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Inventory of Environmental Data in the NAFO Convention Area - Report 2024

Prepared by: Jenny Chiu
Oceans Science Branch – Marine Environmental Data Section
Ocean and Regulatory Sciences Directorate
Ecosystems and Oceans Science Sector
Fisheries and Oceans Canada (DFO)
200 Kent Street, Ottawa, ON, Canada K1A 0E6

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Abstract

The Marine Environmental Data Section (MEDS) of the Oceans Science Branch of Fisheries and Oceans Canada serves as the Regional Environmental Data Center for NAFO. As part of this role, MEDS provides an annual inventory of environmental data collected in the NAFO Convention Area to the NAFO subcommittee for the environment (STACFEN), including inventories and maps of physical oceanographic observations such as ocean profiles, near surface thermosalinographs, drifting buoys, waves, tides and water level measurements for the 2024 calendar year. Reporting includes data and information from NAFO member countries where these are provided to the data center.

Introduction

The Marine Environmental Data Section (MEDS) of the Oceans Science Branch of Fisheries and Oceans Canada (DFO) acts as Regional Environmental Data Center for NAFO. This role began in 1965 when the Canadian Oceanographic Data Centre started providing data management functions to the International Commission for the Northwest Atlantic (ICNAF), and was subsequently formalized in 1975, by which time the Canadian Oceanographic Data Centre (CODC) had become the Marine Environmental Data Service (MEDS). MEDS underwent several name changes from 2005 to 2017, it was known in the interim under acronyms such as ISDM and OSD.

In order for MEDS to carry out its responsibility of reporting to the Scientific Council, the Designated National Representatives selected by STACFEN are requested to provide MEDS with all marine environmental data collected in the Northwest Atlantic for the preceding years. Provision of a meaningful report to the Council for its yearly meetings in May and June requires the submission to MEDS of a completed oceanographic inventory form for data collected in the previous calendar year, and oceanographic data pertinent to the NAFO Convention Area, for all stations occupied in the years prior to the meetings. 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 MEDS are available to all members on request, and are available from DFO institutes. Requests can be made by e-mail to dfo.meds-sdmm.mpo@dfo-mpo.gc.ca, by completing an on-line order form on the MEDS web site at https://meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/program/index-

eng.html or by writing to Oceans Science Branch - MEDS, Fisheries and Oceans Canada, 12th Floor, 200 Kent St., Ottawa, Ont. Canada K1A 0E6.

Data Processing and Management

A variety of oceanographic surface, near-surface, and subsurface observations are made every day in the NAFO Convention Area by ship-borne instruments and autonomous devices, including vertical profiles of parameters such as temperature, salinity, oxygen, nutrients and other chemical and biological variables. The Marine Environmental Data Section (MEDS) of the Oceans Science Branch of DFO receives these data either in real-time or delayed mode.

Real-time or near real-time data are acquired 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 (GTS) of the World Meteorological Organization Information System, and from NOAA's Geostationary Operational Environmental Satellite (GOES) system. 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) and the ICES Oceanographic database. The delayed mode data generally take months to years to process from the time a cruise is completed or an instrument has been recovered. For this reason, MEDS 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 they must be updated in the archives.

Data processing at MEDS 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

Table 1 and Table 2 below summarize data received by MEDS for the NAFO Convention Area (NCA) in 2024. These refer to the more detailed platform-specific figures and tables at the end of this report. Table and figure numbers in these two tables differ for some platform types, as slightly different groupings of data (e.g., by variable type, sampling type, platform type, real-time vs. delayed mode, or source) are used to maximize clarity in the platform-specific figures and tables.

Table 1. Data observed in NAFO Convention Area in 2024

Data Type	Platform Type	Counts	Table #	Figure #
Oceanographic profiles	Argo	5334* profiles from 179 platforms	3	1
	Moorings (Viking)	1307* profiles from 4 platforms**	3	1
	Gliders	7951* profiles from 8 platforms	3	1
	Marine mammals	212* profiles from 2 animal tags	3	1
	Ship	8896 profiles (4970 CTD; 1239 CTD RT*; 2352 Bottle ; 197 XBT; 138 XBT RT*)	4	2
Surface/near-surface observations	Ship (thermosalinograph)	65167 obs. from 13 ships	6	4
	Drifting buoys	263717* obs. from 136 buoys	6	4
	Moored buoys	727954* obs. from 30 buoys**	6	4
	Fixed platforms	90610* obs. from 3 platforms	6	4
	Water level gauges	35 sites, avg. ~1 year each	7	4

*Data formatted for real-time transmission on the GTS
**all Canadian wave buoys described in this report measure waves, and the moorings measuring CTD oceanographic profiles in this table are also equipped with surface buoys measuring waves

Table 2. Data observed prior to 2024 in NAFO Convention Area and acquired or processed between January 2024 and May 2025

Data Type	Platform Type	Counts	Table #	Figure #
Oceanographic profiles	Ship	4148 profiles (3963 CTD + 185 bottle + 0 XBT profiles) from 73 cruises	5	3

Description

Oceanographic profiles

Argo (Figure 1, Table 3)

Argo is an international program which started in 2000 and which aims to deploy profiling floats on a 3 by 3 degree grid in the oceans of the world. Each profiling float samples and reports temperature and salinity from 2000 m to the surface every 10 days; pilots are also currently underway for deep Argo floats capable of

sampling to 6000 m. Additionally, biogeochemical (BGC)Argo floats report oxygen, nitrate, pH, chlorophyll-a, suspended particles, and downwelling irradiance in addition to temperature and salinity. Data are distributed on the GTS within 6-12 hours of collection for floats reporting on the Iridium satellite and made available on two mirrored Global servers located in France and in the USA.

MEDS carries out data management for Argo Canada profilers, from instrument to publication to the GTS and global servers. MEDS also decodes and stores all Argo data circulating on the GTS. Over 4000 Argo profiling floats owned by multiple countries are currently sampling the world's oceans.

Gliders (Figure 1, Table 3)
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. MEDS regularly acquires data from the gliders owned by Fisheries and Oceans Canada (DFO), and creates messages for transmission on the GTS after performing an automatic quality control. The full data set can be accessed from the Glider Global Data Assembly Center (GDAC).

Mammals (Figure 1, Table 3)
Among data decoded and acquired from the GTS by MEDS are real-time data transmitted by the Sea Mammal Research Units of University of St Andrews (Scotland). 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.

Ships (Figures 2 and 3, Table 4)
MEDS 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, helicopters 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) and ingestion in the MEDS archives.

MEDS decodes and stores all ship based data circulating on the GTS, either CTD or XBT, including data sampled by ships of opportunity. MEDS further receives delayed mode data from DFO institutes: Northwest Atlantic Fisheries Centre (NAFC), Bedford Institute of Oceanography (BIO), Maurice-Lamontagne Institute (MLI), St. Andrews' Biological Station, Gulf Fisheries Center (GFC, indirectly through BIO or MLI), Institute of Ocean Sciences (IOS) and the Freshwater Institute (FWI). MEDS ingests the data after conversion and visual quality assurance.

MEDS also receives delayed mode data from foreign institutes, for example the Spanish Institute of Oceanography, either directly or through BIO. MEDS also periodically queries the World Ocean Database and ICES Oceanographic Database for additional data in the NAFO Convention Area (NCA).

Near-surface observations

Moored buoys and fixed stations (Figure 4, Table 6)
MEDS continuously acquires data from meteorological buoys in Canadian waters equipped with ocean data acquisition systems. These buoys belong to Environment and Climate Change Canada (ECCC) Meteorological Service of Canada) and measure wind velocity, air and water temperature, pressure and wave spectral energy

with estimated period and significant wave height. Since the ECCC buoy payload upgrades, real-time data are available through the MSC datamart and the Canadian Integrated Ocean Observing System (CIOOS) instead of the GOES and Iridium satellites. In some situations the data is acquired in delayed-mode or from the GTS. Historical wave data are still available for the MEDS website.

BIO, NAFC, and MLI maintain surface buoys, most of which are equipped with subsurface moored instruments such as ADCPs and a CTD profiler. Those buoys are informally known as "Viking" buoys. MEDS has been transmitting data from the CTD profiler those buoys on the GTS since 2022. The data can otherwise be requested from MLI, NAFC, and BIO.

A number of U.S. moored buoys and fixed stations in the NCA transmit data on the GTS, and those are also acquired by MEDS. The stations belong to various institutions, such as the National Estuarine Research Reserve System, the University of North Carolina (including the Coastal Ocean Research and Monitoring Program) and the Chesapeake Bay Interpretive Buoy System. Their data management is coordinated by NOAA's National Data Buoy Center. Their positions are typically near the coast.

Drifting buoys (Figure 4, Table 6)
MEDS decodes and stores all drifting buoy data circulating on the GTS. 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(TSG) (Figure 4, Table 6)
MEDS decodes and stores all ship thermosalinograph (tsg) data circulating on the GTS.

Water level gauges (Figure 4, Table 7)
The Canadian Hydrographic Service (CHS) operates the Canadian permanent tide and water level network. Real-time and archived water level observations , tidal predictions, forecasted water level data, and station benchmarks are available through their website and rest-API web service.

Other Activities

Atlantic Zone Monitoring Program

Activities under the DFO Atlantic Zone Monitoring Program (AZMP) include regular sampling at 5 fixed stations and 16 standard sections, various monitoring and survey activities, and research cruises in the AZMP area to collect physical, chemical and biological data. MEDS archives physical oceanographic data from the AZMP (as outlined in the preceding sections). Program information and publications are available here: https://www.dfo-mpo.gc.ca/science/data-donnees/azmp-pmza/index-eng.html.

Offshore Oil and Gas Environmental Monitoring Data

MEDS acquires, in delayed mode, monitoring physical oceanographic data collected near offshore oil and gas sites as per NEB Guidelines. No data submissions were received in 2024.

Data Access

- *Argo:* Real-time data are sent to the global data centers within 12 hours of collection; data are also updated in delayed mode. Global Argo data can be downloaded from various sources, as described at https://argo.ucsd.edu/data/.
- *Real-time oceanographic data:* Real-time oceanographic profiles from the GTS and other sources, as well as US coastal mooring and fixed platform data from the GTS, are forwarded three times a week to

the Global Temperature Salinity Profile Programme's Continuously Managed Database (https://www.ncei.noaa.gov/products/global-temperature-and-salinity-profile-programme) and to the Copernicus Marine Environment Monitoring Service (CMEMS) where they are made available in "near real time in situ" products (http://www.marineinsitu.eu/dashboard/). GTS thermosalinograph data are forwarded to the Global Ocean Surface Underway Data archive (http://www.gosud.org). The latter two databases are harvested by the EMODnet Physics portal (https://emodnet.ec.europa.eu/geoviewer/).

- *Canadian bottle and plankton data:* Data are available from the BioChem Database (https://www.dfo-mpo.gc.ca/science/data-donnees/biochem/index-eng.html).
- *Delayed-mode Canadian oceanographic profiles:* Data are exchanged bilaterally with the World Ocean Database (https://www.ncei.noaa.gov/products/world-ocean-database). 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.
- *Drifting buoy equatorial moored buoy data from the GTS:* These are sent to the US NOAA National Centers for Environmental Information Ocean Archive System on a yearly basis (https://www.ncei.noaa.gov/archive/archive-management-system/OAS/bin/prd/jquery/text/query).
- *Canadian moored buoys:* Historical data are available on a national website: https://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/waves-vagues/index-eng.htm. Data since 2021 are also available from the Canadian Integrated Ocean Observing System (CIOOS) ERDDDAP: ERDDAP - Realtime data from Environment and Climate Change Canada buoys (Meteorological Service of Canada) - Data Access Form (cioospacific.ca)
- *Canadian water levels:* Data are available from: https://www.tides.gc.ca/. The CHS REST-API can be accessed at the following address: https://api.iwls-sine.azure.cloud-nuage.dfo-mpo.gc.ca/swagger-ui/index.html. 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 (https://www.bio.gc.ca/science/data-donnees/base/index-en.php) and MLI (https://slgo.ca/en/home-slgo/) depending on the site locations.
- *Gliders:* Full resolution of DFO glider data can be accessed from: https://co.ifremer.fr/co//ego/ego/v2/. Information on DFO glider deployments can be accessed from the "Everyone's Glider Observations" website: https://www.ego-network.org/dokuwiki/doku.php
- *Marine mammals:* Observations from sensors mounted on marine mammals can be accessed from the MEOP website : https://www.meop.net/meop-portal/
- *Other MEDS data:* Canadian oceanographic data and global drifting buoy data can be requested through this form: https://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/request-commande/form-eng.asp.

References

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

Boyer, T.P., J. I. Antonov, O. K. Baranova, C. Coleman, H. E. Garcia, A. Grodsky, D. R. Johnson, R. A. Locarnini, A. V. Mishonov, T.D. O'Brien, C.R. Paver, J.R. Reagan, D. Seidov, I. V. Smolyar, and M. M. Zweng, 2013: World Ocean Database 2013, NOAA Atlas NESDIS 72, S. Levitus, Ed., A. Mishonov, Technical Ed.; Silver Spring, MD, 209 pp., http://doi.org/10.7289/V5NZ85MT

Figures and Tables

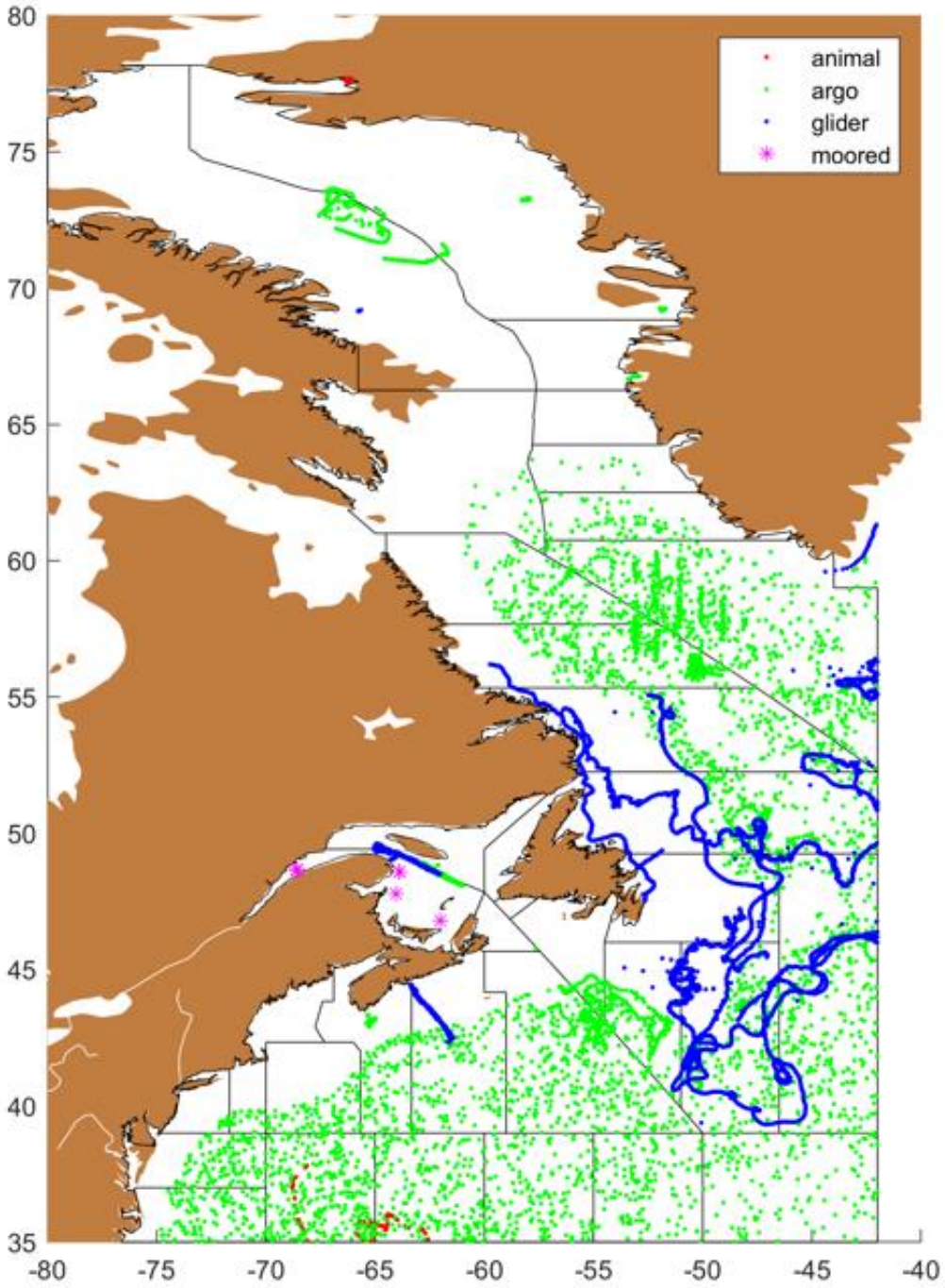

Figure 1. Positions of profiles sampled by autonomous platforms in 2024

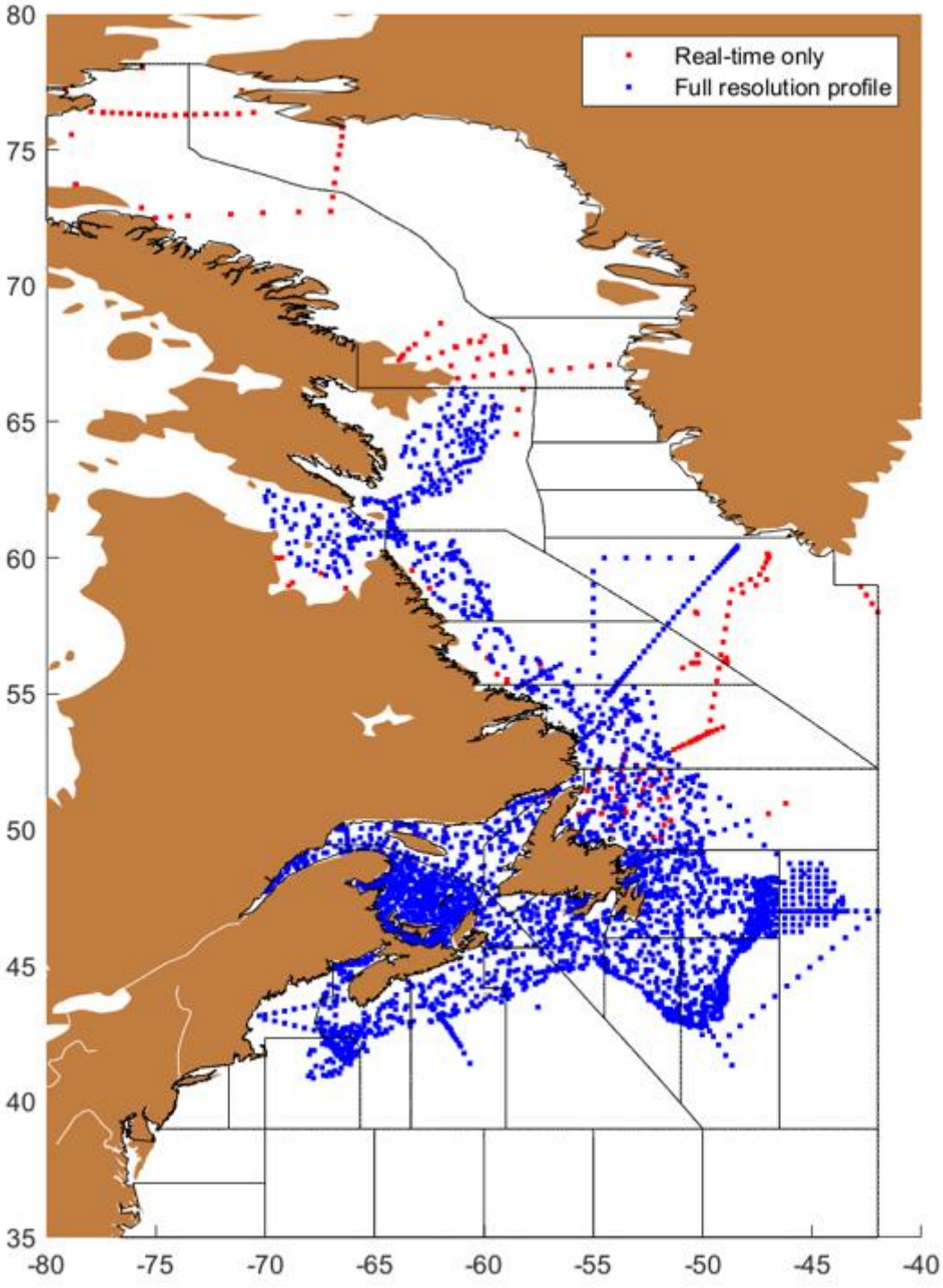

Figure 2. Positions of profiles sampled by ships in 2024

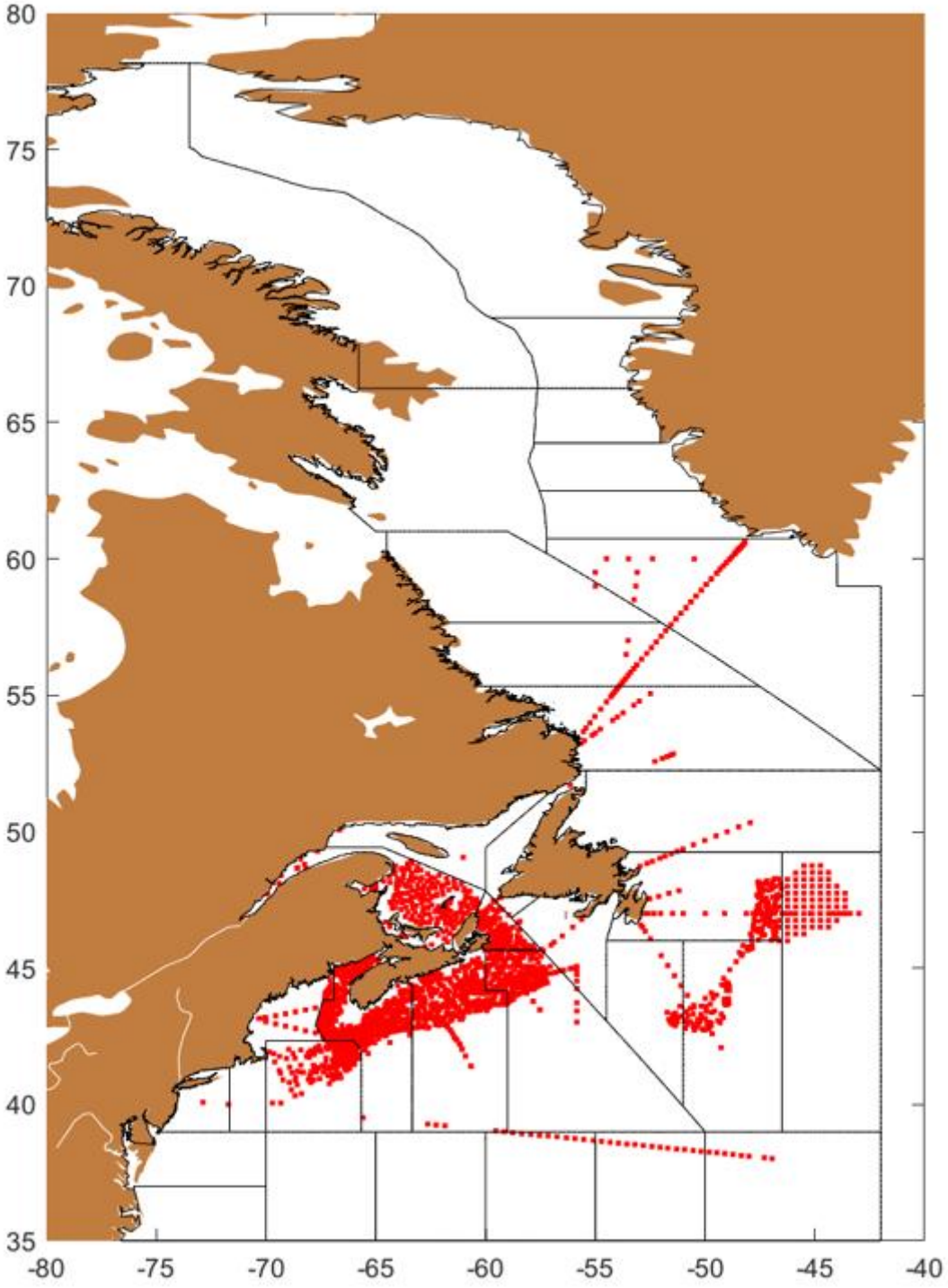

Figure 3. Positions of profiles sampled by ships before 2024 and acquired/processed in 2024/2025

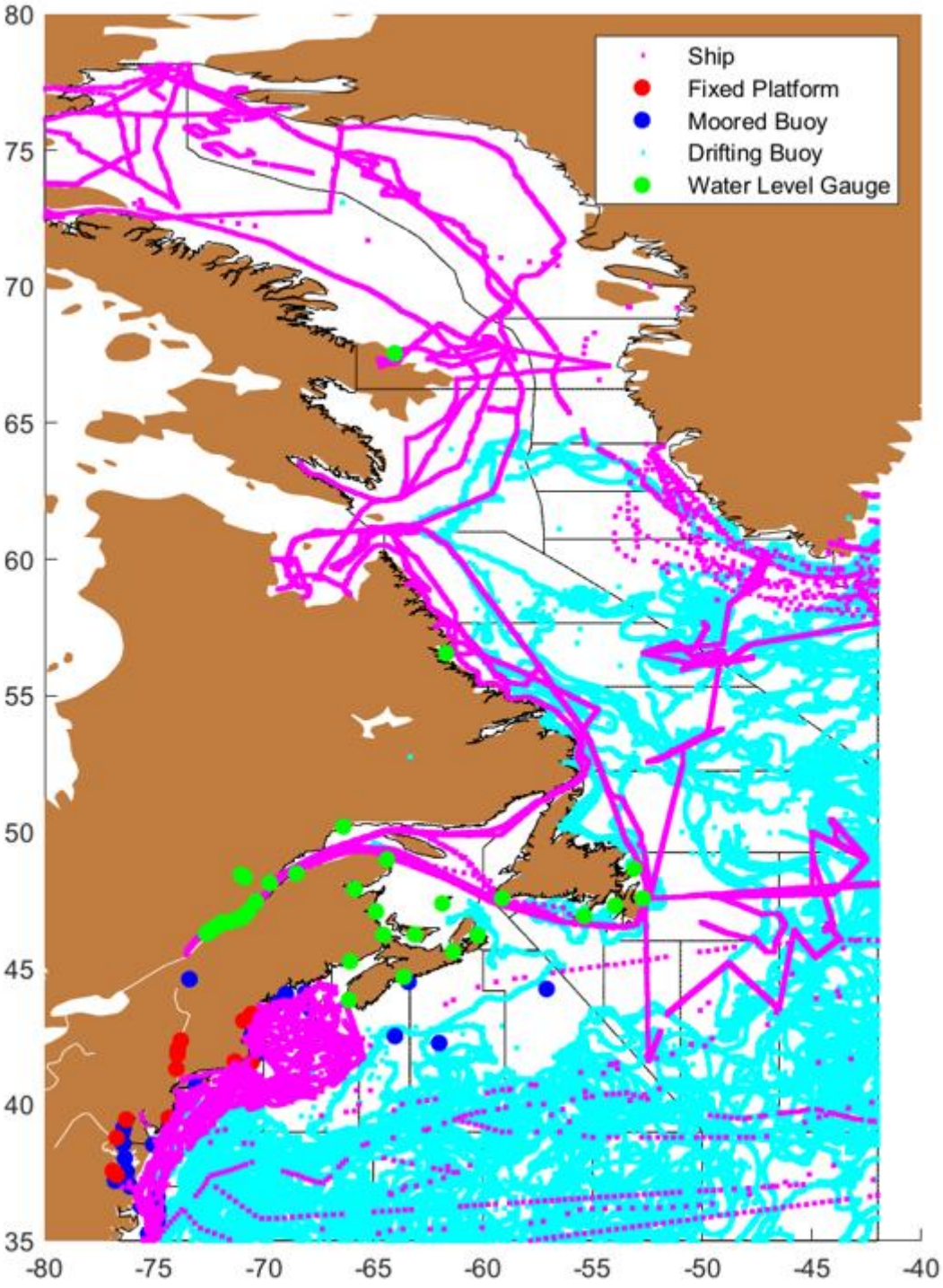

Figure 4. Positions of near surface observations made in 2024

Table 3. Real-time temperature and/or salinity profiles from autonomous platforms collected and processed in 2024

PLATFORM TYPE	PLATFORM NAME	COUNTRY	WMO ID	REPORTING PERIOD(MONTHS)	PROFILES	NAFO SUBAREAS
MOORED	AZMP- Riki	CAN	4400481	May-Nov	404	4T
MOORED	BancAmericains	CAN	4400483	Apr-Oct	376	4T
MOORED	AZMP-ESG	CAN	4400484	Apr-Oct	185	4T
MOORED	AZMP-ShediacValley	CAN	4400485	Jun-Oct	342	4T
GLIDER	SEA019	CAN	4800925	Apr-Nov	1825	3N 4W 4X
GLIDER	SEA021	CAN	4800926	Feb-Sep	826	4W
GLIDER	SEA032	CAN	4800937	Mar-Oct	725	4W
GLIDER	SEA022	CAN	4800993	Jun-Jun	122	3K 3L
GLIDER	Scotia	CAN	4803922	Jun-Oct	1410	4S 4T
GLIDER	Peggy	CAN	8901092	Apr-Oct	2012	4S 4T
GLIDER	Decibel_981	CAN	8901106	Oct-Oct	273	4X
GLIDER	Harmony_979	CAN	8901107	Oct-Oct	758	4X
ARGO		USA	1902392	Jan-Dec	35	4Vs4W 6E 6F 6G
ARGO		USA	1902444	Jan-Dec	35	5Ze6B 6C 6D 6E
ARGO		USA	1902510	May-Oct	16	6H
ARGO		USA	1902511	Apr-Apr	4	6H
ARGO		USA	1902655	Jun-Nov	34	1A
ARGO		FRA	1902663	Aug-Dec	16	3O 3Ps4Vs
ARGO		USA	2903444	Jul-Sep	7	3M
ARGO		USA	2903448	Jul-Dec	12	3M 3N
ARGO		FRA	2903881	Aug-Dec	16	3O 3Ps
ARGO		FRA	2903929	Aug-Dec	23	3K
ARGO		FRA	2903930	Aug-Aug	4	3K
ARGO		USA	3901219	Jan-Dec	36	3N 3O 4Vs6F
ARGO		GBR	3901584	Aug-Sep	16	3M 3N
ARGO		DEU	3901601	Jan-Dec	37	4W 4X 5Ze5Zw
ARGO		DEU	3901603	Jan-Dec	36	4Vs4W 4X 5Ze6D 6E
ARGO		DEU	3901604	Jun-Nov	13	6C 6D
ARGO		DEU	3901687	Jan-Dec	36	3O 3Ps4Vs6G
ARGO		UK	3901945	Jul-Dec	16	0B 1E 1F 2G
ARGO		UK	3901970	Jan-Dec	16	2J 3K 3M
ARGO		FRA	3902001	Jan-Jun	16	6G 6H
ARGO		USA	3902331	Jul-Dec	18	2J 3K
ARGO		USA	3902332	Jun-Dec	19	3M 3N
ARGO		FRA	3902458	Jan-Nov	27	3M 3N
ARGO		GBR	3902491	Mar-Sep	24	6B 6C 6D 6E
ARGO		GBR	3902495	Jan-Dec	35	3L 3M 3N 3O 4Vs4W 4X

ARGO		FRA	3902608	Aug-Sep	10	3M
ARGO		FRA	3902609	Aug-Aug	14	3O
ARGO		USA	4902109	Mar-Dec	26	4W 6B 6C 6D 6E
ARGO		USA	4902111	Jan-May	13	6B 6D 6E
ARGO		USA	4902114	Mar-Apr	3	6C
ARGO		USA	4902117	Jan-Jan	1	1F
ARGO		USA	4902119	Jan-Dec	35	1F
ARGO		USA	4902120	Jun-Sep	6	6B 6C 6D
ARGO		USA	4902121	Jan-Oct	28	3M 3N 4Vs4W 6D 6E
ARGO		USA	4902337	Jan-Dec	37	3N 3O 4Vs6G
ARGO		USA	4902344	Jan-Jun	16	4W 4X 5Ze
ARGO		USA	4902345	Jan-Dec	37	5Ze5Zw6B 6C 6D 6E
ARGO		CAN	4902437	Jan-Oct	73	0A 1A
ARGO		CAN	4902442	Jan-Dec	31	3M 3N 6H
ARGO		CAN	4902467	Jan-Dec	36	3O 3Ps4Vs
ARGO		CAN	4902469	Jan-Dec	35	1F 2G 2H
ARGO		CAN	4902470	Jan-Dec	29	6F 6G 6H
ARGO		CAN	4902471	Jan-Dec	35	1F 2G 2H
ARGO		CAN	4902477	Jan-Dec	36	1F 2G
ARGO		CAN	4902478	Jan-Dec	10	3M 6H
ARGO		CAN	4902479	Jan-Dec	33	2G 2H 2J 3K 3L 3M
ARGO		CAN	4902481	Jan-Dec	36	4Vs4W 4X 5Ze6D 6E
ARGO		CAN	4902487	Jan-May	15	2J 3K 3L 3M
ARGO		CAN	4902489	Jan-Dec	29	3M
ARGO		CAN	4902498	Jan-Dec	35	3N 4Vs4W 4X 5Ze6B 6C 6D 6F 6G
ARGO		CAN	4902503	Jan-Dec	33	3N 4Vs4W 4X 6B 6C 6D 6E 6G 6H
ARGO		CAN	4902505	Jan-Dec	36	0B 2G 2H 2J 3K 3L 3M
ARGO		CAN	4902508	Apr-Jul	9	1F
ARGO		CAN	4902509	Mar-Dec	29	0B 1D 1E 1F
ARGO		CAN	4902511	Jan-Dec	36	1F 2H 2J
ARGO		CAN	4902512	Sep-Sep	3	1F
ARGO		CAN	4902513	Jan-Dec	32	0B 1E 1F 2G 2H 2J 3K
ARGO		CAN	4902515	Jan-Dec	35	4Vs4W 4X 5Ze5Zw6A 6B 6C 6D 6F
ARGO		CAN	4902518	Jan-Mar	2	6D
ARGO		CAN	4902519	Mar-Dec	16	6F
ARGO		CAN	4902523	Jan-Dec	36	4Vs4W 6B 6D 6E
ARGO		CAN	4902524	Jan-Dec	36	3O 4Vs4W 6E 6F 6G
ARGO		CAN	4902529	Jan-Feb	6	3M
ARGO		CAN	4902531	Jul-Nov	13	0A
ARGO		CAN	4902556	Jan-Nov	32	3M 3N 4Vs6F 6G 6H

ARGO		CAN	4902557	Nov-Dec	3	1F
ARGO		CAN	4902576	Jan-Dec	36	4Vs4W 5Ze6B 6C 6D 6E 6G
ARGO		CAN	4902577	Jan-Dec	36	3M 3N 3O 4Vs4W 6D 6F 6G
ARGO		CAN	4902578	Jan-Dec	36	3M 3N 3O 6H
ARGO		CAN	4902579	Jan-Dec	36	1F 2G 2H 2J 3K
ARGO		CAN	4902590	Jan-Apr	11	6B 6C 6D
ARGO		CAN	4902591	Jan-Oct	21	1F
ARGO		CAN	4902592	Jan-Dec	36	2H 2J 3K 3L 3M 3N
ARGO		CAN	4902593	Jan-Dec	30	1F 2J 3K
ARGO		CAN	4902598	Jan-Dec	37	4Vs4W 4X 5Ze6D 6E 6F
ARGO		CAN	4902599	Jan-Dec	32	4W 4X 5Ze6D 6E 6F
ARGO		CAN	4902600	Jan-Dec	36	4W 4X 5Ze5Zw6A 6B 6C 6D
ARGO		CAN	4902601	Jan-Sep	26	4X 5Ze5Zw6A 6B 6C 6D
ARGO		CAN	4902604	Jan-Dec	21	2H 2J 3K 3L 3M
ARGO		CAN	4902606	Jan-Jul	20	4W 6E 6F
ARGO		CAN	4902608	Jan-Dec	37	3N 3O 4Vs6G
ARGO		CAN	4902622	Apr-Nov	24	4W 4X 5Ze6D
ARGO		CAN	4902627	Jan-Dec	57	4Vs4W 4X 5Ze5Zw6A 6B 6C 6D
ARGO		CAN	4902651	Jul-Dec	18	3N 3O 3Ps4Vs
ARGO		CAN	4902652	Jan-Dec	36	1F 2H 2J
ARGO		CAN	4902659	Jul-Dec	16	3N
ARGO		CAN	4902670	Jan-Dec	35	1E 1F 2G
ARGO		CAN	4902671	Jan-Feb	5	2H 2J
ARGO		CAN	4902674	Oct-Dec	8	4W 4X
ARGO		CAN	4902675	Jun-Dec	19	1F 2G
ARGO		CAN	4902676	Apr-Dec	23	4Vs4W 4X 6E 6F
ARGO		CAN	4902677	Jun-Dec	21	1F 2G 2H 2J
ARGO		CAN	4902678	Oct-Dec	8	4Vn4Vs
ARGO		CAN	4902684	Jan-Dec	70	1F 2H
ARGO		CAN	4902685	Jan-Dec	70	1F 2H
ARGO		CAN	4902686	May-Dec	67	1E 1F 2G 2H
ARGO		CAN	4902687	May-Dec	62	1F 2G 2H
ARGO		CAN	4902688	May-Dec	55	1F
ARGO		USA	4902928	Jan-Dec	34	4W 6B 6C 6D 6E 6F
ARGO		USA	4903035	Jan-Jan	4	6D
ARGO		USA	4903042	Jan-Dec	37	3M 3N 6H
ARGO		USA	4903043	Mar-Dec	29	3M 3N 6G 6H
ARGO		USA	4903048	Jan-Nov	30	3M 3N 6G 6H
ARGO		USA	4903049	Feb-Dec	29	4Vs4W 6D 6E 6F 6G

ARGO		USA	4903056	Jan-Dec	37	4Vs4W 6E 6F 6G
ARGO		USA	4903233	Jan-Dec	70	4X 5Ze6B 6D 6E
ARGO		USA	4903237	Jun-Dec	21	6B 6C 6D
ARGO		USA	4903238	Aug-Dec	24	6B 6D
ARGO		USA	4903252	Jan-Nov	32	4W 4X 5Ze5Zw6A 6B 6C 6D
ARGO		USA	4903256	Nov-Dec	5	6B 6C 6D
ARGO		USA	4903258	Jan-Oct	30	4Vs4W 6H
ARGO		USA	4903260	Jan-Aug	22	3N 3O 4Vs6G 6H
ARGO		USA	4903273	Jan-Dec	34	4Vs4W 4X 5Ze6B 6C 6D 6E 6F
ARGO		USA	4903277	Jan-Oct	19	6D 6E 6F 6G
ARGO		USA	4903280	Jan-Dec	36	4Vs4W 4X 6D 6E 6F
ARGO		USA	4903329	Jul-Dec	13	6E 6F
ARGO		USA	4903363	Jan-Feb	10	1F
ARGO		USA	4903377	Jan-Sep	205	3O 3Ps4Vs
ARGO		USA	4903455	Jan-Dec	269	1B
ARGO		USA	4903456	Jan-Oct	29	6F 6G
ARGO		FRA	4903634	Jan-Dec	36	1F 2G 2H 2J 3K 3M
ARGO		GBR	4903662	Jan-Dec	32	6B 6C 6D 6E 6F
ARGO		DEU	4903668	Jan-Dec	46	3M 3N
ARGO		FRA	4903763	Aug-Dec	16	3O 3Ps4Vs
ARGO		FRA	4903774	Jan-Nov	67	0A 1A
ARGO		DEU	4903798	Jun-Dec	100	2H
ARGO		USA	5904774	Jan-Dec	36	1F 2J
ARGO		USA	5906342	Feb-Dec	31	4W 4X 6B 6C 6D 6E
ARGO		USA	5906435	Aug-Nov	10	6E 6F
ARGO		USA	5906438	Jan-Dec	37	4Vs4W 4X 6E 6F 6G
ARGO		USA	5906440	Jan-Feb	5	3M
ARGO		GBR	5906966	Jan-May	14	6C 6D
ARGO		FRA	5906994	Jan-Dec	36	1F 2G 2H
ARGO		FRA	5907071	Aug-Dec	25	3M 3N
ARGO		FRA	5907072	Aug-Dec	24	3M
ARGO		FRA	5907126	Aug-Dec	16	3O 3Ps
ARGO			5907190	Aug-Dec	83	3O 3Ps4Vs
ARGO		GBR	6901170	Jan-Jan	2	3O
ARGO		GBR	6901195	Apr-Jun	5	6F
ARGO		GBR	6901199	Jan-Oct	21	3K 3L 3M
ARGO		IRL	6901925	Jan-Dec	36	2J 3K 3L 3M
ARGO		IRL	6901930	Jan-Dec	36	4Vs6F 6G 6H
ARGO		IRL	6901937	Dec-Dec	3	1F
ARGO		FRA	6902865	Jan-Dec	35	2J 3K

ARGO		FRA	6902886	Jan-Feb	4	2J 3K
ARGO		FRA	6902895	Jan-Dec	36	1E 1F 2G
ARGO		FRA	6903006	Jan-Jan	3	3K
ARGO		FRA	6903027	Apr-Dec	25	1E 1F 2G
ARGO		FRA	6903034	Jan-Jan	1	3M
ARGO		FRA	6903039	Jan-Dec	37	2J 3K 3L 3M
ARGO		FRA	6903041	Jul-Dec	16	1E 1F 2G 2H 2J
ARGO		FRA	6903083	Jan-Jan	2	3M
ARGO		FRA	6903086	Feb-Dec	31	1F
ARGO		FRA	6903121	Jan-Dec	19	6D 6E 6F
ARGO		FRA	6903122	Jan-Nov	28	6D 6E 6F
ARGO		FRA	6903127	Jan-Oct	49	0A
ARGO		FRA	6903131	Jan-Dec	36	0B 1D 2G 2H 2J 3K
ARGO		NOR	6903545	Jan-Jun	17	1F
ARGO		FRA	6903872	Mar-Dec	28	1F 2H
ARGO		FRA	6903873	Jan-Mar	5	3K
ARGO		DEU	6904085	Jan-Dec	37	0B 1F 2G 2H 2J 3K 3L 3M
ARGO		DEU	6904114	Jan-Dec	52	1F 2H 2J 3K
ARGO		GBR	6904185	Jan-Feb	5	1F
ARGO		DEU	6904231	Jan-Dec	52	2G 2H 2J 3K
ARGO		DEU	6990501	Jan-Dec	33	3M 3N 3O 4Vs6G 6H
ARGO		GBR	6990520	Feb-Dec	17	3M 6H
ARGO		GBR	6990521	Sep-Dec	11	3M 3N
ARGO		DEU	6990526	Jan-Dec	52	1F 2G 2H
ARGO		USA	6990591	Jan-Dec	58	1A
ARGO		FRA	6990660	Aug-Nov	16	3K 3M
ARGO		FRA	6990661	Aug-Dec	18	3O 3Ps
ARGO		GBR	6990668	Aug-Dec	45	1F 2G 2H
ARGO		DEU	7900538	Feb-Dec	21	3M 6H
ARGO		GBR	7901008	Jan-Nov	32	6D 6E
ARGO		DEU	7901027	Jan-Nov	49	2H 2J 3K 3L 3M
ARGO		FRA	7901036	Jan-Dec	37	0B 1E 1F 2G 2H 2J 3K 3L
ARGO		FRA	7901037	Jan-Feb	5	1F
ARGO		FRA	7901124	Jan-Nov	60	0A 1A
ARGO		FRA	7902215	Aug-Dec	18	3O 3Ps4Vs
ANIMAL			9901778	Mar-May	103	6D 6E
ANIMAL			9901780	Jan-Apr	109	1A

*Dates are of first and last data reports within the NAFO Convention Area
**Moorings equipped with fixed profiling CTDs, mounted with Viking buoys. Deployments were seasonal and the full data are available at the MLI.

Table 4. Oceanographic profiles collected by ships in 2024

Country	Mission/Ship	Start Date	End Date	CTD	CTD RT	XBT	XBT RT	Bottle	NAFO Subareas
CA	SHIP	20240807	20241231	0	19	0	0	0	4W
FR	DBBT	20240603	20240701	0	51	0	0	0	1F 2H 2J 3K
FR	DBBE	20240621	20240626	0	17	0	0	0	1F 2H
CA	184124007	20240304	20240315	103	0	0	0	95	3Pn4R 4S 4T 4Vn
CA	CFD2073	20241128	20241216	0	62	0	0	0	2J 3K
CA	189023052	20240306	20240403	2	0	0	0	2	4T
CA	18AV24007	20240115	20240115	1	1	0	0	1	3L
CA	18BP24004	20240409	20241126	23	0	0	0	57	4T
CA	18BW23001	20240111	20240111	0	0	0	0	1	4T
CA	CGDT	20240713	20241028	0	176	0	0	0	0A 0B 1A 1B 2G 2H 2J 4R 4S
CA	18E024119	20240716	20240828	325	214	0	0	0	0B 2G
CA	18K824001	20240621	20241022	75	0	0	0	0	4T
CA	18KF24048	20240414	20240415	7	5	0	0	0	3Ps
CA	18KF24049	20240418	20240430	84	59	0	0	0	3Pn3Ps
CA	18KF24050	20240502	20240514	91	57	2	2	1	3L 3O 3Ps
CA	18KF24051	20240516	20240602	88	63	0	1	1	3L 3N 3O
CA	18KF24052	20240605	20240612	39	26	1	1	3	3L
CA	18KF24053	20240613	20240623	52	36	1	1	1	3L
CA	18KF24054	20240625	20240716	165	50	63	63	75	2H 2J 3K 3L 3M
CA	18KF24033	20240803	20240903	79	0	0	0	78	4R 4S 4T 4Vn
CA	18KF24036	20240907	20240920	7	0	0	0	14	3Pn3Ps4Vn4Vs
CA	18KF24055	20241003	20241015	48	28	2	2	2	3L 3O
CA	18KF24056	20241017	20241026	50	33	0	1	1	3L 3N 3O
CA	18KF24057	20241031	20241112	55	30	0	0	0	3L 3N
CA	18KF24058	20241115	20241126	65	46	1	1	1	3L
CA	18KF24059	20241128	20241209	47	31	1	1	1	3K 3L
CA	18KF24060	20241211	20241216	15	11	0	0	2	3K 3L
CA	18LO24011	20240525	20240530	28	0	0	0	0	4S
CA	18LO24008	20240602	20240611	11	0	0	0	0	4S
CA	18LO24034	20240614	20240629	71	0	0	0	0	4S 4T
CA	18LO24038	20240706	20240713	13	0	0	0	0	4R 4S
CA	18LO24022	20240723	20240801	8	0	0	0	0	4T
CA	18LO24009	20240819	20240825	8	0	0	0	0	4T
CA	18LO24041	20240903	20240913	9	0	0	0	0	4T
CA	18LO24058	20241010	20241022	10	0	0	0	0	4T
CA	18LO24061	20241028	20241104	46	0	0	0	0	4T
CA	18MU24814	20240427	20240428	2	0	0	0	2	4T

CA	18MU24875	20240511	20240511	1	0	0	0	1	4T
CA	18MU24402	20240629	20240801	117	0	0	0	43	4T
CA	18MU24818	20240905	20240913	14	0	0	0	14	4T
CA	18MU24918	20240921	20241005	21	0	0	0	5	4T
CA	18OL24017	20240606	20240616	77	0	0	0	123	3Pn4R 4S 4T 4Vn
CA	18OL24012	20240617	20240629	87	1	0	0	179	4S 4T
CA	18OL24051	20241016	20241103	99	2	0	0	129	3Pn4R 4S 4T 4Vn
CA	18QL24038	20240506	20240523	84	0	61	0	0	3K 3L
CA	18QL24924	20240527	20240618	79	0	0	0	69	1F 2G 2H 2J 3L 4W 4X
CA	18QL24010	20240625	20240806	239	0	0	0	283	4Vn4Vs4W 4X 5Y 5Ze
CA	18QL24400	20240826	20240920	139	0	0	0	156	4T 4Vn4W
CA	18QL24039	20241007	20241010	3	3	0	0	1	2H 3L
CA	18QL24040	20241020	20241027	29	14	0	0	0	2H 2J
CA	18QL24041	20241101	20241109	44	27	0	0	0	2J
CA	18QL24042	20241117	20241124	25	15	3	3	0	3K
CA	18QL24043	20241129	20241206	37	26	1	1	0	2J 3K
CA	18QL24044	20241212	20241219	21	12	2	2	1	2J 3K 3L
CA	18TL24002	20240302	20240402	108	0	0	0	126	4W 4X 5Y 5Ze
CA	18TL24880	20240411	20240501	79	18	0	0	151	3Pn3Ps4Vn4Vs4W 4X 5Y 5Ze
CA	18VA24667	20240103	20241231	336	0	0	0	142	3L 3N 3O 3Pn3Ps4R 4T 4W 4X
CA	18VA24666	20240124	20241216	331	0	0	0	138	3L 3N 3O 3Pn3Ps4R 4T 4W 4X
CA	18VA24669	20240222	20241209	322	0	0	0	129	3L 3N 3O 3Pn3Ps4R 4T 4W 4X
CA	18VA24002	20240517	20240602	91	0	0	0	4	3L 3N 3O 4W 4X
CA	18VA24016	20240705	20240712	16	0	0	0	73	3Pn3Ps4R 4T 4W
CA	18VA24001	20240710	20240915	192	0	0	0	34	3Pn3Ps4T 4W 4X
CA	18VD24202	20240518	20240525	14	10	0	0	0	3Ps
CA	18VD24203	20240531	20240607	15	11	0	0	0	3L
CA	18VD24204	20240622	20240622	1	1	0	0	1	3L
CA	18VD24205	20240701	20240707	6	3	0	0	0	3K 3L
CA	18VD24206	20240716	20240801	23	16	0	0	0	3L
CA	18VD24207	20240802	20240804	5	4	0	0	0	3L
CA	18VD24209	20240814	20240818	10	6	0	0	0	3L
CA	18VD24211	20240907	20240914	13	9	0	0	0	3K
CA	18VD24213	20240923	20240924	2	0	0	0	0	3L
CA	18VD24214	20241008	20241008	1	1	0	0	0	3L
CA	18ZG24046	20240723	20240801	43	0	0	0	0	4T
ESP	29VE240704	20240608	20240731	186	0	0	0	0	3L 3M 3N 3O
ESP	29VE240605	20240613	20240630	114	0	0	0	0	3M 3N 3O
ESP	29VE240808	20240808	20240827	92	0	0	0	0	3L

CA	35HT24002	20240828	20240828	0	0	0	0	1	3L
CA	74EQ24402	20241006	20241021	71	0	0	0	136	3Pn3Ps4Vn4Vs4W 4X 5Y 5Ze
CA	74EQ24002	20241028	20241123	156	45	59	59	75	2J 3K 3L 3M 3N 3O 3Ps

* Messages formatted for transmission on the GTS. These messages are of lower vertical resolution and uncalibrated versions of the data, to be replaced in the future.
** TSG counts are not number of profiles, but number of point thermosalinograph observations
*** Dates are of first and last data reports within the NAFO Convention Area

Table 5. Pre-2024 temperature (XBT) and/or salinity (CTD,bottle) profile data collected aboard ships, entered or updated in 2024/2025

Mission	Country	Start Date	End Date	CTD	Bottle	XBT	NAFO_Subareas
189023052	CA	20231123	20231220	3	0	0	4T
18AV23006	CA	20230223	20230223	0	1	0	3L
18BP23002	CA	20230307	20231123	27	0	0	4T
18DL20001	CA	20200722	20200811	66	0	0	1F 2H 2J 3L 4R 4W
18HU15004	CA	20150417	20150427	57	0	0	3Ps4Vn4Vs4W 4X 5Ze
18HU16003	CA	20160409	20160425	55	0	0	4Vn4Vs4W 4X 5Ze
18HU16027	CA	20160915	20161006	100	0	0	3Pn3Ps4Vn4Vs4W 4X 5Y 5Ze
18HU18004	CA	20180406	20180423	85	0	0	3Pn3Ps4Vn4Vs4W 4X 5Y 5Ze
18HU18030	CA	20180915	20181005	105	0	0	3Pn3Ps4Vn4Vs4W 4X 5Y 5Ze
18HU20066	CA	20200830	20200907	7	0	0	3Pn4T 4Vs4W 4X
18HU20063	CA	20201004	20201014	52	0	0	3Pn3Ps4Vn4Vs4W 4X 5Ze
18KF23034	CA	20230413	20230413	0	1	0	3L
18KF23035	CA	20230511	20230511	0	1	0	3L
18KF23036	CA	20230515	20230531	0	3	0	3L
18KF23032	CA	20230517	20230517	0	1	0	3L
18KF23041	CA	20230720	20230801	0	44	0	2J 3K 3L
18LO22053	CA	20220923	20220925	7	0	0	4T
18LO23032	CA	20230612	20230623	22	0	0	4S 4T
18LO23011	CA	20230813	20230820	9	0	0	4T
18LO23045	CA	20230831	20230901	4	0	0	4T
18MU21171	CA	20210807	20210818	86	0	0	2J 4Vn4Vs4W
18MU22473	CA	20220806	20220816	30	0	0	4Vn4W
18MU23757	CA	20230421	20230421	4	0	0	4W
18MU23767	CA	20230811	20230823	44	0	0	4Vn4Vs4W
18NE96254	CA	19970225	19970305	37	0	0	5Ze
18NE97026	CA	19970703	19970716	108	0	0	4W 4X 5Y
18NE97034	CA	19970721	19970731	94	0	0	4Vn4Vs4W
18NE16016	CA	20160628	20160815	250	0	0	4Vn4Vs4W 4X 5Y 5Ze
18NE17020	CA	20170628	20170805	201	0	0	4Vn4Vs4W 4X 5Y 5Ze
18NE19102	CA	20190212	20190318	96	0	0	4W 4X 5Y 5Ze
18NE19002	CA	20190219	20190307	48	0	0	4X 5Ze
18NE19030	CA	20190703	20190810	236	0	0	4Vn4Vs4W 4X 5Y 5Ze
18NE20025	CA	20200705	20200808	163	0	0	4Vn4Vs4W 4X 5Y 5Ze
18OL17001	CA	20170418	20170503	100	0	0	3Pn3Ps4Vn4Vs4W 4X 5Ze
18OL19001	CA	20190406	20190425	76	0	0	3Pn4Vn4Vs4W 4X 5Y 5Ze
18QL23002	CA	20230224	20230329	146	0	0	4W 4X 5Y 5Ze
18QL23031	CA	20230403	20230417	0	42	0	3L 3M 3N 3O 3Ps

18QL23032	CA	20230503	20230503	0	1	0	3L
18QL23573	CA	20230524	20230612	58	0	0	1F 2G 2H 2J 3L 4W
18QL23011	CA	20230629	20230814	203	0	0	4Vn4Vs4W 4X 5Y 5Ze
18QL23033	CA	20231008	20231008	0	1	0	3L
18QL23034	CA	20231018	20231029	0	2	0	3L
18QL23035	CA	20231107	20231107	0	1	0	3L
18QL23036	CA	20231115	20231115	0	1	0	3L
18QL23037	CA	20231129	20231215	0	2	0	3L
18TL20002	CA	20200301	20200313	36	0	0	4W 4X 5Ze
18TL20102	CA	20200308	20200320	47	0	0	4W 4X 5Y 5Ze
18TL23238	CA	20230108	20230108	0	1	0	3L
18TL23241	CA	20230601	20230601	0	1	0	3L
18TL23242	CA	20230620	20230620	0	1	0	3L
18TL23243	CA	20230830	20230911	0	2	0	3L
18TL23246	CA	20231029	20231029	0	1	0	3L
18TL23247	CA	20231114	20231114	0	1	0	3L
18TL23248	CA	20231116	20231116	0	1	0	3L
18VA19666	CA	20190114	20191217	9	0	0	4W
18VA20667	CA	20200109	20201222	35	0	0	4W 4X
18VA20666	CA	20200114	20201214	32	0	0	4W 4X
18VA20669	CA	20200114	20201117	26	0	0	4W 4X
18VA21667	CA	20210106	20211229	44	0	0	4T 4W
18VA21668	CA	20210508	20210713	6	0	0	4T 4W
18VA22667	CA	20220107	20221221	48	0	0	4W
18VA23667	CA	20230105	20231220	250	0	0	4T 4W 4X
18VA23666	CA	20230112	20231206	244	0	0	4T 4W 4X
18VA23669	CA	20230112	20231212	246	0	0	4T 4W 4X
18VA23001	CA	20230710	20230904	187	0	0	4T 4W 4X
18VA23302	CA	20231004	20231024	11	0	0	4T 4W 4X
18VD23187	CA	20230611	20230611	0	1	0	3L
18VD23188	CA	20230627	20230710	0	2	0	3L
18VD23191	CA	20230813	20230813	0	1	0	3L
32EV17606	CA	20171124	20171216	79	0	0	3Pn3Ps4Vn4Vs4W 4X 5Y 5Ze
74EQ23902	CA	20230913	20231001	84	0	0	3Pn3Ps4Vn4Vs4W 4X 5Y 5Ze
74EQ23001	CA	20231006	20231027	0	72	0	2J 3K 3L 3M 3N 3O 3Ps

* Dates are of first and last data reports within the NAFO Convention Area

Table 6. Real-time surface water, air, atmospheric parameters*, tsg from ships* and wave* data from buoys, collected and processed in 202*4*

Country	Platform Type	Name	ID	Reporting Period (months)	Observ. Counts	NAFO Subareas
CAN	Ship	CCGS Amundsen	CGDT	Jun-Oct	8430	0A 0B 1A 1B 2G 2H 2J 3K 3L 4R 4S 4T
LBR	Ship	Seatrade Blue	D5LS3	Mar-Dec	323	3M 3N 3O 3Ps4Vs4W 4X 5Ze5Zw6A 6B 6C 6D 6E 6F 6G 6H
DEU	Ship	Maria S. Merian	DBBT	Jun-Jul	9992	1F 2H 2J 3K 3L
FRA	Ship	Le Commandant Charcot	FMNB	Aug-Aug	43	0A 1A 1B 1D 1E 1F
FRA	Ship	Canopee	FMUR	Aug-Sep	27	3M 3N 4Vs6D 6E
FRA	Ship	Mn Toucan	FNAV	Jun-Jun	13	6B 6C
FRA	Ship	Thalassa	FNFP	Jul-Sep	8524	3K 3L 3M 3N 3O
FRA	Ship	Mn Colibri	FNHO	May-Sep	116	3M 3N 4Vs4W 6B 6C 6D 6E 6F 6G 6H
DNK	Ship	Takuma Arctica	OYTR2	Apr-Dec	376	1D 1E 1F
SWE	Ship	Oden	SMLQ	Jul-Sep	1716	0A 1A 1B 1C 1D 1E 1F
USA	Ship	Henry B. Bigelow	WTDF	Apr-Nov	28622	4X 5Y 5Ze5Zw6A 6B 6C
USA	Ship	Pisces	WTDL	Aug-Nov	1913	5Y 5Zw6A 6B 6C
CAN	Ship	Oceanex Connaigra	XJBI	Mar-Dec	5072	3L 3Pn3Ps4R 4S 4T 4Vn
USA	Fixed Platform	Buoy 126, Jacques Cousteau Reserve, NJ	JCTN4	Jan-Dec	31068	6A
USA	Fixed Platform	Wharf Bottom, Narragansett Bay Reserve, RI	NAQR1	Jan-Dec	31352	5Zw
USA	Fixed Platform	Menauhant, Waquoit Bay Reserve, MA	WAQM3	Jan-Dec	28190	5Zw
CAN	Moored Buoy	C44488 - East Chedabucto Bay	4400488	Jan-Dec	50151	4W
CAN	Moored Buoy	C44489 - West Chedabucto Bay	4400489	Jan-Dec	49222	4W
CAN	Moored Buoy	C44137 - East Scotian Slope	4400137	May-Dec	5573	4Vs4W 4X
CAN	Moored Buoy	C44139 – Banquereau Bank	4400139	May-Dec	5209	
CAN	Moored Buoy	C44150 – La Have Bank	4400150	Jan-Dec	8646	
CAN	Moored Buoy	C44258- Halifax Harbour	4400258	Jan-Dec	7532	
USA	Moored Buoy	Mid-Atlantic Bight Central Surface Mooring	4100082	Apr-Dec	17454	6C
USA	Moored Buoy	Mid-Atlantic Bight Southern Surface Mooring	4100083	Apr-Dec	11838	6C
USA	Moored Buoy	Cape Hatteras East	4100120	Jan-Dec	14768	6C

USA	Moored Buoy	Massachusetts Bay	4400029	Jan-Dec	8019	5Y
USA	Moored Buoy	Western Maine Shelf	4400030	Jan-Dec	8683	5Y
USA	Moored Buoy	Central Maine Shelf	4400032	Jan-Dec	4304	5Y
USA	Moored Buoy	Penobscot Bay	4400033	Jan-Dec	8648	5Y
USA	Moored Buoy	Eastern Maine Shelf	4400034	Jan-Dec	8617	5Y
USA	Moored Buoy	Jordan Basin	4400037	Jan-Sep	5598	5Y
USA	Moored Buoy	Potomac, MD	4400042	Jan-Oct	58406	6B
USA	Moored Buoy	Patapsco, MD	4400043	Mar-Dec	51655	6B
USA	Moored Buoy	Stingray Point, VA	4400058	Jan-Dec	69716	6B
USA	Moored Buoy	Gooses Reef, MD	4400062	Jan-Dec	69516	6B
USA	Moored Buoy	Annapolis, MD	4400063	Jan-Dec	64727	6B
USA	Moored Buoy	First Landing, VA	4400064	Jan-Aug	40925	6B
USA	Moored Buoy	Great South Bay	4400069	Jan-Feb	1455	6A
USA	Moored Buoy	York Spit, VA	4400072	Jan-Dec	60716	6B
USA	Moored Buoy	CO2 Gulf of Maine Buoy	4400073	Apr-Dec	18374	5Y
USA	Moored Buoy	Mid-Atlantic Bight Northern Surface Mooring	4400079	Apr-Dec	15264	6C
USA	Moored Buoy	Bethany Beach, DE	4400084	Apr-Sep	6815	6B
USA	Moored Buoy	Buzzards Bay, MA	4400085	Apr-Dec	9897	5Zw
USA	Moored Buoy	Virginia Beach Offshore, VA	4400088	Jan-Dec	15285	6C
USA	Moored Buoy	Cape Cod Bay, MA	4400090	Jan-Dec	14966	5Y
USA	Moored Buoy	Duck FRF 26m, NC	4400100	Jan-Dec	15975	6C
USA	Drifting Buoy		1301782	Apr-Dec	6092	1F 2H
USA	Drifting Buoy		1301810	Mar-Oct	3093	3M 6H
USA	Drifting Buoy		1301811	Apr-Jun	1566	3M
USA	Drifting Buoy		1301812	Apr-Jul	1830	3M 3N 3O 4Vs4W
USA	Drifting Buoy		1301813	Mar-Jul	2310	3M 6H
	Drifting Buoy		1301815	Apr-Apr	28	4W
USA	Drifting Buoy		1301816	Apr-Oct	3757	3M 3N 3O 3Ps4Vs4W 6E 6F 6G
USA	Drifting Buoy		1301818	Aug-Sep	676	6E 6F
USA	Drifting Buoy		1501724	Aug-Nov	2023	4Vs6F
USA	Drifting Buoy		1801670	Nov-Dec	1010	3M
USA	Drifting Buoy		1801671	Jan-Feb	664	1F 2J 3K
USA	Drifting Buoy		1801673	Jul-Dec	3789	1F 2J 3K 3L 3M
USA	Drifting Buoy		1801675	Nov-Dec	1333	3K 3L 3M
USA	Drifting Buoy		1801676	Jul-Dec	3462	2J 3K 3L 3M 3N
USA	Drifting Buoy		1801732	Dec-Dec	550	6B 6C 6D
	Drifting Buoy		1801777	May-Jun	105	3M

	Drifting Buoy		1801778	May-Dec	5583	2J 3K 3M 3N
CAN	Drifting Buoy		1801810	Jan-Jan	587	4T
	Drifting Buoy		180184	May-Jun	2753	1F
	Drifting Buoy		1801853	Jul-Dec	4022	2H 2J
USA	Drifting Buoy		2802011	Oct-Dec	2033	5Zw6A 6B 6C 6D
USA	Drifting Buoy		2802022	Oct-Dec	1669	4W 4X 5Ze6B 6C 6D 6E
CAN	Drifting Buoy		2802075	Jan-Feb	493	3K 3M 3N
	Drifting Buoy		2802077	Jul-Dec	3998	0B 1C 1D 1E 1F 2G 2H 2J 3K
	Drifting Buoy		2802080	Sep-Dec	2543	1F 2H 2J
CAN	Drifting Buoy		2802157	Jul-Sep	4107	2J 3K
	Drifting Buoy		2802158	Jul-Dec	6365	2H 2J 3K
CAN	Drifting Buoy		2802159	Jul-Oct	3897	1F 2H 2J 3K
	Drifting Buoy		2802160	Jul-Dec	4226	2J 3K 3L 3O 3Pn3Ps
USA	Drifting Buoy		3101515	Aug-Oct	1756	6F 6G
USA	Drifting Buoy		3101575	Jul-Oct	531	6B 6C 6D
USA	Drifting Buoy		3201769	May-Sep	2267	3M 3N 3O 4Vs4W 6B 6C 6D 6E 6F
USA	Drifting Buoy		3801569	Jan-Jan	223	3K 3M
USA	Drifting Buoy		3801571	Nov-Dec	1424	2J 3K 3L
USA	Drifting Buoy		3801575	Nov-Dec	1337	3K 3L 3M
USA	Drifting Buoy		3801596	Sep-Sep	200	6H
USA	Drifting Buoy		3801598	Jun-Dec	3117	4X 6B 6C 6D 6E
USA	Drifting Buoy		3801627	Dec-Dec	6	6C
USA	Drifting Buoy		3801702	Oct-Dec	2109	0B 1D 1E 1F
CAN	Drifting Buoy		3801710	Jan-Feb	4882	3Ps4T 4Vn4Vs4W
	Drifting Buoy		3801758	Jul-Oct	2276	2J 3K 3L 3Ps
USA	Drifting Buoy		4101523	Aug-Dec	3071	4Vs4W 4X 6B 6C 6D 6E 6F 6G
USA	Drifting Buoy		4101542	Feb-Jul	520	6H
USA	Drifting Buoy		4101618	Jan-Jan	34	6F
USA	Drifting Buoy		4101656	May-May	1	3K
	Drifting Buoy		4101724	Jan-Feb	1116	6F 6G
	Drifting Buoy		4101755	Aug-Oct	1839	6E 6F
USA	Drifting Buoy		4101848	Jan-Jan	364	4Vs
USA	Drifting Buoy		4101858	Jul-Sep	1596	6E 6F 6G
USA	Drifting Buoy		4101884	Jan-May	2554	3M 3N 3O 4Vs4W 4X 5Ze6B 6D 6E 6H
USA	Drifting Buoy		4101885	Jan-Mar	1524	3M 3N 3O 4Vs4W 4X
USA	Drifting Buoy		4102557	Jul-Dec	2284	6B 6C 6D
USA	Drifting Buoy		4102559	Jan-Mar	1330	3M 3N 3O 4Vs4W 6H
USA	Drifting Buoy		4102665	Jan-Apr	2418	3N 3O 4Vs4W 6D 6E
USA	Drifting Buoy		4201523	Dec-Dec	203	6H

CAN	Drifting Buoy		4400999	Jun-Nov	1537	4S 4T
	Drifting Buoy		4401581	Jan-Feb	974	6D 6E
	Drifting Buoy		4401582	Nov-Dec	491	6C 6D
	Drifting Buoy		4401584	Sep-Sep	205	6E
	Drifting Buoy		4401585	Sep-Sep	102	4W 6B 6C 6D
USA	Drifting Buoy		4402565	Feb-Feb	1	2G
USA	Drifting Buoy		4402609	Jan-Oct	6301	2H 2J 3K
USA	Drifting Buoy		4402618	Apr-Sep	2789	3M 3N 4Vs6F 6G 6H
USA	Drifting Buoy		4402634	Mar-Mar	1	2G
USA	Drifting Buoy		4402650	Aug-Aug	1	3K
USA	Drifting Buoy		4402731	Jan-Feb	731	3M
USA	Drifting Buoy		4402733	Jan-May	3162	3K 3M 3N 3O 3Ps4Vs
USA	Drifting Buoy		4402737	Jan-Feb	1188	1F 2J 3K
USA	Drifting Buoy		4402739	Jan-Feb	764	2J 3K 3M
	Drifting Buoy		4402740	Jan-Jan	351	4T 4Vn
USA	Drifting Buoy		4402744	Jan-Dec	3236	3M 6F 6G 6H
USA	Drifting Buoy		4402878	Jan-Sep	267	3N 3O 4Vs4W 6E 6F 6G 6H
USA	Drifting Buoy		4402879	Jan-Apr	175	6E 6F
USA	Drifting Buoy		4402882	Jan-Oct	6352	3N 3O 4Vs4W 4X 6D 6E 6F 6G 6H
CAN	Drifting Buoy		4801771	Apr-Aug	2442	0A 1F 2G 2H 2J
	Drifting Buoy		4802582	Oct-Oct	311	1F
USA	Drifting Buoy		4804003	May-Dec	5519	1F 2G 2H 2J
	Drifting Buoy		4804174	Jul-Oct	2302	2J 3K 3L 3Ps
USA	Drifting Buoy		5301664	Aug-Dec	2664	6A 6B
USA	Drifting Buoy		5301665	Aug-Dec	3202	5Ze5Zw6A 6B 6C 6D
USA	Drifting Buoy		5301666	Jan-Mar	1168	3M 6H
USA	Drifting Buoy		5501572	May-Jun	612	6H
USA	Drifting Buoy		5802019	Nov-Dec	202	3M
	Drifting Buoy		5802050	Nov-Dec	1005	1F
CAN	Drifting Buoy		5802068	Jan-Jan	390	3Ps
USA	Drifting Buoy		5802094	Aug-Aug	251	1F
	Drifting Buoy		6203612	Jan-Jun	3667	3M 3N 4Vs6F 6G 6H
	Drifting Buoy		6203615	May-Dec	4844	4Vs4W 6B 6C 6D 6E 6F 6G 6H
	Drifting Buoy		6203632	Jun-Dec	4071	6F 6G 6H
	Drifting Buoy		6203642	Mar-Jun	2263	3M 3N 4Vs4W 4X 5Ze6B 6C 6D 6E 6G 6H
	Drifting Buoy		6203658	Sep-Oct	940	1E
	Drifting Buoy		6203660	Apr-May	388	1F
USA	Drifting Buoy		6203753	Jan-Apr	2545	1F
USA	Drifting Buoy		6203772	Sep-Dec	1909	4W 4X 6B 6C 6D 6E 6F
USA	Drifting Buoy		6203773	Jan-Apr	1815	3M 3N 4Vs6F 6H

USA	Drifting Buoy		6203790	Jan-Jan	1	2J
USA	Drifting Buoy		6203849	Sep-Nov	1489	4Vs4W 6B 6C 6D 6E 6F
USA	Drifting Buoy		6203854	Jan-Mar	1498	1F
USA	Drifting Buoy		6203861	Oct-Nov	639	6D 6E
USA	Drifting Buoy		6203865	Jan-Jan	690	1F
	Drifting Buoy		6401584	Mar-Apr	902	1F
	Drifting Buoy		6401598	Jan-Mar	1884	0B 1F 2G 2H
USA	Drifting Buoy		6402516	Jul-Jul	1	2H
	Drifting Buoy		6402594	Mar-Mar	1	2J
	Drifting Buoy		6402596	Oct-Nov	2	1F
USA	Drifting Buoy		2801968	Jul-Nov	3322	2J 3K 3L 3M 3N
CAN	Drifting Buoy		4803978	Feb-Feb	104	1F
USA	Drifting Buoy		4803997	Jun-Dec	4252	1F 2J 3K 3L 3M
USA	Drifting Buoy		5801972	Jan-Nov	7789	3L 3M 3N 3O
USA	Drifting Buoy		5801976	Jan-Feb	403	3K 3M 3N
USA	Drifting Buoy		5801978	Jun-Dec	1939	1F
CAN	Drifting Buoy		6801906	Jan-Aug	5448	0A
CAN	Drifting Buoy		6801974	Jul-Oct	1907	2H 2J 3K 3L 4R
CAN	Drifting Buoy		6801975	Jul-Oct	4677	2J 3K 3L 3M 3N

* Dates are of first and last data reports within the NAFO Convention Area

* Viking buoys are not shown in this table. See Table3.

Table 7. Water level data collected in 2024

Station ID	Name	Reporting period (months)	Longitude (W)	Latitude (N)	NAFO Sub-Area
65	Saint John	Jan-Dec	66.063	45.251	4X
365	Yarmouth	Jan-Dec	66.117	43.833	-
491	Bedford Institute	Jan-Dec	63.617	44.683	4W
575	Port Hawkesbury	Jan-Dec	61.367	45.617	-
612	North Sydney	Jan-Dec	60.250	46.217	-
665	Port aux Basques	Jan-Dec	59.133	47.567	-
755	St. Lawrence	Jan-Dec	55.390	46.917	-
835	Argentia	Jan-Dec	53.983	47.300	3Ps
905	St. John's	Jan-Dec	52.717	47.567	-
990	Bonavista	Jan-Dec	53.115	48.651	-
1430	Nain	Jan-Dec	61.683	56.550	-
1700	Charlottetown	Jan-Dec	63.117	46.233	4T
1805	Shediac Bay	Jan-Dec	64.546	46.227	4T
1970	Cap-aux-Meules	Mar-Dec	61.857	47.379	-
2000	Lower Escuminac	Jan-Dec	64.883	47.083	4T
2145	Belledune	Jan-Dec	65.850	47.900	-
2330	Rivière-au-Renard	Jan-Dec	64.381	48.997	4T
2780	Sept-Îles	Jan-Dec	66.377	50.195	-
2985	Rimouski	Jan-Dec	68.514	48.478	4T
3057	Saint-Joseph-de-la-Rive	Jan-Dec	70.366	47.449	4T
3100	Saint-Francois Île d'Orléans	Jan-Dec	70.808	46.997	4T
3110	Saint-Laurent île d'Orléans	Jan-Jun	71.003	46.858	4T
3248	Vieux-Québec	Jan-Dec	71.202	46.811	-
3280	Neuville	Jan-Dec	71.573	46.697	-
3300	Portneuf	Jan-Dec	71.877	46.681	-
3335	Deschaillons-sur-Saint-Laurent	Jan-Dec	72.106	46.561	-
3345	Batiscan	Jan-Dec	72.246	46.500	-
3353	Bécancour	Jan-Dec	72.380	46.400	-
3360	Trois-Rivières	Jan-Dec	72.539	46.341	-
3365	Port-Saint-François	Jun-Dec	72.619	46.273	-
3424	Baie-Sainte-Catherine	Jan-Jun	69.730	48.126	-
3460	Port-Alfred	Jan-Dec	70.869	48.334	-
3480	Chicoutimi	Jan-Jun	71.055	48.431	-
3980	Qikiqtarjuaq	Jan-Dec	64.032	67.561	0A