average of the replicates and their difference. If the difference exceeds 0.066 the analysis is repeated. The average standard deviation of the data is 0.033. The content of the data file varies according to source, degree of editing, and some arbitrary formatting changes. For broad-scale data the cruise is always given in the file name and sometimes the header. The station number is the broad-scale standard station with associated lat., long., and bottom depth. Temperature, salinity, bottle depth, and sometimes fluorescence and transmissivity data are copied from the broad-scale hydrographic data file. Canadian data are from C.S.S. Parizeau cruises. The station and bottle number are unique to a particular cruise. When depth is listed as pressure it is numerically equivalent to depth in meters. Hydrographic data are supplied by Gary Bugden at the Bedford Institute of Oceanography. The time for each file is denoted by month and year. More precise day and hour information is available in the original hydrographic file.</p>

#### PAR95-031

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57957">https://www.bco-dmo.org/deployment/57957</a>
<b>Platform</b>	R/V Parizeau
<b>Start Date</b>	1995-10-20
<b>End Date</b>	1995-11-09
<b>Description</b>	Canadian Cruise associated with the GLOBEC Georges Bank program, although not part of it.

#### PAR95-032

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57958">https://www.bco-dmo.org/deployment/57958</a>
<b>Platform</b>	R/V Parizeau
<b>Start Date</b>	1995-11-14
<b>End Date</b>	1995-11-23
<b>Description</b>	Canadian cruise associated with GLOBEC Georges Bank, but not part of it. Cruise dates are actually the start and end dates of the dataset.

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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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