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Oceanography and Scientific Data, NAFO Report 2014

by

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Abstract

The Oceanographic Services branch (OS), as the Regional Environmental Data Center for NAFO, is required to provide an annual inventory of environmental data collected in the NAFO Convention Area to the NAFO subcommittee for the environment (STACFEN). Inventories and maps of physical oceanographic observations such as ocean profiles, near surface thermosalinographs, drifting buoys, currents, waves, tides and water level measurements for the calendar year 2014 are included. This report will also provide an update on other OS activities during 2014 and beyond.

It is important for STACFEN to encourage members to send data and information to the designated data center in order to get significant return for NAFO member countries.

Introduction

The Oceanographic Services branch (OS) of DFO acts as Regional Environmental Data Center for NADO. This role began in 1965 when the Canadian Oceanographic Data Centre started providing data management functions to ICNAF, and was subsequently formalized in 1975 by which time the CODC had become the Marine Environmental Data Service (MEDS). The unit within MEDS responsible for the NAFO Regional Environmental Data Center function was later transferred to DFO branches known as Integrated Science Data Management (2005-2013), Oceanography and Scientific Data (2013-2014) and Oceanographic Services (2014-current).

In order for OS to carry out its responsibility of reporting to the Scientific Council, the Designated National Representatives selected by STACFEN are requested to provide OS with all marine environmental data collected in the Northwest Atlantic for the preceding years.

Provision of a meaningful report to the Council for its meeting in June 2015 required the submission to OS of a completed oceanographic inventory form for data collected in 2014, and oceanographic data pertinent to the NAFO Convention Area, for all stations occupied in the year prior to 2014. The data of highest priority are those from the standard sections and stations, as described in NAFO SCR DOC., No. 1, Serial N 1432, 9p.

Data that have been formatted and archived at OS are available to all members on request. Requests can be made by telephone (613) 990-6065, by e-mail to isdm-gdsi@dfo-mpo.gc.ca, by completing an on-line order

form on the OS web site at http://http://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/request-commande/form-eng.asp or by writing to Oceanographic Services, Fisheries and Oceans Canada, 12th Floor, 200 Kent St., Ottawa, Ont. Canada K1A 0E6.

Data Processing and Management

In the NAFO Convention Area, a variety of oceanographic surface, near-surface and subsurface observations, including vertical profiles of parameters such as temperature, salinity, oxygen, nutrients and other chemical and biological variables, are being made every day by ships borne instruments and autonomous devices. The Oceanographic Services branch of DFO (OS) receives these data either in real-time or delayed mode.

Real-time or near real-time data are acquired either directly from instruments (for instance, Argo Canada profilers), from research ships or ships of opportunity, from universities, from DFO research institutes, from the Global Telecommunication System of the World Meteorological Organization and the NOAA's Geostationary Satellite Server. Some real-time data transmitted over satellite or low bandwidth communications are pre-formatted in a way that reduces their vertical resolution or significant figures. Such data receive some form of quality control but generally do not benefit from the calibration made possible after a cruise or an instrument's recovery (in the case of moored equipment or remote controlled devices).

Delayed mode data are acquired through exchanges with research institutes, universities and other ocean databases, such as the World Ocean Database (WOD, NOAA & WDS) and the ICES Oceanographic database. The delayed mode data generally takes from months to years to process after a cruise is over or after an instrument has been recovered. For this reason, OS continually receives delayed mode data from years preceding the previous observation years and must also query the aforementioned international databases (ICES, WOD) for observational periods covering a number of years.

Most real-time data are subject to be replaced with a delayed mode version when available, and even delayed mode data are sometimes subject to recalibration, at which point it must be updated in the archives.

Data processing at OS begins by reformatting files from their original formats into a common format. Quality control is carried out by a combination of specially designed software and trained personnel. The quality control has four main functions. The first is to check and ensure that each data message is properly formatted, units are standardized, and parameter range checks are performed. The second is to identify any duplication, and select the best version based on data type, source of the data, and general qualities in analysis and reporting of the observations. The third is to identify and correct date/time and geographical positioning errors using computer tests and visual inspection of the track for each cruise. The final quality control procedure uses a series of algorithms to find and flag common instrument failures found in profiles or series of subsurface measurements. These algorithms depend on data, platform and/or observation program type.

Data Summary

The data collected in the NAFO Convention Area (NCA) can be grouped by a number of ways (variable type, sampling type, platform type, real-time vs. delayed mode, source, etc.). To facilitate table and geographical representation, the categorization behind tables and figures differs slightly. The following table summarizes counts for 2014 by data type with a correspondence to the figures (p. 8-10) and tables (p. 11-23) where more information can be found.

Data observed in NAFO Convention Area in 2014 and acquired in 2014

Data Type	Platform Type	Counts/Duration	Table #	Figure #
Oceanographic profiles	autonomous platforms	18783* profiles from 133 platforms	1	1
	ship	2271 profiles (1508 +763* real-time) from 23 ships	2	2a
	moored ADCP	3 sites, 290 days each	4	1
Surface/near-surface observations	ship (thermosalinograph)	11316* obs. from 2 ships	2	3
	drifting buoys	368514* obs. from 161 buoys	3	3
	moored buoys temp/waves	53520* obs. from 9 buoys	3	3
	moored buoys temp/salt	114280* obs. from 16 buoys	3	3
	fixed platforms	84591* obs. from 5 platforms	3	3
	water level gauges	21 sites, average of 12 months each	5	3

*Data formatted for real-time transmission

Data observed prior to 2014 in NAFO Convention Area and acquired in 2014

Data Type	Platform Type	Counts/Duration	Table #	Figure #
Oceanographic profiles	ship	7694 profiles from 31 ships	2	2b
	moored ADCP	3 sites, 70 days each	4	4
-	Moored thermistor[2]	210 time series at 87 sites, average of 181 days each	4	4

Description

Oceanographic profiles

Argo (figure 1, table 1)

Argo is an international program which started in 2000 with aims to deploy profiling floats on a 3 by 3 degree grid in the oceans of the world. Each profiling float samples and reports both temperature and salinity from 2000 m to the surface every 10 days. Some of the floats also report oxygen. Data are distributed on the Global Telecommunications System (GTS) of WMO within 24 hours of collection and made available on two mirror Global servers located in France and the US.

OS performs the data management duties of Argo Canada profilers from instrument to the GTS and global servers. OS also decodes and stores all Argo data circulating on the GTS. There are currently over 3800 Argo profiling floats sampling the world oceans. The contribution of profiles measured by floats operated by four countries (25% Canada, 35% France, 5% UK and 35% USA) in NCA, in 2014, highlights the success of Argo as an international project.

Gliders (figure 1, table 1)

Underwater gliders are autonomous underwater vehicles following saw tooth-like profiles in the ocean while measuring various parameters, during missions that can last months and extend over thousands of kilometers.

OS regularly acquires data from the Ocean Tracking Network (Dalhousie University) owned gliders, both active in NCA, and creates messages for transmission on the GTS after performing automatic quality control. OS also decodes and stores all glider data circulating on the GTS. There were also gliders operated by the Naval Oceanographic Office and University of Washington's APL active in the NCA in 2014.

Mammals (figure 1, table 1)
Among data decoded by OS from the GTS are real-time data transmitted by the Sea Mammal Research Units of University of St Andrews. These data are measured by tags featuring miniaturized CTD sensors attached to marine mammals and transmitting oceanographic data in real-time when the animals surface. These devices are used by a variety of researchers worldwide. In 2014 a few observations were made north of Davis Strait by tags possibly attached to hooded seals.

Ships (figures 2a & 2b, table 2)
OS receives real-time (within 30 days of observation) messages containing temperature and salinity profile data (either from CTD or XBT) from various Canadian Coast Guard ships or opportunity vessels performing research or monitoring activities. The messages are sometimes sent from the ships or shortly after the ship's return. The data are quality controlled (see reference, GTSPP QC manual) prior to transmission on the GTS (if within 30 days of observation) or ingestion in the archive.

OS decodes and stores all ship based data circulating on the GTS, either CTD or XBT. Some of this data are sampled by ships of opportunity

OS further receives delayed mode data from DFO institutes: Northwest Atlantic Fisheries Centre, Bedford Institute of Oceanography (BIO), Maurice-Lamontagne Institute (MLI), St. Andrews' Biological Station and Gulf Fisheries Center (GFC, indirectly through BIO or MLI) which it then ingests after conversion and visual quality assurance.

OS also receives delayed mode data from foreign institutes and queries the World Ocean Database and ICES Oceanographic Database for additional data in the NAFO Convention Area (NCA). Comparisons are made between various sources to ensure always store the most recently calibrated data and with the most available number of fields.

Near-surface observations

Moored buoys and fixed stations (figure 3a, table 3)
OS continuously acquires data from meteorological buoys in Canadian waters equipped with ocean data acquisition systems. These buoys belong to Environment Canada and measure wind velocity, air and water temperature, pressure and wave spectral energy with estimated period and significant wave height. All data are currently acquired via the Geostationary Operational Environmental Satellite (GOES), on which the buoys transmit, but in some situations the data is acquired in delayed-mode. The wave data has quality flags assigned by a combination of automated algorithms and a visual inspection of the spectral shape.

OS also acquires, in delayed mode, data from wave measuring buoys deployed collected near offshore oil and gas sites as per NEB Guidelines. In 2014, a data submission from year 2013 wave buoys at four locations was archived at OS.

A number of US moored buoys and fixed stations transmit data on the GTS, and those are acquired by OS. These stations belong to various institutions but their data management is coordinated by NOAA's National Data Buoy Center. Their positions are typically near the coast.

Drifting buoys (figure 3a, table 3)
OS decodes and stores all drifting buoy data circulating on the GTS. Like in Argo, these buoys are deployed by various countries. Most buoys are designed for the Surface Velocity Program and are drogued at 15 m depth. The data reported are temperature and sometimes salinity. The buoy calculated displacement, over time, provides an estimation of currents at the drogued depth.

Thermosalinographs (figure 3a, table 2)
OS decodes and stores all thermosalinograph data circulating on the GTS. In 2014 two French ships reported thermosalinograph data in the NCA.

Moorings (figure 3-4, table 3)
Current meters have been deployed in the NCA for many years. Depending on location, the data are processed and archived by the BIO or MLI.

In 2014, 2013-2014 Acoustic Current Doppler Profiler data at the Ocean Tracking Network sites 1-3 were recovered processed and made available by and at BIO. Older moored thermograph data (2006-2013) from the GFC and Lobster Settlement Collector Project were also processed and made available by BIO.

Water level gauges (figure 3, table 5)
OS processes and archives observed water level data collected from the gauge network maintained by the Canadian Hydrographic Service (CHS), plus a few stations operated by Environment Canada. Data are exchanged with Environment Canada. Over 2 million new observations are archived every month. The historical tide and water level data archive has digital records with the earliest dating back before the turn of the century

Other Activities

Atlantic Zone Monitoring Program

The DFO Atlantic Zone Monitoring Program (AZMP) activities include regular sampling for 7 fixed stations and 14 standard sections, and research cruises in the AZMP area to collect other physical, chemical and biological data. As part of ISDM' activities in data management, OS continues to build and maintain the AZMP web site: http://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/azmp-pmza/index-eng.html.

The wealth of data and information on the site includes:

- Physical and chemical data from 1999 to the present such as CTD, bottle and bathythermograph measurements
- Climate indices showing long term trends of physical variables in the water and atmosphere.
- Water level data for 9 gauges ranging from 1895 to present
- Remote Sensing links for Ocean Colour, SST and Primary Productivity product

The data collected as part of AZMP is also compiled in figures and tables pertaining to ship observations. A climate index of area vs. bottom temperature-range distribution of bottom waters calculated for four NAFO sub-areas (4X, 4W, 4Vn, 4Vs), for the Northern Gulf and Magdalen Shallows, is made available along with other climate indices on the AZMP website.

Aquatic Invasive Species (AIS)

Aquatic Invasive Species are a major threat to Canada's fisheries and aquaculture industry and have been entering Canadian waters for centuries but never as rapidly as today. Every decade, some 15 alien species establish themselves in our coastal or inland waters. In the absence of their natural predators, the most aggressive of them spread rapidly. They can radically alter habitat, rendering it inhospitable for native species. The zebra mussel and sea lamprey are examples of such species that have greatly affected the Great Lakes.

The most effective approach to dealing with this threat involves managing the pathways through which invasive species enter and spread through Canadian waters. For aquatic species these pathways are shipping, recreational and commercial boating, the use of live bait, the aquarium/water garden trade, live food fish, unauthorized introductions and transfers, and canals and water diversions. The shipping pathway is considered the largest single source of new aquatic invasive species. Ballast water that is taken on in foreign ports, for ship stability and safety at sea, is discharged in Canadian waters, along with undesirable "hitchhikers" - foreign species ranging from bacteria to larger organisms.

The Canadian Aquatic Invasive Species database and web application was developed in 2004-5. The main objective was to provide a geo-referenced repository for all invasive species observations gathered in Canada by DFO scientists, provincial departments, other federal or municipal departments and the general public. The second objective was to create a decision making tool that would allow the production of augmented value products that would illustrate trends and movements over time and various locations and thus allow

the department to be proactive rather than reactive to observations made.

Currently there is data from the Great Lakes, the Maritimes and some from the Vancouver area. Most of the data are observations of location name, long-lat, species name, date, and any metadata provided. It was not possible at the time of this report to obtain counts of new observations added in 2014.

Offshore Oil and Gas Environmental Monitoring Data (Table 6)

OS also acquires, in delayed mode, monitoring physical oceanographic data collected near offshore oil and gas sites as per NEB Guidelines. Data submissions from year 2013 contained wave buoy, mooring (current) and CTD data at four locations. The wave data are tagged for inclusion in the OS wave archives whereas CTD and mooring data are sent to BIO.

Data Access

Argo data are sent to the global data centers within 24 hours of collection and a national website (http://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/argo/index-eng.html) presents products and statistics on Argo Canada profilers along with links to the data.

GTS-decoded or otherwise acquired real-time oceanographic profiles, US costal mooring and US fixed platform data from the GTS are forwarded three times a week to the Global Temperature Salinity Profile Programme's Continuously Managed Database (http://www.nodc.noaa.gov/GTSPP/access_data) and to the Copernicus Environment Monitoring Service (formerly MyOcean) where they are made available in "near real time in situ" products (http://marine.copernicus.eu/web/69-myocean-interactive-catalogue.php). The GTS thermosalinograph data are forwarded to Ifremer's Coriolis data center (http://www.gosud.org).

Delayed-mode Canadian oceanographic profile data are exchanged bilaterally with the ICES Oceanographic (http://www.ices.dk/marine-data/data-portals/Pages/ocean.aspx) and the World Ocean Databases (https://www.nodc.noaa.gov/OC5/WOD/pr_wod.html). Synchronization is however a work in progress and one may need to allow from months to more than a year for Canadian data to become available from these databases after it has been collected.

Bottle and plankton data acquired from ships can be accessed from the BioChem database (http://www.meds-sdmm.dfo-mpo.gc.ca/biochem/biochem-eng.htm). Selected ocean profiles along AZMP sections can be viewed and downloaded from the AZMP website (http://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/azmp-pmza/index-eng.html). OS sends updates of data acquired to DFO research institutes on a monthly basis. Canadian oceanographic profiles data can otherwise always be requested through this form: http://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/request-commande/form-eng.asp.

GTS-decoded drifting buoy and equatorial moored buoy data are sent to the US NODC (now part of National Centers for Environmental Information, NOAA) Ocean Archive System on a yearly basis (http://www.nodc.noaa.gov/cgi-bin/OAS/prd/text/query) and monthly trajectories in the form of Google Earth files are available on a national website (http://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/dribbder/KML/MonthlyKML-eng.htm).

Canadian moored buoy data are made available on a national website within days of collection (updates on business days): http://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/waves-vagues/index-eng.htm

Canadian water level data are available from two national websites: http://waterlevels.gc.ca (last 24 hours); http://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/twl-mne/index-eng.htm (delayed-mode/historical). Relevant stations data are shared with international initiatives such as the Permanent Service for Mean Sea Level, Global Sea Level Observing System and IOC Sea Level Station Monitoring facility.

Canadian moorings data are available from BIO (http://www.bio.gc.ca/science/data-donnees/base/index-eng.php) or MLI (http://slgo.ca/app-sgdo/en/accueil.html) depending on the site locations.

Aquatic Invasive Species data can be queried through an application (http://www.meds-sdmm.dfo-mpo.gc.ca/ais-eae) or viewed as a geoportal gallery (http://geoportal.gc.ca/eng/Gallery/MapProfile/3).

References

List of NAFO Standard Oceanographic Sections and Stations. The reprint of NAFO SCR DOC., NO. 1, Serial N1432, 9p. Printed and distributed by: NAFO, P.O. Box 638, Dartmouth, Nova Scotia, Canada B2Y 3Y9.

GTSPP Real-Time Quality Control Manual First Revised Edition. UNESCO-IOC 2010. (IOC Manuals and Guides No. 22, Revised Edition.) (IOC/2010/MG/22Rev.)

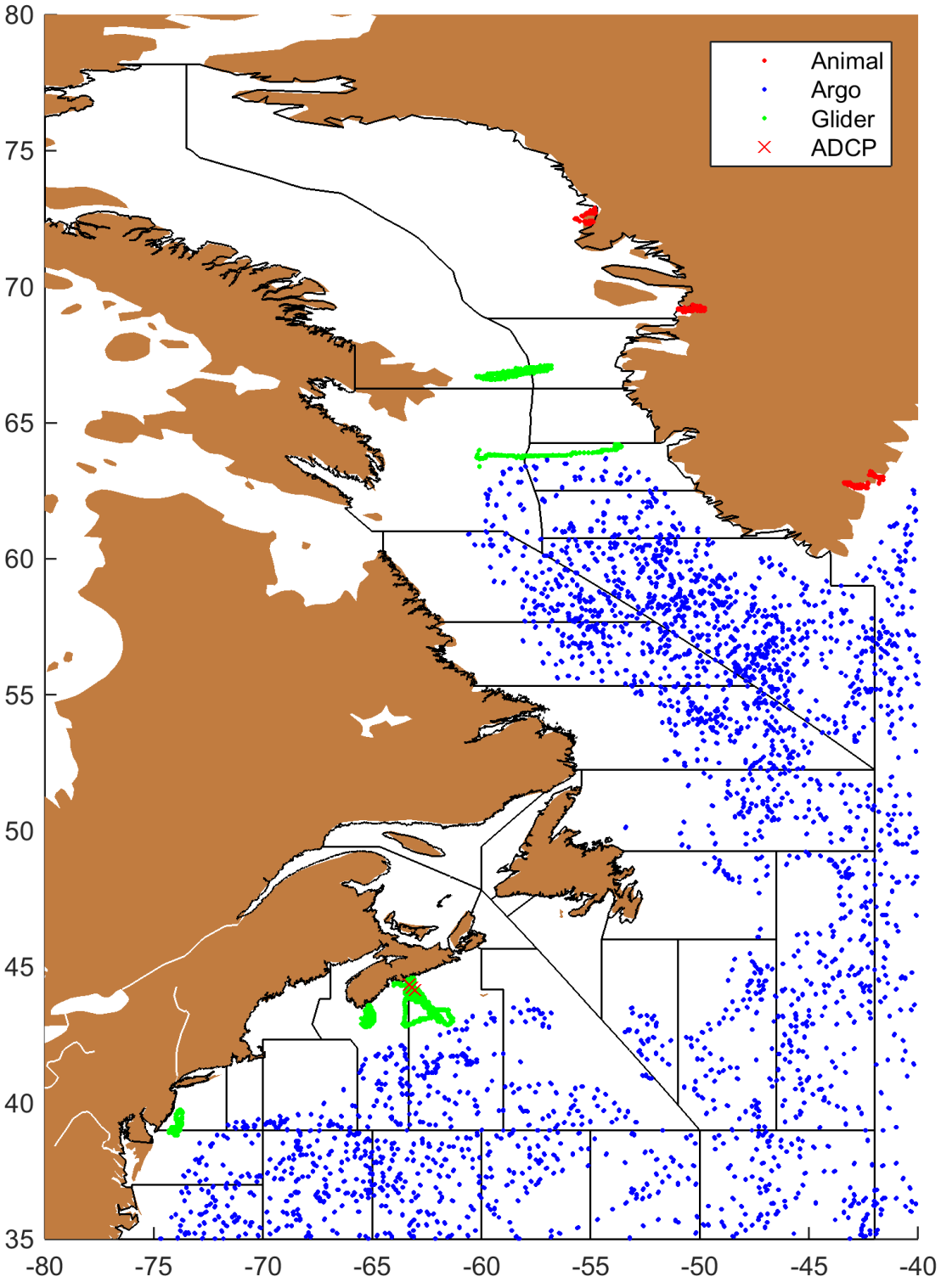

Figure 1: Position of profiles sampled by autonomous platforms in 2014 and acquired in 2014

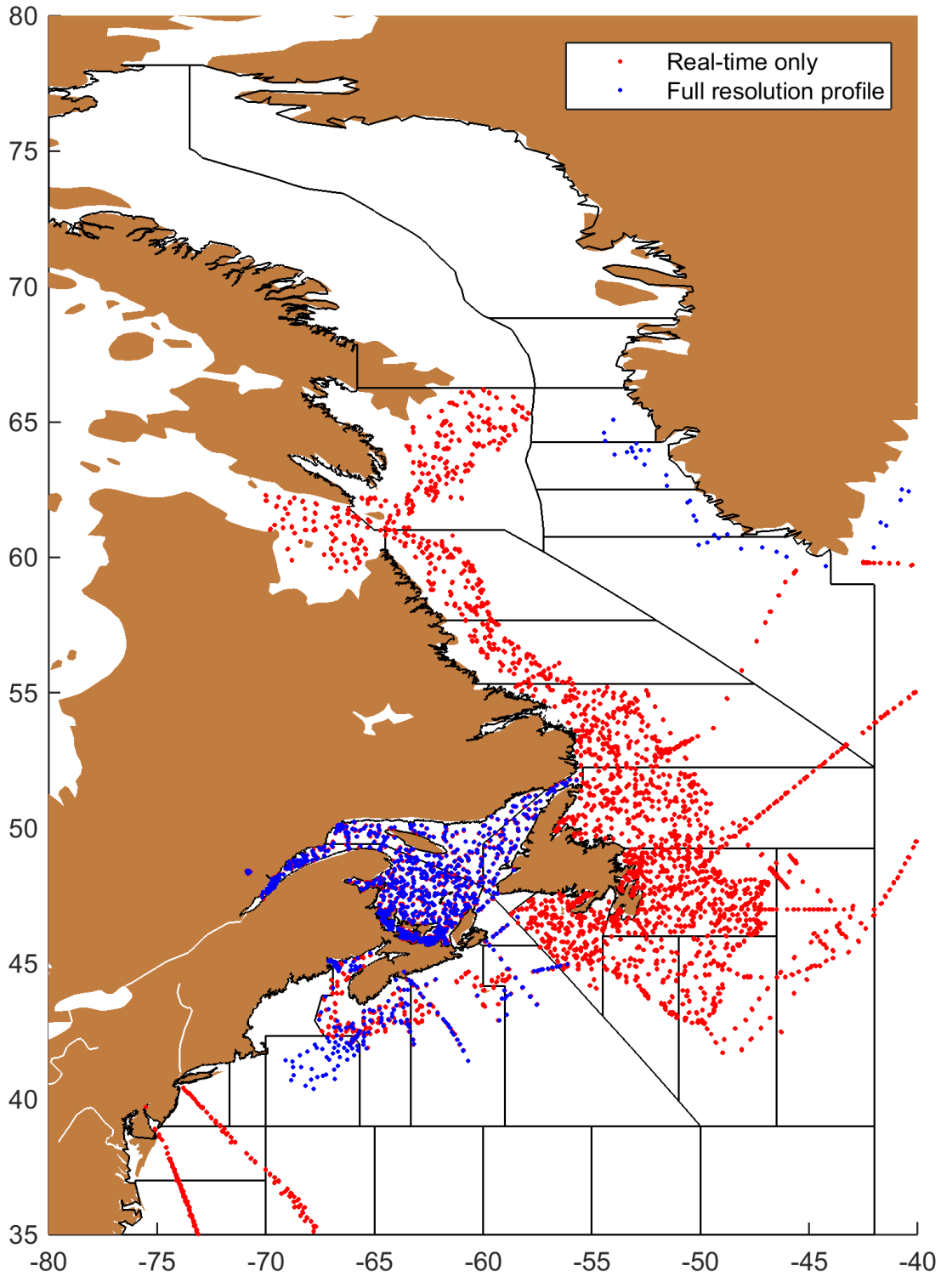

Figure2a: Position of profiles sampled by ships in 2014 and acquired in 2014

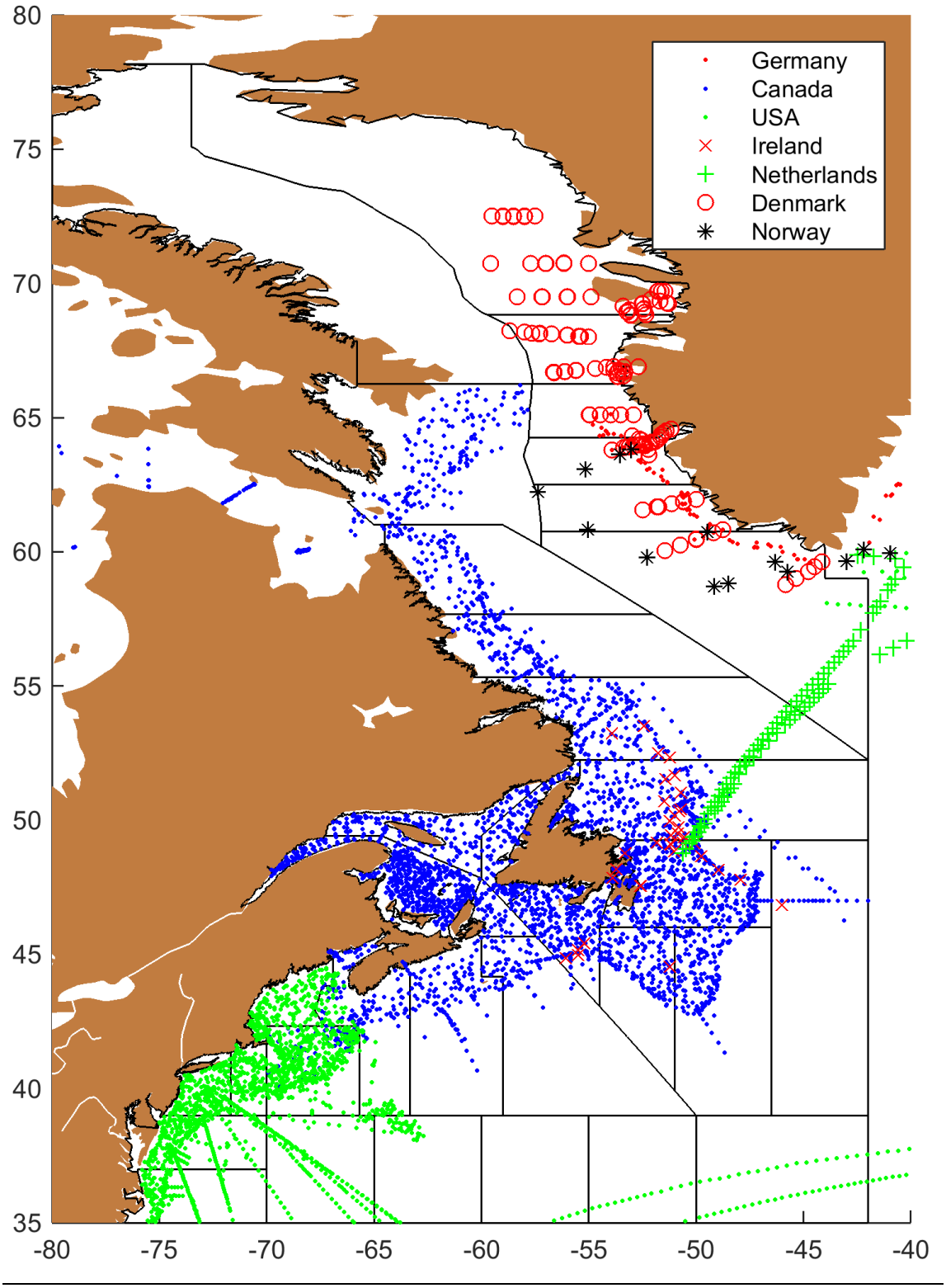

Figure 2b: Position of profiles sampled by ships before 2014 and acquired in 2014

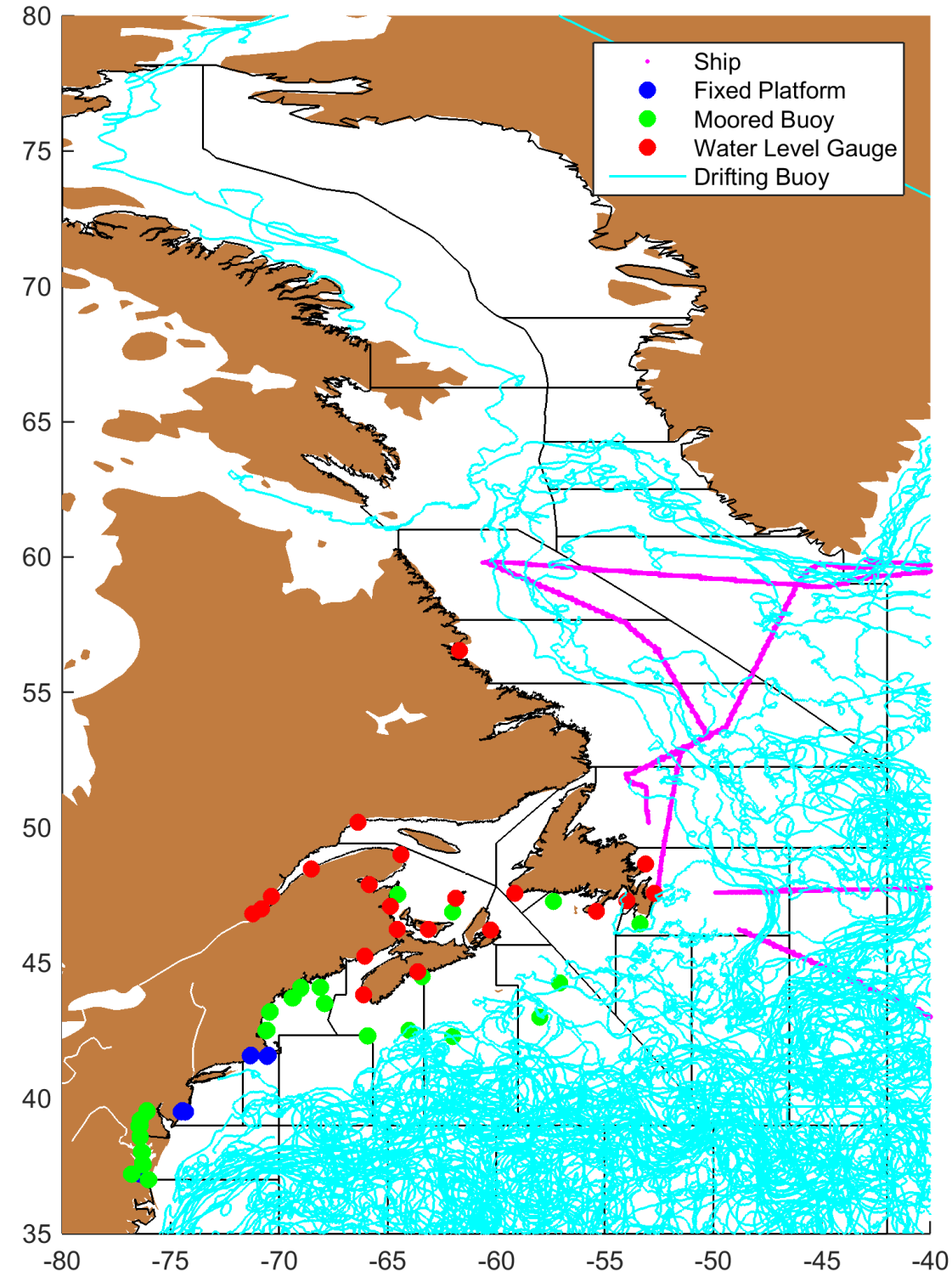

Figure 3: Position of near surface observations made in 2014 and acquired in 2014

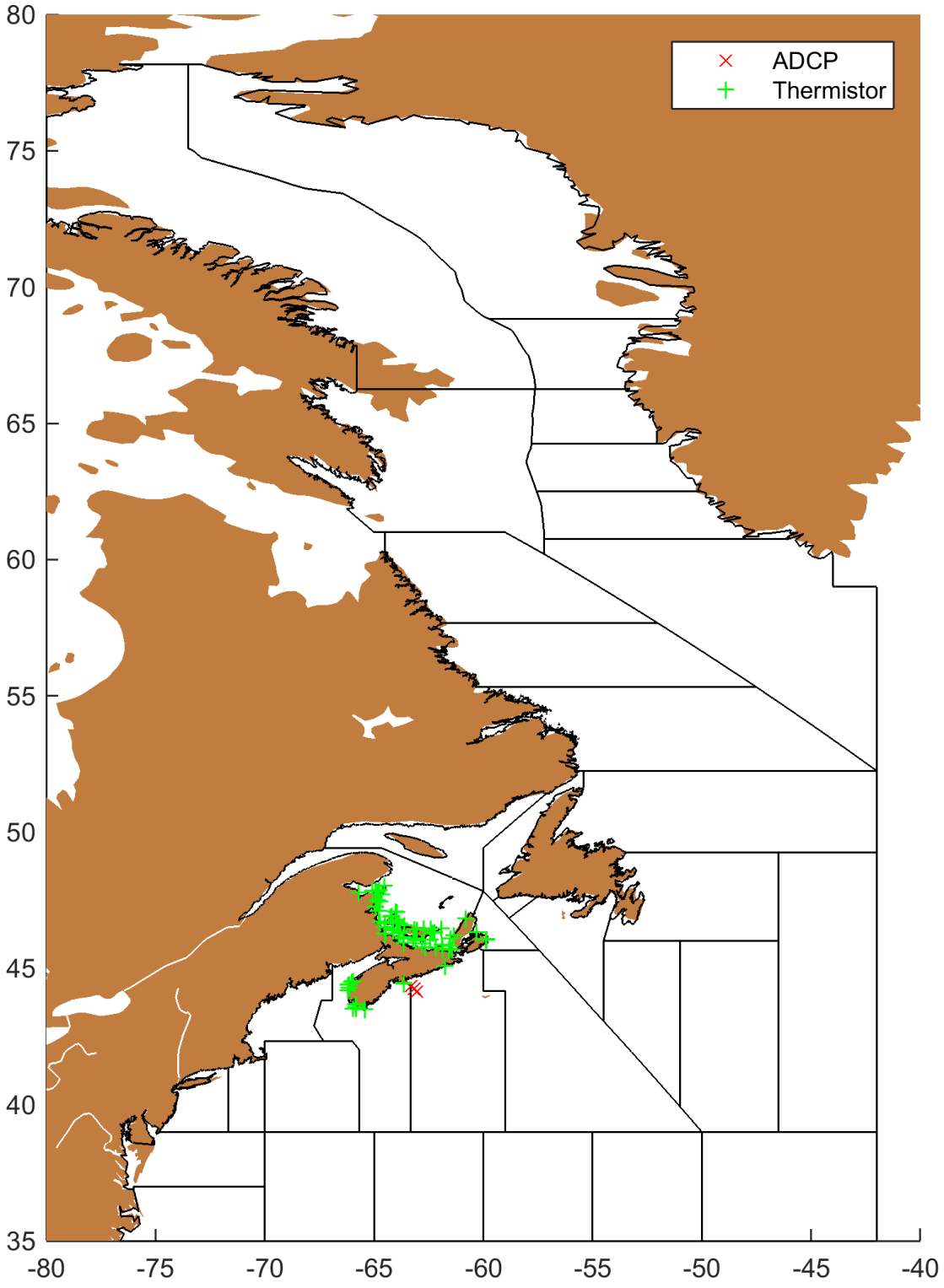

Figure 4: Position of moorings with data measured before 2014 and processed in 2014

Table 1: Real-time temperature (BATHY/TESAC) and /or salinity (TESAC) data profile from autonomous platforms collected and processed in 2014

Platform Type	Platform Name	Country	WMO Id	Period*	TESAC	BATHY	NAFO Subareas
Argo Profiler		CANADA	4901127	Jan-Sep	9	0	3M 3K
Argo Profiler		CANADA	4901129	Jan-Jan	3	0	6H
Argo Profiler		CANADA	4901149	Jan-Apr	12	0	6E 6D
Argo Profiler		CANADA	4901152	Jan-Feb	5	0	1F
Argo Profiler		CANADA	4901160	Jan-Jun	12	0	3K 3L 3M
Argo Profiler		CANADA	4901162	Jan-Nov	3	0	1F
Argo Profiler		CANADA	4901164	Jan-Mar	7	0	1D 0B 2G
Argo Profiler		CANADA	4901165	Feb-Feb	1	0	1D
Argo Profiler		CANADA	4901167	Jan-Aug	11	0	1F
Argo Profiler		CANADA	4901192		26	0	1F
Argo Profiler		CANADA	4901195	Jan-Jun	14	0	3K 3L 3M
Argo Profiler		CANADA	4901198	Dec	22	0	1F
Argo Profiler		CANADA	4901199		21	0	6E 6D 6F 4V 6G
Argo Profiler		CANADA	4901200	Jan-Aug	23	0	1F 1E 2G 2H
Argo Profiler		CANADA	4901201		35	0	3N 3M
Argo Profiler		CANADA	4901202	Jan-Jun	16	0	2J 3K 3L 3M
Argo Profiler		CANADA	4901744		34	0	2H 2G 1F
Argo Profiler		CANADA	4901745	Jan-Nov	24	0	3M
Argo Profiler		CANADA	4901746	Jan-Mar	6	0	2G 1F
Argo Profiler		CANADA	4901747		35	0	1F 2G 2H 2J
Argo Profiler		CANADA	4901748		35	0	1F 2H 2J
Argo Profiler		CANADA	4901750		36	0	1F 2J 2H
Argo Profiler		CANADA	4901751		31	0	2H 2G 1F 1E
Argo Profiler		CANADA	4901752		35	0	1F 2H 2J 3K
Argo Profiler		CANADA	4901753		30	0	2G 1F 2H

Argo Profiler	CANADA	4901755	Mar-Dec	23	0	6C 6D 6E
Argo Profiler	CANADA	4901762	Aug-Dec	12	0	2H 1F 2G
Argo Profiler	CANADA	4901763	Apr-Dec	26	0	4V 4W 4X 5Z 6D 6E
Argo Profiler	CANADA	4901764	Apr-Jun	7	0	4V
Argo Profiler	CANADA	4901765	Apr-Dec	23	0	4W 4V 6F 6G 6H
Argo Profiler	FRANCE	1901208	Oct-Dec	7	0	6H
Argo Profiler	FRANCE	1901210		36	0	2G 1F 2H 2J
Argo Profiler	FRANCE	1901217		35	0	1F 2J 2H
Argo Profiler	FRANCE	1901218	Jan-Jun	12	0	3N 3M
Argo Profiler	FRANCE	4901411	Jan-Aug	20	0	3M 3K 2J
Argo Profiler	FRANCE	4901416	Jan-Apr	3	0	1F
Argo Profiler	FRANCE	4901417		37	0	1F 2H 2G
Argo Profiler	FRANCE	4901418		36	0	1F 2J 2H
Argo Profiler	FRANCE	4901420		3	0	3M
Argo Profiler	FRANCE	4901680	Jan-May	3	0	3M 3K
Argo Profiler	FRANCE	4901681	Jan-Nov	30	0	1F 2H 2J 3K
Argo Profiler	FRANCE	5902269	Jan-Jun	18	0	2J 3K 3L 3N
Argo Profiler	FRANCE	5902297		36	0	1F 1E
Argo Profiler	FRANCE	5902304		27	0	1E 1D 0B 2G 2H
Argo Profiler	FRANCE	6900539	Feb-Oct	11	0	1F
Argo Profiler	FRANCE	6900582	Jan-Sep	11	0	3M 3K
Argo Profiler	FRANCE	6900638	Jan-May	12	0	3M 3K
Argo Profiler	FRANCE	6900910	Dec	3	0	6C 6D
Argo Profiler	FRANCE	6900973		36	0	1F 1E 2G 2H 2J 3K
Argo Profiler	FRANCE	6901001	Jan-May	3	0	3M
Argo Profiler	FRANCE	6901030		35	0	1F 2G
Argo Profiler	FRANCE	6901085	Jan-Jul	6	0	6E

Argo Profiler	FRANCE	6901217		37	0	6E 6F 4V 4W 6G
Argo Profiler	FRANCE	6901218	Oct-Nov	2	0	6E
Argo Profiler	FRANCE	6901480	May-Dec	50	0	1F 1E 2G 2H
Argo Profiler	FRANCE	6901485	Jul-Dec	14	0	1F 1E 1D
Argo Profiler	FRANCE	6901486	May-Dec	27	0	1F
Argo Profiler	FRANCE	6901489	May-Dec	27	0	1E 2G 2H
Argo Profiler	FRANCE	6901508	May-Nov	19	0	6H 3N 3M
Argo Profiler	FRANCE	6901521	Jan	2	0	1F
Argo Profiler	FRANCE	6901523	Jan	2	0	1F
Argo Profiler	FRANCE	6901524	Jan-Nov	26	0	1F
Argo Profiler	FRANCE	6901525		47	0	2H 3M 3N
Argo Profiler	FRANCE	6901527		40	0	2H 1F 2J 2G 1E
Argo Profiler	FRANCE	6901589	Jun-Dec	19	0	2J 1F
Argo Profiler	FRANCE	6902563	Oct-Dec	7	0	4V
Argo Profiler	FRANCE	6902564	Nov-Dec	7	0	4X
Argo Profiler	FRANCE	6902565	Oct-Dec	7	0	4W 5Z
Argo Profiler	FRANCE	6902566	Oct-Dec	7	0	4W 4X
Argo Profiler	FRANCE	6902567	Oct-Dec	7	0	4W
Argo Profiler	FRANCE	6902586	Sep-Dec	9	0	1F 2H
Argo Profiler	FRANCE	6902587	Oct-Dec	9	0	1F
Argo Profiler	FRANCE	6902588	Oct-Dec	8	0	1F
Argo Profiler	FRANCE	6902589	Oct-Dec	10	0	2H
Argo Profiler	UK	1901294	Aug-Dec	12	0	1F 1E
Argo Profiler	UK	6900446	Feb-Dec	29	0	1F 1E
Argo Profiler	UK	6900613	Jan-Oct	28	0	1D 1E 0B 2G 2H 2J
Argo Profiler	UK	6900619	Mar-Oct	17	0	1F 1E 2G 2H
Argo Profiler	UK	6900653	Jun-Dec	21	0	1F 1E 1D

Argo Profiler	UK	6901136	Jun-Sep	6	0	1F 1E
Argo Profiler	USA	1901465		35	0	4V 3O 3N
Argo Profiler	USA	1901534		33	0	6E 6F 4W 4V
Argo Profiler	USA	1901584	Jan-Mar	6	0	6D 6E 6F
Argo Profiler	USA	1901597		29	0	6H 3M
Argo Profiler	USA	4901057	Oct-Dec	8	0	6C 6B 6D
Argo Profiler	USA	4901278		30	0	6E 4X 5Z 6D 6C 6B
Argo Profiler	USA	4901297	Jun-Nov	2	0	6H
Argo Profiler	USA	4901298	Jun-Dec	2	0	6C 4V
Argo Profiler	USA	4901400	Aug-Dec	13	0	6C 6D
Argo Profiler	USA	4901448	Jan-Mar	8	0	6D 6E
Argo Profiler	USA	4901450	Oct	1	0	6G
Argo Profiler	USA	4901453	Jan	1	0	6E
Argo Profiler	USA	4901461		32	0	6D 6E 6F 4W 4V 6G 6H 3N 3M
Argo Profiler	USA	4901462		36	0	6D 6C 6B 5Z 4W 4X 6F 4V
Argo Profiler	USA	4901464		31	0	6F 4V 6G 6H 3M
Argo Profiler	USA	4901467	Nov-Dec	11	0	6E 6D 4W
Argo Profiler	USA	4901469	Mar-Dec	8	0	6H
Argo Profiler	USA	4901470	Jan-May	8	0	6H 6G
Argo Profiler	USA	4901591	Jan-Mar	6	0	6E 6D
Argo Profiler	USA	4901594	Jul-Dec	16	0	6C 6B 6D 4X 6E
Argo Profiler	USA	4901628	May-Dec	29	0	5Z 6B 6C 6D 6E
Argo Profiler	USA	4901629	May-Dec	25	0	5Z 6B 6C 6D 6E 6F
Argo Profiler	USA	4901630	May-Dec	28	0	6D 5Z 6B 6C
Argo Profiler	USA	4901631	May-Dec	25	0	6D 5Z 6B 6E
Argo Profiler	USA	4901675	May-Jun	5	0	6D 6B
Argo Profiler	USA	4901701	Sep	1	0	6H

Argo Profiler		USA	4901704	Sep-Dec	13	0	4W 4X 6F
Argo Profiler		USA	4901705	Sep-Dec	14	0	4W 4X
Argo Profiler		USA	4901706	Sep-Nov	9	0	4W 4X
Argo Profiler		USA	4901707	Sep-Dec	20	0	4W 4X 6F 6E
Argo Profiler		USA	5903377		66	0	6G 3N 6H
Argo Profiler		USA	5903387	Jan-May	7	0	1F
Argo Profiler		USA	5903390		35	0	2G 2H 2J 3K
Argo Profiler		USA	5903393	Jan-Sep	24	0	2J 3K 3L 3M
Argo Profiler		USA	5903394	Jan-May	8	0	3M 3K
Argo Profiler		USA	5903397		36	0	2J 3K
Argo Profiler		USA	5903399	Apr-Oct	15	0	3M 3N
Argo Profiler		USA	5903594	Jan-Jun	27	0	6H 3N 3M
Argo Profiler		USA	5903889	Apr-Dec	27	0	6C 6D 6E 4X 4W 5Z
Argo Profiler		USA	5903890		49	0	6D 6C 6B 6E 4X 4W 6F 4V 6G
Argo Profiler		USA	5903997		41	0	4W 4V 6E 6D 4X
Argo Profiler		USA	5904174	Feb-Nov	17	0	3M 3K 2J 1F
Glider	DAL OTN 201	CANADA	48922		5428	0	4X 4W
Glider	DAL OTN 200	CANADA	48923		3050	0	4X 4W
Glider	NOC NG291	USA	48900		3126	0	6A 6B
Glider	NOC NG297	USA	48901		3295	0	6A 6B
Glider	-	USA	48914		254	0	0B 1D
Glider	UW APL Sg217	USA	68900		498	0	0A 1B
Pinniped			9900649		158	0	1A
Pinniped			9900650		205	0	1A
Pinniped			9900653		190	0	1A
Pinniped			9900723		132	0	1A
Pinniped			9900725		117	0	1A

*Date of first and last data reports within the NAFO Convention Area; when empty, reporting period was from January through December.

Table 2: Profile (XBT, CTD) and surface (thermosalinograph) data collected aboard ships, processed in 2014

Platform Name	Country	Cruise Number	Reporting	Period	Towed CTD	CTD	Bottle	XBT	Thermo salino	NAFO Subareas
Alfred Needler	CANADA	18NE14002	20140218	20140303	0	43	0	0	0	4W 5ZE
Alfred Needler	CANADA	18NE14101	20140308	20140322	0	55	0	0	0	4X 5ZE 4W
Alfred Needler	CANADA	-	20140404	20140908	0	268*	0	4*	0	3L 3P 3N 4X 4W 5Y 5Z 4V
Alliance[3]	CANADA	18VA14001	20140626	20141015	0	35	0	0	0	4T
Alliance[3]	CANADA	18VA14668	20140626	20141015	0	6	0	0	0	4T
Beluga II[3]	CANADA	18BP14001	20140422	20141216	0	29	0	0	0	4T
Beluga II[3]	CANADA	18BP14013	20140515	20141104	0	10	0	0	0	4T
F.G. Creed[3]	CANADA	18FC14005	20140502	20140508	0	21	0	0	0	4T
F.G. Creed[3]	CANADA	18FC14011	20140807	20140825	0	13	0	0	0	4T 4S
Helicopter[3]	CANADA	18HE14003	20140303	20140318	0	79	0	0	0	4S 4R 4T 4VN
Hudson	CANADA	-	20140703	20140713	0	38*	0		0	3H 3L 3N
Hudson[3]	CANADA	18HU14004	20140405	20140423	0	86	0	0	0	4W 4VS 4X 5ZE 4VN 4R 3PS
Hudson[3]	CANADA	18HU14014	20140601	20140620	0	137	0	0	0	4T 4VN 4R 4S
Hudson[3]	CANADA	18HU14030	20140919	20141008	0	65	0	0	0	4X 4W 4VS 4VN 3PS 4R 5ZE
Hudson[3]	CANADA	18HU14037	20141019	20141110	0	139	0	0	0	4R 4S 4T 4VN
Hudson	CANADA	-	20141117	20141207	0	90*	43*		0	2H 2J 3H 3L 3N 3M
Kinguk	CANADA	-	20140716	20140924	0	319*	0	0	0	2G 0B 1C
Leim	CANADA	-	20140429	20140429	0	1*	0	0	0	4S
Leim[3]	CANADA	18LO14007	20140512	20140517	0	21	0	0	0	4S
M. Perley[3]	CANADA	18MU14021	20140716	20140807	0	97	0	0	0	4T
M. Perley[3]	CANADA	18MU14031	20140925	20141003	0	12	0	0	0	4T
Sigma-T[3]	CANADA	18VA14667	20140108	20141217	0	52	0	0	0	4X

Sigma-T[3]	CANADA	18VA14666	20140110	20141216	0	8	0	0	0	4W
Teleost	CANADA	-	20140203	20140728	0	500*	0	128*	0	3Ps 3O 3N 3M 3L 3H 2J 2H
Teleost[3]	CANADA	18TL14021	20140802	20140901	0	123	0	0	0	4S 4T 4R 4VN
Teleost[3]	CANADA	18TL14133	20140905	20140928	0	163	0	0	0	4T
Teleost	CANADA	-	20141004	20141221	0	432*	0	8*	0	**2G 2H 2J 3H3L**
Viola M. Davidson[3]	CANADA	18VA14669	20140115	20141216	0	13	0	0	0	4X
Viola M. Davidson[3]	CANADA	18AU14001	20140113	20141010	0	145	0	0	0	4X
Vladykov	CANADA	-	20140526	20141027		146*		4	0	3P 3L 3K
(unknown vessel)	CANADA	-	20140309	20140812	0	3*	0	0	0	4W
(various vessels)[3]	CANADA	189014018	20140528	20141003	0	94	0	0	0	4T
Pourquoi Pas?	FRANCE	-	20140615	20140708	0	60*	0	0	6960*	1F 2J 3K 2H 3L 3N 3M
Thalassa	FRANCE	-	20140801	20140818	0	14*	0	0	4356*	3L 2J 3M 3K 2H 2G 1F
Maria. S. Merian	GERMANY	-	20140602	20140603	0	9*	0	0	0	3M
WALTHER HERWIG III	GERMANY	06NI14379	20141014	20141105	0	30	28	0	0	1F 1E 1D 1C
Horizon Navigator	USA	-	20140405	20141214	0	0	0	72*	0	6C 6B
Maersk Vilnius	USA	-	20140317	20140924	0	0	0	154*	0	6E 6D 5Z 6B 6A
MAERSK VISBY	USA	-	20141215	20141217	0	0	0	43*	0	6E 6D 5Z 6B 6A
Oleander	USA	-	20140910	20141109	0	0	0	52*	0	6D 6A 6B
Skogafoss	USA	-	20140405	20141012	0	0	0	91*	0	3M 3N 1F 2J 3K 3L
(various vessels)	CANADA	18VA13023	20130604	20131115	0	12	0	0	0	4T
Alfred Needler	CANADA	18NE13002	20130226	20130319	0	56	0	0	0	4W 5ZE 4X
Alfred Needler	CANADA	18NE13430	20130326	20130401	70	0	0	0	0	3PS
Alfred Needler	CANADA	18NE13431	20130404	20130415	81	0	0	0	0	3PS 3PN 4R
Alfred Needler	CANADA	18NE13432	20130418	20130428	98	0	0	0	0	3PS 3O
Alfred Needler	CANADA	18NE13433	20130506	20130514	55	2	0	1	0	3L 3O 3N
Alfred Needler	CANADA	18NE13434	20130518	20130525	66	0	0	0	0	3N 3L

Alfred Needler	CANADA	18NE13435	20130531	20130621	131	5	0	1	0	3L 3O 3PS 3N
Alfred Needler	CANADA	18NE13022	20130627	20130804	0	231	0	0	0	4X 4W 5ZE 5Y 4VS 4VN
Alfred Needler	CANADA	18NE13438	20130918	20131001	87	4	0	0	0	3L 3O 3N
Alfred Needler	CANADA	18NE13439	20131002	20131015	52	2	0	0	0	3L 3N
Alfred Needler	CANADA	18NE13440	20131016	20131028	65	7	0	3	0	3L 3N 3PS 3O
Alfred Needler	CANADA	18NE13441	20131030	20131111	73	1	0	3	0	3L
Alfred Needler	CANADA	18NE13442	20131114	20131125	47	1	0	2	0	3L 3K
Alfred Needler	CANADA	18NE13443	20131126	20131203	27	1	0	0	0	3L 3K 2J
Alliance	CANADA	18VA13002	20130704	20131023	0	24	0	0	0	4T
Aqviq	CANADA	18QQ13108	20130717	20130817	249	0	0	3	0	2H 2G 0B 1C
Beluga II	CANADA	18BP13005	20130409	20131203	0	26	0	0	0	4T
Cap Breton	CANADA	18VA13668	20130508	20131011	0	4	0	0	0	4T
F.G. Creed	CANADA	18FC13036	20131012	20131022	0	9	0	0	0	4S 4R
Hudson	CANADA	18HU13037	20130921	20131009	0	96	0	0	0	4X 4W 4VS 4VN 4R 3PS 5ZE
Hudson	CANADA	18HU13038	20131019	20131110	0	167	0	0	0	4R 4VN 4S 4T 3PN 3PS
Jean Mathieu	CANADA	18VA13001	20130709	20131014	0	338	0	0	0	4T 4VN
Sigma-T	CANADA	18VA13667	20130102	20131219	0	54	0	0	0	4X
Sigma-T	CANADA	18VA13666	20130109	20131122	0	7	0	0	0	4W
Teleost	CANADA	18TL13125	20130308	20130308	0	1	0	0	0	3L
Teleost	CANADA	18TL13113	20130403	20130409	0	10	0	0	0	3L 3PS
Teleost	CANADA	18TL13115	20130430	20130510	68	3	0	2	0	3L 3K
Teleost	CANADA	18TL13116	20130511	20130527	41	2	0	42	0	3L 3K
Teleost	CANADA	18TL13119	20131005	20131013	28	1	0	1	0	3L 2H
Teleost	CANADA	18TL13120	20131018	20131028	77	0	0	6	0	2H 2G 2J
Teleost	CANADA	18TL13121	20131031	20131111	76	0	0	3	0	2J 3K
Teleost	CANADA	18TL13122	2013111	2013112	39	1	0	6	0	3K 2J 3L

			4	6						
Teleost	CANADA	18TL13123	2013112 8	2013120 9	43	2	0	1	0	3L 3K
Teleost	CANADA	18TL13124	2013121 1	2013121 8	25	1	0	1	0	3L 3K
Viola M. Davidson	CANADA	18VA13669	2013011 4	2013121 7	0	11	0	0	0	4X
Viola M. Davidson	CANADA	18AU13001	2013060 4	2013121 7	0	138	0	0	0	4X
Vladykov	CANADA	18VD13010	2013042 3	2013042 4	0	3	0	0	0	3L
Vladykov	CANADA	18VD13012	2013051 5	2013051 7	0	3	0	0	0	3PS
Vladykov	CANADA	18VD13013	2013060 1	2013060 8	0	12	0	0	0	3L 3PS
Vladykov	CANADA	18VD13014	2013061 3	2013062 4	0	13	0	0	0	3L 3PS
Vladykov	CANADA	18VD13015	2013070 3	2013071 0	0	4	0	0	0	3L 3K
Vladykov	CANADA	18VD13016	2013073 1	2013081 1	0	23	0	0	0	3L
Vladykov	CANADA	18VD13023	2013081 3	2013081 3	0	1	0	0	0	3L
Vladykov	CANADA	18VD13017	2013081 6	2013082 1	0	26	0	0	0	3L
Vladykov	CANADA	18VD13018	2013082 9	2013091 5	0	38	0	0	0	3K
Vladykov	CANADA	18VD13019	2013092 1	2013092 1	0	1	0	0	0	3L
Vladykov	CANADA	18VD13020	2013100 7	2013101 9	0	13	0	0	0	3L
Celtic Explorer	CANADA/ IRELAND	45CE13007	2013042 4	2013051 8	0	20	20	0	0	3M 2J 3K 3L 3O 3PS
WALTHER HERWIG III	GERMAN Y	06NI13369	2013102 0	2013103 1	0	17	17	0	0	1F 1E 1D 1C
G.O. Sars	NORWAY	58G213107	2013052 0	2013053 1	0	13	13	0	0	1F 1D 1E
Barcelona Express	USA	BMBE1329 5	2013060 1	2013060 3	0	0	0	35	0	6F 6G 6H
Gordon Gunter	USA	33GG13885	2013060 9	2013062 4	0	170	0	0	0	5ZW 5ZE 5Y 4X 6A 6B 6C
Gordon Gunter	USA	33GG13890	2013111 4	2013112 4	0	98	0	0	0	6B 6A 5ZW 5ZE 5Y 4X
Henry B. Bigelow	USA	33HH1300 4	2013030 5	2013050 9	0	386	0	0	0	5ZW 6B 6C 6A 5ZE 4X 5Y
Henry B. Bigelow	USA	33HH1388 7	2013070 2	2013081 8	0	242	0	0	0	6A 6B 6C 5ZW 5ZE 6D 4X
Henry B. Bigelow	USA	33HH1388 9	2013090 7	2013111 9	0	365	0	0	0	6B 6C 6A 5ZW 5ZE 4X 5Y
Horizon	USA	328013992	2013030	2013030	0	0	0	45	0	6A 6C 6B

Navigator			1	2						
Horizon Navigator	USA	328013073	20130607	20130607	0	0	0	30	0	6C 6B
Horizon Navigator	USA	328013301	20130802	20130803	0	0	0	28	0	6B 6C
Horizon Navigator	USA	328013462	20131214	20131214	0	0	0	11	0	6C
Hugh R. Sharp	USA	33H513886	20130615	20130716	0	79	0	0	0	6B 6C 6A 5ZE
JPO Pisces	USA	54CI13347	20130806	20130808	0	0	0	25	0	6H 6G
Maersk Vilnius	USA	SIMV13735	20130112	20130113	0	0	0	39	0	6D 6B 6A 5ZW
Maersk Vilnius	USA	SIMV13288	20130313	20130314	0	0	0	23	0	6D 6B 6C 6A
Maersk Visby	USA	SIVY13294	20130531	20130602	0	0	0	43	0	6E 6D 6B 5ZW 6A
Maersk Visby	USA	SIVY13377	20130729	20130731	0	0	0	37	0	6D 6E 5ZW 6B 6A
Maersk Visby	USA	SIVY13345	20131003	20131004	0	0	0	35	0	6D 6E 5ZW 6B 6A
Nuka Arctica	USA	26NA13290	20130319	20130319	0	0	0	4	0	1F
Okeanos Explorer	USA	334A13735	20130112	20130113	0	0	0	34	0	6D 6B 5ZW
Okeanos Explorer	USA	334A13110	20130515	20130605	0	0	0	53	0	6C 6B 6A 5ZW 5ZE
Okeanos Explorer	USA	334A13111	20130611	20130628	0	0	0	117	0	6C 5ZE 4X 6D 6E 5ZW 6A 6B
Okeanos Explorer	USA	334A13112	20130709	20130725	0	0	0	48	0	5ZW 5ZE 6A
Okeanos Explorer	USA	334A13888	20130825	20130905	0	92	0	8	0	5ZE 5ZW 4X 5Y
Pisces	USA	334B13884	20130210	20130226	0	139	0	0	0	6C 6B 6A 5ZW 5ZE 5Y
Reykjafoss	USA	64RJ13741	20130328	20130331	0	0	0	30	0	1F 2J 3K 3L
Reykjafoss	USA	64RJ13374	20130705	20130707	0	0	0	38	0	1F 3K 2J 3L
Cap Breton ¤	CANADA	18VA12668	20120420	20121120	0	8	0	0	0	4T
Hudson ¤	CANADA	18HU12112	20121120	20121209	0	102	0	0	0	3L 2J 3K 3M 3N 3O 3PS
Sigma-T	CANADA	18VA12667	20120104	20120402	0	19	0	0	0	4X
Teleost ¤	CANADA	18TL12101	20120412	20120430	0	86	0	0	0	3L 3M 3K
Teleost ¤	CANADA	18TL12104	20120709	20120727	0	137	0	0	0	3L 3M 3K 2J 2H

WALTHER HERWIG III ¤	GERMANY	06NI12359	20121012	20121104	0	0	64	0	0	1F 1E 1D 1C
Alfred Needler	CANADA	18NE11404	20110519	20110531	0	2	0	0	0	3L
Beluga	CANADA	18BG11033	20110413	20111012	0	0	19	0	0	4T
Hudson	CANADA	18HU11043	20110924	20111014	0	64	0	0	0	4W 4X 5ZE 4VN 4R 4VS
Hudson	CANADA	18HU11061	20111023	20111111	0	152	0	0	0	4R 4S 4T 4VN
Shamook	CANADA	18OK11603	20110923	20110928	0	33	0	0	0	3L
Celtic Explorer[2] ¤	CANADA/ IRELAND	45CE11003	20110206	20110303	0	16	16	0	0	3L 2J 3K
Paamiut	DENMARK	26PA11018	20110612	20110710	0	45	45	0	0	1D 1B 1A
Tulugaq	DENMARK	26TU11019	20110628	20110713	0	55	55	0	0	1B 1C 1D 1E 1F
Hudson	CANADA	18HU10983	20101123	20101211	0	63	0	35	0	3L 3K 2J 3M 3O 3N
Teleost	CANADA	18TL10971	20100415	20100504	0	0	0	39	0	3L 3PS 3N 3M 3K
Teleost	CANADA	18TL10973	20100708	20100724	0	106	0	42	0	3L 3M 3K 2J 2H 2G
Tulugaq	DENMARK	26TU10002	20100604	20100625	0	32	32	0	0	1D 1E 1F 1C 1B
Hudson	CANADA	18HU09005	20090409	20090429	0	69	0	0	0	4W 4X 5ZE 4VN 4R 4VS
Hudson	CANADA	18HU09048	20090926	20091019	0	72	0	0	0	4W 4X 5ZE 4R 4VN 4VS
Hudson	CANADA	18HU08004	20080411	20080429	0	63	0	0	0	4X 4W 5ZE 4VS 4VN 4R 3PS
Paamiut	DENMARK	26PA10001	20010929	20011009	0	39	39	0	0	1B 1A
Hudson	CANADA	18HU85031	19850904	19850921	0	52	0	0	0	3K 2J 2H 2G
(various vessels)	CANADA	189071001	19710125	19711211	0	0	422	0	0	4R 3PS 3PN 4VN 4S 4T 3K
(various vessels)	CANADA	189070001	19700410	19701217	0	0	390	0	0	4VN 4T 4R 4S

¤ Cruises for which data were already in the archive prior to 2014, but for which additional profiles were added in 2014. The numbers reported in this table are the profiles added in 2014.

[2] Cruises who had their cruise number changed in 2014. The numbers of profiles are the total number of profiles associated with the cruise.

[3] Cruises for which data were received in real-time and are also reported in table 1

* Only real-time messages formatted for transmission on the GTS were received. These messages are low vertical resolution and uncalibrated data to be replaced in the future.

In each case the reporting period corresponds to the period associated with the complete dataset received so far.

Table 3: Real-time temperature (BU,TE, GO) and /or salinity (BU,TE) and/or wave and atmospheric (GO) data from buoys, collected and processed in 2014

Buoy Type / Platform	Name	Country	WMO / NDBC ID	Period *	BU	TE	GO	
Drifting		USA	13527	Oct-Dec	1464			6H 6G
Drifting		USA	13592	Jun-Jul	568			6H
Drifting		USA	41501	Jul-Dec	4808			6C 6D 6B 6E 4W 6F 4V 6G 3N 6H
Drifting		USA	41503	Nov-Dec	412			6F 6E
Drifting		USA	41504		8244			6D 6C 6B 5Z 4X 4W 4V 6G 6H 3N
Drifting		USA	41509	Mar-Aug	1737			6D 6C
Drifting		USA	41562	Jun-Sep	1675			6C 6B 6D
Drifting		USA	41564	Apr-Aug	2565			6C 6B 6D 5Z 4X 6E 4W 6F 4V 6G 6H
Drifting		USA	41566	Jun-Jul	767			6H
Drifting		USA	41567	Apr-Apr	1			4W
Drifting		USA	41574		111			6E 2J 3N 6H
Drifting		USA	41580	Apr-Apr	1			4S
Drifting		USA	41592	Jan-Mar	956			6G 6H 3M
Drifting		USA	41602	Apr-Oct	2			2J 3M
Drifting		USA	41605	Feb-Dec	1			6H
Drifting		USA	41608	Sep-Dec	1456			6C 6B 6D 6E 4W 6F 4V 6G 3N 6H
Drifting		USA	41609	Sep-Dec	2191			6B 6D 6E 4X 5Z 4W
Drifting		USA	41618	Aug-Aug	1			1F
Drifting		USA	41636	Jan-Mar	1881			6D 6E 4W 4X 4V 6F 6G 3N 6H
Drifting		USA	41646	Mar-Jun	2694			6E 6F 4V 6G 6H 3M
Drifting		USA	41653	Nov-Dec	955			6F 6G
Drifting		USA	41668	Sep-Dec	1981			6C 6B 6D 6E 4W 4V 6F 3O 3N 3M
Drifting		USA	41671	Aug-Aug	1			4V
Drifting		USA	41678	Apr-Sep	2			6G 2H
Drifting		USA	41680	Feb-	246			3K 6F 6G 6H 3N

			Dec	8	
Drifting	USA	41684	Apr-May	2	6H
Drifting	USA	41685	Jul-Oct	599	6H
Drifting	USA	41697	Jan	1	3K
Drifting	USA	41701	Jul-Sep	2	4V 6F
Drifting	USA	41702	Jun-Nov	1	1F
Drifting	USA	41715	Feb-Feb	1	3K
Drifting	USA	41716	Mar-Jul	2	6G 4R
Drifting	USA	41718	Jul-Aug	522	6H
Drifting	USA	41719	Jan-Mar	2	3K 1A
Drifting		41725	Nov-Dec	846	6F 6E
Drifting	UK	41739	Nov-Dec	340	6C
Drifting	USA	41855		164	6E 4W 6F 6G 6H
Drifting	USA	41856	Jan-Aug	5675	6H 3N 3M
Drifting	USA	41912	Jan-Mar	2016	6E 6F
Drifting	USA	41917	Apr-Aug	2831	6C 6B 6D 5Z 4X 6E 4W 4V
Drifting	USA	41918		7872	6D 6E 6F 4V 6G 6H
Drifting	USA	41925	Apr-Jun	789	6C 6B 6D 6E
Drifting	USA	41926	Jul-Dec	3119	6H 3M
Drifting	USA	41929	Jan-Jul	3204	3M 6H 3N
Drifting	USA	41932	Feb	337	6C
Drifting	USA	41933	Sep-Nov	1043	6D 6C 6E
Drifting	USA	41938	Sep-Dec	2272	6C 6B 6D 6E
Drifting	USA	41945	Jul-Nov	1663	6D 6E
Drifting	USA	41955	Jan-Jan	56	4X 4W
Drifting	USA	41956	Jul-Dec	4608	6E 6D 6F 4W 4V 3O
Drifting	USA	41957	Jan-May	1955	6C 6D 6E 6F 6G 4V 6H
Drifting	USA	41958	Jan-Mar	1271	6F 6G 6H
Drifting	USA	41968	Jun-Aug	1467	6C 6B 6D
Drifting	USA	41969	Jan-Jan	295	3M
Drifting	USA	41971	Jan-Apr	1725	6F 4V 6G 3O 3N 6H

Drifting	USA	41975	Jul-Dec	3671	6E 4W 4V 6G 6F 6H 3N
Drifting	USA	41976		446	6B 6C 6D 6E 4X 5Z 4W 4V 6G 3N 6H
Drifting	USA	41978	Jan-Aug	8819	6B 6C 6D 6E 4X 4W 4V 6F 6G 3O 3N
Drifting	USA	41981	Jun-Dec	4633	6C 6D 6B 6E 4W 6F 4V 6G 6H
Drifting	USA	41982	Jan-Jul	6752	6E 4X 6D 4W 4V 6G 3N 3O 6H 3M
Drifting	USA	41983		7128	6D 5Z 6A 6B 6C 4X 6E 6F 6G 3N 4V
Drifting	USA	41991	Jan-Sep	8601	4X 6D 6E 4W 4V 3N 3O 6H
Drifting	USA	41997	Jan-Feb	554	3N 3M
Drifting		42501	Dec-Dec	91	6C 6B 6D
Drifting	USA	42502	Aug-Dec	4650	6D 6C 6B 6E 4X 4W 4V
Drifting	USA	43518	Jul-Dec	4960	6C 6B 6D 5Z 6E 4W 4X 6F 4V 6G 3N
Drifting	USA	43543	Jun-Jul	497	6C 6B 6D 5Z
Drifting	USA	43556	Oct-Dec	1808	6C 6B 6D 6E 4W 4X
Drifting	USA	43577	Oct-Oct	43	6C
Drifting		44501	Jun-Aug	822	3L 3N 3M 3K
Drifting		44502	Apr-Jun	3219	3N 3M
Drifting		44503	Apr-Aug	3472	3L 3N 3O
Drifting		44504	Apr-Jul	2493	3L 3O 3P
Drifting	USA	44505	Apr-Nov	4708	3L 3M 3N
Drifting		44510	Apr-Aug	2711	3K 3L 3N 3M
Drifting		44511	Jun-Jul	1377	3K 3L 3N 3M
Drifting	USA	44512	Jan-Jan	187	3M
Drifting		44514	Jan-Sep	4555	3M 3N
Drifting	USA	44516	Jan-Jun	1521	6G 6F 6E
Drifting	USA	44520		6471	6E 6F 6G 4V 6H 3N
Drifting	EU	44547	Aug-Dec	3058	2J 3K 1F
Drifting	EU	44548	Aug-Dec	3345	2J 1F
Drifting	EU	44549	Sep-Oct	731	1F
Drifting	EU	44550	Sep-Oct	101	1F

Drifting	EU	44551	Sep-Dec	2113	2J 3K 1F
Drifting	USA	44553		5228	6G 6H 6F 4V 6E 3M
Drifting	USA	44554	Jan-Mar	410	3M
Drifting	USA	44558	Apr-Oct	4254	5Z 4X 6D 6E 4W 6F 4V 6G
Drifting	USA	44559	Apr-Aug	2827	5Z 6A 6B
Drifting	USA	44560	May-Dec	5020	4V 4W 3P 3O 3N 3M
Drifting		44562	May-Jul	1460	4W 6E 6F 4V 6G
Drifting	EU	44601	Sep-Dec	1828	2J 3K 3L 3N 3M
Drifting		44603	Oct-Dec	1999	4V 4W
Drifting		44604	Oct-Dec	1977	3L 3N 3O
Drifting	EU	44610	Jan-Jan	127	3K
Drifting	EU	44612	Jan-Jan	4389	3L 3M 3K 2J
Drifting	EU	44613	Feb-Sep	15	3M
Drifting		44690	Jan-Mar	1173	2H 2J 3K
Drifting		44691	Jan-Jan	5	2H
Drifting	EU	44739	Jun-Dec	5010	3K 3L 3N 3O 3P 4V
Drifting		44745	Jan-Aug	3637	3L 3N 3O 3M
Drifting	EU	44747	Jan-Mar	1591	1F
Drifting		44774	Nov-Dec	1054	6D 5Z 6B
Drifting		44775	Nov-Nov	198	6E
Drifting		44776	Nov-Dec	1054	6E 6F 4V
Drifting		44777	Nov-Dec	1001	4V 6G 6H 3N
Drifting		44778	Nov-Dec	1027	3N 4V 3O 6G 6H
Drifting	USA	44779	Nov-Dec	1003	3M 3N
Drifting	USA	44835	Jan-Jan	3324	3N 3O 3M
Drifting	USA	44836	Mar-Jul	2962	3N 3M 3K 2J
Drifting	USA	44837	Mar-Aug	493	3M
Drifting	USA	44839	Mar-Apr	564	3M

Drifting	USA	44841	Mar-Apr	982	6D 5Z 4X 6E 4W 6F
Drifting	USA	44842	May-Jul	4323	6D 5Z 6E 4W 4X 6F 4V
Drifting	USA	44843	May-Nov	3394	6E 4X 4W 6F 4V 6G 6H 3N 3M
Drifting	USA	44846	May-Nov	1702	6H 3N
Drifting	USA	44847	Jan-Apr	3521	6G 6H 3N 3M
Drifting	USA	44848	Jan-Nov	5244	6H 3M 3N
Drifting		44849	Jan-Jun	3324	6E 4W 6F 4V 6G 3N 3O 6H 3M
Drifting		44850	Jan-Apr	1615	6F 4V 4W 6G 3N 3M
Drifting	EU	44866	Jun-Dec	4564	1F
Drifting	EU	44867	Jun-Dec	4530	1F 2H 2J 3K
Drifting	EU	44871	Jan-Jan	3577	2J 3K 3L 3M
Drifting	EU	44872	Jun-Dec	4410	3K 3L 3N 3O 3P 4V
Drifting	USA	44876	Jun-Dec	5534	6F 4V 6G 3N 6H 3M
Drifting	USA	44877	Feb-Feb	356	3K 3M
Drifting		44878	Feb-Aug	1028	3M
Drifting	USA	44880	Feb-Dec	7899	3L 3O 3N 3P
Drifting	USA	44882	May-Nov	2647	6G 6F 6E
Drifting	USA	44885	May-Oct	2800	6H 3N 3M 3O 4V
Drifting		44886	May-Jul	1459	6F 4V 6G 3N 6H
Drifting	USA	44887	May-Dec	5040	6E 6F 4V 6G 4X 4W
Drifting	USA	44888	May-Aug	1381	6G 6H 3N 3M
Drifting	USA	44889	Jun-Nov	2677	6G 3N 6H 3M
Drifting	USA	44890	Jun-Dec	4224	4V 6G 6F 6E
Drifting	USA	44891	Jun-Jul	787	3M
Drifting	USA	44892	Jun-Dec	4849	6B 6C 6D 6E 4X 4W 4V 3O 3N
Drifting	USA	44893	May-Jul	772	6H 3N
Drifting		44894	May-Jun	606	6G 6H
Drifting	USA	44896	Jun-	237	6H 3M

				Nov	4			
Drifting		USA	44897	Jan-May	2064			3K 2J 1F
Drifting			44932	Jan-May	2650			4X 4W 4V 6G 3O
Drifting		GERMANY / CANADA	47537		1020			0A
Drifting		CANADA	47550		8692			0A
Drifting		GERMANY / CANADA	47564	Jan-Jun	656			1F
Drifting			47565	Jan-Feb	3			1F
Drifting		CANADA	47582	Sep-Oct	554			0A
Drifting		CANADA	47585	Sep-Dec	2867			0A
Drifting		CANADA	47586	Sep-Dec	2867			0A 1B 0B 1C 1E
Drifting		EU	62538	Nov-Dec	102			1F
Drifting		EU	62681	Jan-Jul	3980			3K 3L 3M 2J
Drifting			64527	Jan-Jan	247			1F
Drifting		EU	64614	Aug-Dec	2036			1F
Drifting		EU	64670	May-Dec	3593			1F 1E 1D 1C 0B 2G
Drifting		EU	64691	Jul-Dec	3456			1F 1E 1D 0B 2G 2H
Drifting			64938	Jun-Dec	3437			1F 1E 1D 1C 0B 2G 2H 2J 3K
Drifting			65511	Jun-Jun	87			1F
Drifting			65592	Jan-May	3392			1F 1E 2G 2H
Drifting		EU	65595	Jun-Dec	4678			1F 1E 1D 0B 2G
Drifting		EU	65596	Jun-Dec	4669			1E 1D 1F 2G 2H 2J
Drifting		EU	65598	Jul-Nov	3056			3K 2J 3L 3M
Fixed Station	Chesapeake Bay Goodwin Island	USA	GDWV2			9	0	6B
Fixed Station	Jacques Cousteau Reserve, Chestnut Neck	USA	JCQN4	Jan-Feb May Dec		50	0	6A

Fixed Station	Jacques Cousteau Reserve, Buoy 126	USA	JCTN4		28635	0	6A
Fixed Station	Narragansett Bay Reserve, T-Wharf Bottom	USA	NAQR1		33683	0	5Z
Fixed Station	Waquoit Bay Reserve Menauhant	USA	WAQM3		22214	0	5Z
Moored	Hatteras Bay	USA	41062	May	257		6C
Moored	Northeast Channel	USA	44024		4403	0	4X
Moored	Mass. Bay/Stellwagen	USA	44029		8635	0	5Z
Moored	Western Maine Shelf	USA	44030		8655	0	5Z
Moored	Central Maine Shelf	USA	44032		8650	0	5Y
Moored	West Penobscot Bay	USA	44033		8584	0	5Y
Moored	Eastern Maine Shelf	USA	44034		8651	0	5Y
Moored	Jordan Basin	USA	44037		5901	0	5Y
Moored	Chesapeake Bay Jamestown	USA	44041		8372	0	6B
Moored	Chesapeake Bay Potomac	USA	44042		7832	0	6B
Moored	Chesapeake Bay Patapsco	USA	44043		6189	0	6B
Moored	Chesapeake Bay Susquehanna	USA	44057	Mar-Dec	6085	0	6B
Moored	Chesapeake Bay Stingray Point	USA	44058		7972	0	6B
Moored	Chesapeake Bay Gooses Reef	USA	44062		7652	0	6B
Moored	Chesapeake Bay Annapolis	USA	44063		8034	0	6B
Moored	Chesapeake Bay First	USA	44064		8408	0	6C

	Landing					
Moored	East Scotian Slope	CANADA	44137		6883	4W
Moored	Banquereau Bank	CANADA	44139		7447	4Vs
Moored	Laurentian Fan	CANADA	44141		7385	4W
Moored	La Have Bank	CANADA	44150		7041	4X
Moored	Iles de la Madeleine	CANADA	44175	Jun-Nov	3020	4T
Moored	Point Escuminac	CANADA	44176	May-Dec	3662	4T
Moored	Nickerson Bank	CANADA	44251		8004	3L
Moored	NE Burgeo Bank	CANADA	44255	Sep-Dec	2607	3Ps
Moored	Halifax Harbour	CANADA	44258		7471	4W

Table 4: Mooring data processed in 2014

Instrument Type	Description	Longitude	Latitude	Measuring Period		NAFO Sub Areas
Current profiler	OTN Mooring Site 1	63.3043	44.3482	20130921	20140405	4W
Current profiler	OTN Mooring Site 3	63.0329	44.1338	20130922	20140405	4W
Current profiler	OTN Mooring Site 2	63.1672	44.2504	20130930	20140405	4W
Current profiler	OTN Mooring Site 1	63.3041	44.3474	20140405	20140919	4W
Current profiler	OTN Mooring Site 2	63.1703	44.2483	20140405	20140920	4W
Current profiler	OTN Mooring Site 3	63.0337	44.1343	20140405	20140920	4W
Thermograph	Lobster Settlement Collector Project	59.86	46.06	20130730	20131108	4Vn
Thermograph	Lobster Settlement Collector Project	65.42	43.5	20130614	20131029	4X
Thermograph	Lobster Settlement Collector Project	65.86	43.69	20130618	20131009	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.66	20130618	20131010	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.53	20130618	20131016	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.67	20130618	20131010	4X
Thermograph	Lobster Settlement Collector Project	66.01	44.51	20130625	20131022	4X
Thermograph	Lobster Settlement Collector Project	66.182	44.39	20130625	20131024	4X
Thermograph	Lobster Settlement Collector Project	59.87	46.07	20120726	20121114	4Vn
Thermograph	Lobster Settlement Collector Project	65.42	43.49	20120621	20121024	4X
Thermograph	Lobster Settlement Collector Project	66.15	44.42	20120622	20121106	4X
Thermograph	Lobster Settlement Collector Project	66	44.52	20120622	20121101	4X
Thermograph	Lobster Settlement Collector Project	65.96	44.54	20120622	20121101	4X
Thermograph	Lobster Settlement Collector Project	65.86	43.69	20120711	20121023	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.66	20120711	20121016	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.67	20120711	20121019	4X
Thermograph	Lobster Settlement Collector Project	65.825	43.52	20120712	20121018	4X
Thermograph	Lobster Settlement Collector Project	59.88	46.06	20110728	20111116	4Vn
Thermograph	Lobster Settlement Collector Project	65.42	43.5	20110608	20111101	4X

Thermograph	Lobster Settlement Collector Project	65.86	43.69	20110623	20111018	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.66	20110623	20111014	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.67	20110623	20111021	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.56	20110627	20111013	4X
Thermograph	Lobster Settlement Collector Project	66.18	44.2	20110628	20111026	4X
Thermograph	Lobster Settlement Collector Project	66.01	44.51	20110628	20111026	4X
Thermograph	Gulf Fisheries Centre	64.93	47.84	20090528	20100101	4T
Thermograph	Lobster Settlement Collector Project	65.42	43.5	20100622	20101102	4X
Thermograph	Lobster Settlement Collector Project	65.86	43.69	20100624	20101019	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.66	20100624	20101013	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.67	20100624	20101019	4X
Thermograph	Lobster Settlement Collector Project	65.95	43.52	20100625	20101014	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.56	20100625	20101020	4X
Thermograph	Lobster Settlement Collector Project	66.15	44.42	20100707	20101026	4X
Thermograph	Lobster Settlement Collector Project	66.01	44.51	20100708	20101021	4X
Thermograph	Gulf Fisheries Centre	65.07	47.85	20070609	20090101	4T
Thermograph	Gulf Fisheries Centre	64.86	47.83	20070714	20090101	4T
Thermograph	Gulf Fisheries Centre	62.25	46.32	20090427	20091122	4T
Thermograph	Gulf Fisheries Centre	61.93	46.46	20090427	20091123	4T
Thermograph	Gulf Fisheries Centre	64.5	46.66	20090428	20091221	4T
Thermograph	Gulf Fisheries Centre	64	47.08	20090428	20091201	4T
Thermograph	Gulf Fisheries Centre	63.99	46.79	20090428	20091124	4T
Thermograph	Gulf Fisheries Centre	63.61	46.58	20090428	20091123	4T
Thermograph	Gulf Fisheries Centre	62.81	45.91	20090428	20091127	4T
Thermograph	Gulf Fisheries Centre	62.73	46.46	20090428	20091123	4T
Thermograph	Gulf Fisheries Centre	63.85	46.66	20090429	20091022	4T
Thermograph	Gulf Fisheries Centre	63.03	46.43	20090429	20091123	4T

Thermograph	Gulf Fisheries Centre	62.67	45.77	20090501	20091127	4T
Thermograph	Gulf Fisheries Centre	61.88	45.87	20090501	20091224	4T
Thermograph	Gulf Fisheries Centre	61.54	45.72	20090502	20091223	4T
Thermograph	Gulf Fisheries Centre	60.8	46.84	20090502	20091228	4T
Thermograph	Gulf Fisheries Centre	61.55	45.83	20090503	20091214	4T
Thermograph	Gulf Fisheries Centre	62.71	46.43	20090504	20091103	4T
Thermograph	Gulf Fisheries Centre	63.11	46.04	20090505	20091127	4T
Thermograph	Gulf Fisheries Centre	64.65	47.7	20090506	20091127	4T
Thermograph	Gulf Fisheries Centre	64.54	46.52	20090506	20091125	4T
Thermograph	Gulf Fisheries Centre	64.5	46.28	20090506	20091125	4T
Thermograph	Gulf Fisheries Centre	63.87	46.28	20090506	20091128	4T
Thermograph	Gulf Fisheries Centre	63.68	46.1	20090506	20091125	4T
Thermograph	Gulf Fisheries Centre	63.66	46.15	20090506	20091128	4T
Thermograph	Gulf Fisheries Centre	64.92	47.28	20090507	20091124	4T
Thermograph	Gulf Fisheries Centre	64.84	47.5	20090507	20091127	4T
Thermograph	Gulf Fisheries Centre	64.78	47.11	20090507	20091125	4T
Thermograph	Gulf Fisheries Centre	64.76	47.88	20090507	20091126	4T
Thermograph	Gulf Fisheries Centre	64.74	46.72	20090507	20091125	4T
Thermograph	Gulf Fisheries Centre	64.54	48.03	20090507	20091127	4T
Thermograph	Gulf Fisheries Centre	64.23	46.9	20090507	20091030	4T
Thermograph	Gulf Fisheries Centre	64.84	47.46	20090508	20090804	4T
Thermograph	Gulf Fisheries Centre	61.36	46.21	20090510	20090702	4T
Thermograph	Gulf Fisheries Centre	61.36	46.22	20090510	20090702	4T
Thermograph	Gulf Fisheries Centre	64.14	46.4	20090524	20091010	4T
Thermograph	Gulf Fisheries Centre	63.15	46.44	20090703	20090922	4T
Thermograph	Gulf Fisheries Centre	62.33	46.3	20090704	20090921	4T
Thermograph	Gulf Fisheries Centre	63.97	46.73	20090709	20090922	4T

Thermograph	Gulf Fisheries Centre	62.18	45.75	20090709	20091016	4T
Thermograph	Gulf Fisheries Centre	62.45	46.06	20090710	20091002	4T
Thermograph	Gulf Fisheries Centre	63.22	46.1	20090716	20090925	4T
Thermograph	Gulf Fisheries Centre	64.18	46.94	20090718	20091105	4T
Thermograph	Lobster Settlement Collector Project	59.88	46.06	20090730	20091029	4Vn
Thermograph	Lobster Settlement Collector Project	61.75	45.08	20090623	20091021	4W
Thermograph	Lobster Settlement Collector Project	65.83	43.66	20090617	20091009	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.67	20090617	20091009	4X
Thermograph	Lobster Settlement Collector Project	65.95	43.52	20090618	20091015	4X
Thermograph	Lobster Settlement Collector Project	65.42	43.5	20090627	20091015	4X
Thermograph	Lobster Settlement Collector Project	63.64	44.47	20090706	20091109	4X
Thermograph	Lobster Settlement Collector Project	66.14	44.28	20090708	20091020	4X
Thermograph	Lobster Settlement Collector Project	66.01	44.51	20090708	20091021	4X
Thermograph	Gulf Fisheries Centre	64.84	47.5	20070420	20080101	4T
Thermograph	Gulf Fisheries Centre	64.23	46.9	20080424	20081026	4T
Thermograph	Gulf Fisheries Centre	62.25	46.32	20080424	20081203	4T
Thermograph	Gulf Fisheries Centre	63.99	46.79	20080425	20081205	4T
Thermograph	Gulf Fisheries Centre	63.61	46.58	20080425	20081205	4T
Thermograph	Gulf Fisheries Centre	63.03	46.43	20080425	20081205	4T
Thermograph	Gulf Fisheries Centre	62.73	46.46	20080425	20081204	4T
Thermograph	Gulf Fisheries Centre	63.87	46.28	20080427	20081208	4T
Thermograph	Gulf Fisheries Centre	63.68	46.1	20080427	20081207	4T
Thermograph	Gulf Fisheries Centre	63.63	45.95	20080427	20081227	4T
Thermograph	Gulf Fisheries Centre	62.81	45.91	20080427	20081203	4T
Thermograph	Gulf Fisheries Centre	62.67	45.77	20080427	20081227	4T
Thermograph	Gulf Fisheries Centre	61.54	45.72	20080429	20081218	4T
Thermograph	Gulf Fisheries Centre	64	47.08	20080430	20081214	4T

Thermograph	Gulf Fisheries Centre	63.11	46.04	20080430	20081205	4T
Thermograph	Gulf Fisheries Centre	61.49	46.09	20080430	20081218	4T
Thermograph	Gulf Fisheries Centre	60.8	46.84	20080430	20081221	4T
Thermograph	Gulf Fisheries Centre	64.84	47.5	20080501	20081215	4T
Thermograph	Gulf Fisheries Centre	64.78	47.11	20080501	20081206	4T
Thermograph	Gulf Fisheries Centre	64.76	47.88	20080501	20081210	4T
Thermograph	Gulf Fisheries Centre	64.65	47.7	20080501	20081215	4T
Thermograph	Gulf Fisheries Centre	64.5	46.28	20080501	20081206	4T
Thermograph	Gulf Fisheries Centre	63.85	46.66	20080501	20081016	4T
Thermograph	Gulf Fisheries Centre	61.88	45.87	20080501	20081219	4T
Thermograph	Gulf Fisheries Centre	61.55	45.83	20080501	20081218	4T
Thermograph	Gulf Fisheries Centre	64.54	48.03	20080502	20081211	4T
Thermograph	Gulf Fisheries Centre	62.4	46.48	20080502	20081020	4T
Thermograph	Gulf Fisheries Centre	62.19	45.75	20080503	20081105	4T
Thermograph	Gulf Fisheries Centre	61.87	45.72	20080503	20081113	4T
Thermograph	Gulf Fisheries Centre	64.74	46.72	20080504	20081206	4T
Thermograph	Gulf Fisheries Centre	64.54	46.52	20080504	20081206	4T
Thermograph	Gulf Fisheries Centre	64.5	46.66	20080504	20081206	4T
Thermograph	Gulf Fisheries Centre	64.84	47.46	20080510	20080811	4T
Thermograph	Gulf Fisheries Centre	64.14	46.4	20080517	20081008	4T
Thermograph	Gulf Fisheries Centre	65.7	47.78	20080522	20081125	4T
Thermograph	Gulf Fisheries Centre	64.94	47.83	20080523	20081019	4T
Thermograph	Gulf Fisheries Centre	64.87	47.83	20080523	20081018	4T
Thermograph	Gulf Fisheries Centre	63.96	47.07	20080524	20081025	4T
Thermograph	Gulf Fisheries Centre	64.46	46.26	20080603	20081025	4T
Thermograph	Gulf Fisheries Centre	64.93	47.26	20080605	20081020	4T
Thermograph	Gulf Fisheries Centre	62.18	45.75	20080606	20081010	4T

Thermograph	Gulf Fisheries Centre	61.57	45.69	20080606	20081001	4T
Thermograph	Gulf Fisheries Centre	61.44	45.68	20080606	20081001	4T
Thermograph	Gulf Fisheries Centre	63.82	46.33	20080610	20081113	4T
Thermograph	Gulf Fisheries Centre	63.16	46.44	20080611	20081016	4T
Thermograph	Lobster Settlement Collector Project	60.32	46.33	20080805	20081105	4Vn
Thermograph	Lobster Settlement Collector Project	65.86	43.69	20080624	20081010	4X
Thermograph	Lobster Settlement Collector Project	65.95	43.52	20080625	20081015	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.56	20080625	20081015	4X
Thermograph	Lobster Settlement Collector Project	65.42	43.5	20080628	20081022	4X
Thermograph	Lobster Settlement Collector Project	63.64	44.45	20080708	20081031	4X
Thermograph	Gulf Fisheries Centre	65.07	47.85	20060101	20070101	4T
Thermograph	Gulf Fisheries Centre	63.61	46.58	20060417	20070101	4T
Thermograph	Gulf Fisheries Centre	62.67	45.77	20060424	20070101	4T
Thermograph	Gulf Fisheries Centre	64.84	47.5	20060428	20070101	4T
Thermograph	Gulf Fisheries Centre	64.65	47.7	20060428	20070101	4T
Thermograph	Gulf Fisheries Centre	64.76	47.88	20060429	20070101	4T
Thermograph	Gulf Fisheries Centre	64.5	46.28	20070415	20071213	4T
Thermograph	Gulf Fisheries Centre	63.87	46.28	20070415	20071213	4T
Thermograph	Gulf Fisheries Centre	63.68	46.1	20070415	20071213	4T
Thermograph	Gulf Fisheries Centre	63.11	46.04	20070418	20071214	4T
Thermograph	Gulf Fisheries Centre	62.81	45.91	20070418	20071214	4T
Thermograph	Gulf Fisheries Centre	62.25	46.32	20070418	20071214	4T
Thermograph	Gulf Fisheries Centre	64	47.08	20070419	20071205	4T
Thermograph	Gulf Fisheries Centre	63.99	46.79	20070419	20071205	4T
Thermograph	Gulf Fisheries Centre	63.61	46.58	20070419	20071205	4T
Thermograph	Gulf Fisheries Centre	63.03	46.43	20070419	20071205	4T
Thermograph	Gulf Fisheries Centre	64.23	46.9	20070421	20071203	4T

Thermograph	Gulf Fisheries Centre	65.7	47.78	20070422	20071209	4T
Thermograph	Gulf Fisheries Centre	64.78	47.11	20070422	20071207	4T
Thermograph	Gulf Fisheries Centre	64.76	47.88	20070422	20071209	4T
Thermograph	Gulf Fisheries Centre	64.74	46.72	20070422	20071211	4T
Thermograph	Gulf Fisheries Centre	64.65	47.7	20070422	20071209	4T
Thermograph	Gulf Fisheries Centre	64.54	46.52	20070422	20071211	4T
Thermograph	Gulf Fisheries Centre	64.5	46.66	20070422	20071211	4T
Thermograph	Gulf Fisheries Centre	64.14	46.4	20070429	20071013	4T
Thermograph	Gulf Fisheries Centre	64.14	46.45	20070429	20071011	4T
Thermograph	Gulf Fisheries Centre	63.85	46.66	20070429	20071017	4T
Thermograph	Gulf Fisheries Centre	62.67	45.77	20070429	20071219	4T
Thermograph	Gulf Fisheries Centre	61.88	45.87	20070429	20071219	4T
Thermograph	Gulf Fisheries Centre	61.55	45.83	20070430	20071222	4T
Thermograph	Gulf Fisheries Centre	61.54	45.72	20070430	20071222	4T
Thermograph	Gulf Fisheries Centre	61.49	46.09	20070430	20071208	4T
Thermograph	Gulf Fisheries Centre	60.8	46.84	20070430	20071222	4T
Thermograph	Gulf Fisheries Centre	62.19	45.76	20070501	20071025	4T
Thermograph	Gulf Fisheries Centre	61.87	45.72	20070501	20071025	4T
Thermograph	Gulf Fisheries Centre	64.84	47.46	20070502	20070926	4T
Thermograph	Gulf Fisheries Centre	64.74	47.46	20070502	20070926	4T
Thermograph	Gulf Fisheries Centre	64.92	47.28	20070504	20071123	4T
Thermograph	Gulf Fisheries Centre	61.36	46.21	20070509	20070703	4T
Thermograph	Gulf Fisheries Centre	61.36	46.22	20070509	20070703	4T
Thermograph	Lobster Settlement Collector Project	65.86	43.69	20070627	20071010	4X
Thermograph	Lobster Settlement Collector Project	65.83	43.66	20070627	20071017	4X
Thermograph	Gulf Fisheries Centre	64.5	46.66	20060101	20060430	4T
Thermograph	Gulf Fisheries Centre	64.78	47.11	20060429	20061219	4T

Thermograph	Gulf Fisheries Centre	62.19	45.76	20060429	20061102	4T
Thermograph	Gulf Fisheries Centre	64.54	46.52	20060430	20061220	4T
Thermograph	Gulf Fisheries Centre	64.5	46.66	20060430	20061219	4T
Thermograph	Gulf Fisheries Centre	64.84	47.46	20060501	20061017	4T
Thermograph	Gulf Fisheries Centre	64.74	47.46	20060501	20061017	4T
Thermograph	Gulf Fisheries Centre	64.5	46.28	20060501	20061228	4T
Thermograph	Gulf Fisheries Centre	63.63	45.95	20060501	20061218	4T
Thermograph	Gulf Fisheries Centre	63.87	46.28	20060502	20061219	4T
Thermograph	Gulf Fisheries Centre	63.66	46.15	20060502	20061219	4T
Thermograph	Gulf Fisheries Centre	62.25	46.32	20060503	20061217	4T
Thermograph	Gulf Fisheries Centre	60.8	46.84	20060503	20061217	4T
Thermograph	Gulf Fisheries Centre	61.85	45.73	20060504	20061101	4T
Thermograph	Gulf Fisheries Centre	61.55	45.83	20060507	20061217	4T
Thermograph	Gulf Fisheries Centre	61.49	45.73	20060604	20061116	4T

Table 5: Water level data collected in 2014

Number	Name	Reporting Period	Longitude	Latitude	NAFO Sub Areas
65	Saint John	Jan-Dec	66.0630	45.2510	3L
365	Yarmouth	Jan-Dec	66.1167	43.8333	4X
491	Bedford Institute	Jan-Dec	63.6167	44.6833	4W
612	North Sydney	Jan-Dec	60.2500	46.2167	4Vn
665	Port aux Basques	Jan-Dec	59.1333	47.5667	3Pn
755	St. Lawrence	Jan-Dec	55.3901	46.9168	3Ps
835	Argentia	Mar-Dec	53.9833	47.3000	3Ps
905	St. John's	Jan-Dec	52.7167	47.5667	3L
990	Bonavista	Jan-Dec	53.1150	48.6510	3L
1430	Nain	Jan-Nov	61.6833	56.5500	2H
1700	Charlottetown	Jan-Dec	63.1167	46.2333	4T
1805	Shediac Bay	Jan-Dec	64.5460	46.2270	4T
2000	Lower Escuminac	Jan-Dec	64.8833	47.0833	4T
2145	Belledune	Jan-Dec	65.8500	47.9000	4T
1970	Cap-aux-Meules	Jan-Dec	61.8573	47.3789	4T
2330	Rivière-au-Renard	Jan-Dec	64.3805	48.9970	4T
2780	Sept-Îles	Jan-Dec	66.3768	50.1948	4S
2985	Rimouski	Jan-Dec	68.5137	48.4783	4T
3057	Saint-Joseph-de-la-Rive	Jan-Dec	70.3655	47.4488	4T
3100	Saint-Francois Île d'Orléans	Jan-Dec	70.8082	46.9965	4T
3248	Vieux-Québec	Jan-Dec	71.2019	46.8111	4T

Table 6: Environmental reports (including wave buoy data) at offshore oil and gas sites received in 2014

Buoy Type	Name	Reporting Period	Longitude	Latitude	NAFO Sub Areas
TriAxys	Deep Panuke	Feb-Oct 2013	60.6819	43.8128	**4W**
TriAxys	Bay du Nord	Jul-Oct 2013	46.4551	47.9179	**3L/3M**
TriAxys	Federation K-87	Jun-Jul 2013	48.2334	47.4213	**3L**
Waverider	Terra Nova	Jan-Dec 2013	48.4301	46.4779	**3L**