

APPLICATION FOR CONSENT TO CONDUCT MARINE SCIENTIFIC RESEARCH

1. General Information

1.1 Cruise name and/or number:	F2025-108-OSNAP East 2026
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1.2 Sponsoring institution(s):		
Name	Address	Name Of Director
NSF	National Science Foundation 2415 Eisenhower Avenue Alexandria, Virginia 22314 (703)292-5111	Dr. Baris Mete Uz

1.3 Scientist in charge of the project:	
Name:	Tiago Carrilho Bilo
Country:	United States
Affiliation:	School of Marine Sciences, University of Maine
Address:	Aubert Hall 454 Orono, ME 04469-5706 United States
Telephone:	+1(207)581-4335
Email:	tiago.carrilho@maine.edu

1.4 Entity(ies) /Participant(s) from coastal State involved in the planning of the project:	
Name:	See Section 6.2
Country:	
Affiliation:	
Address:	
Telephone:	
Fax:	
Email:	
Website (for CV and photo):	

1.5 Submitting officer:	
Name:	Kerry Strom
Affiliation:	Woods Hole Oceanographic Institution
Address:	US
Telephone:	508-289-3939
Fax:	000-000-0000
Email:	kstrom@whoi.edu

2. Description of Project

2.1 Nature and objectives of the project:
This research is part of the three U.S.-led oceanographic programs operating the North Atlantic Ocean and funded by National Science Foundation (NSF): Crossroads, Subpolar North Atlantic Program (OSNAP), and the Ocean Observatories Initiative (OOI). The U.S. Crossroads is an effort to determine the overflow water fluxes across the subpolar-subtropical transition zone, complementing European-led programs with similar aims and like the "Explaining and Predicting the Overturning Circulation" and "French Crossroads." The OSNAP is an effort to determine the strength of the meridional overturning circulation and associated heat and freshwater fluxes in the subpolar North Atlantic. It is a collaborative program with scientists from several nations, including the U.K., the Netherlands, Germany, France, Canada, and China. The OOI is a science-driven ocean observing network that delivers real-time data from more than 900 instruments to address critical science questions regarding the world's oceans. Scientists from the U.S. and the Netherlands will participate in this cruise.

2.2 Relevant previous or future research projects:
F2022-012 - OSNAP East 2022 (filled by Dr. William E. Johns, University of Miami)

2.3 Previous publications relating to the project:

Koman, G., Johns, W. E., & Houk, A. (2020). Transport and evolution of the East Reykjanes Ridge Current. *Journal of Geophysical Research: Oceans*, 125, e2020JC016377. <https://doi.org/10.1029/2020JC016377>

Johns, W. E., Devana, M., Houk, A., & Zou, S. (2021). Moored observations of the Iceland-Scotland Overflow plume along the eastern flank of the Reykjanes Ridge. *Journal of Geophysical Research: Oceans*, 126, e2021JC017524. <https://doi.org/10.1029/2021JC017524>

Devana, M. S., Johns, W. E., Houk, A., & Zou, S. (2021). Rapid freshening of Iceland Scotland Overflow water driven by entrainment of a major upper ocean salinity anomaly. *Geophysical Research Letters*, 48, e2021GL094396. <https://doi.org/10.1029/2021GL094396>

G. Koman, W.E. Johns, A. Houk, L. Houpert, F. Li (2022) Circulation and overturning in the eastern North Atlantic subpolar gyre, *Progress in Oceanography*, 208, 102884, <https://doi.org/10.1016/j.pocean.2022.102884>.

Devana, M., & Johns, W. (2024). Structure and variability of Iceland Scotland Overflow Water transport in the Western Iceland Basin. *Journal of Geophysical Research: Oceans*, 129, e2023JC020107. <https://doi.org/10.1029/2023JC020107>

3. Geographical Areas

3.1 Indicate geographical areas in which the project is to be conducted (with reference in latitude and longitude, including coordinates of cruise track/ way points):

Research will be conducted along the following cruise waypoints, with a possible approach to Prince Christian Sound Greenland (60.21N, 43.70W), for sheltering against bad weather events during OOI moorings operations:

41.52N 70.67W
38.58N 53.00W
47.56N 52.70W
46.50N 44.00W
46.30N 43.80W
47.60N 43.00W
47.60N 42.30W
59.72N 39.84W
59.72N 39.31W
59.22N 35.13W
59.10N 33.69W
59.02N 32.73W
58.96N 31.95W
58.87N 30.53W
58.53N 29.46W
58.04N 28.02W
57.96N 24.49W
64.15N 21.94W

3.2 Attach chart(s) at an appropriate scale (1 page, high-resolution) showing the geographical areas of the intended work and, as far as practicable, the location and depth of sampling stations, the tracks of survey lines, and the locations of installations and equipment.

Chart provided - see Section 10.1.

4. Methods and Means to be Used

4.1 Particulars of Vessel:

Name:	Neil Armstrong
Type/Class:	Ship : R/V
Nationality (Flag state):	United States
Identification Number/Lloyds #/MMSI #:	9688946
Owner:	Navy
Operator:	Woods Hole Oceanographic Institution
Overall length:	72.50 m
Maximum draught:	5.00 m
Displacement/Gross tonnage:	2,641.0
Propulsion:	(x2) Siemens AC Electric Motors, 876 kW ea. (1175 hp ea.), 1752 kW total (2350 hp total)
Cruising:	10.00 km/h
Maximum speed:	12.00 km/h

Call sign:	WARL
INMARSAT number and method and capability of communication (including emergency frequencies):	C: 436903967 Iridium Phone: 881-622-469-724 Fleet Broad Band Telephone: 870 773 929 929
Name of master:	
Number of crew:	20
Number of scientists on board:	22

4.2 Other craft in the project, including its use:
No

4.3 Particulars of methods and scientific instruments:		
Types of samples and measurements	Methods to be used	Instruments to be used
currents, temperature, salinity, oxygen, pressure, position, depth	taut-wire subsurface moorings, standard CTDO/LADCP stations	CTDO (Conductivity-temperature-depth-oxygen), LADCP (Lowered Acoustic Doppler Current Profiler), Current meters, Temperature/salinity/pressure recorders

4.4 Indicate nature and quantity of substances to be released into the marine environment:
No

4.5 Indicate whether drilling will be carried out. If yes, please specify:
No

4.6 Indicate whether explosives will be used. If yes, please specify type and trade name, chemical content, depth of trade class and stowage, size, depth of detonation, frequency of detonation, and position in latitude and longitude:
No

4.7 Indicate whether protected species be studied. If yes, please specify:
No

4.8 Indicate whether scientific acoustic equipment will be used.:
No

4.9 Indicate whether fishing/trawling will be used.:
No

5. Installations and Equipment

5.1 Details of installations and equipment (including dates of laying, servicing, method and anticipated timeframe for recovery, locations and depth, and measurements):
Mooring deployments (see attached cruise prospectus for detailed listing)

6. Dates

6.1 Estimated overall project start and end dates:
Project Start Date: 6/7/2026
Project End Date: 7/16/2026

6.2 Coastal State-specific details:	
Coastal Area	Canada
Estimated Entry Date:	6/7/2026
Estimated Departure Date:	7/16/2026
Estimated Research Start Date:	6/7/2026
Estimated Research End Date:	7/16/2026
Explanation of multiple entries:	N/A
Research will be performed:	Between 12-200 M
Extent to which Canada will be enabled to participate or to be represented in the research project:	Canada is already part of the OSNAP international partners
Name, affiliation and contact information for all participants from Canada:	N/A
Coastal Area	Greenland
Estimated Entry Date:	6/7/2026
Estimated Departure Date:	7/16/2026
Estimated Research Start Date:	6/7/2026
Estimated Research End Date:	7/16/2026
Explanation of multiple entries:	N/A
Research will be performed:	Within 12 M, Between 12-200 M
Extent to which Greenland will be enabled to participate or to be represented in the research project:	Since the data acquired in the cruise will be made public, Greenlandic and Danish authorities and scientists will have access to the data
Name, affiliation and contact information for all participants from Greenland:	N/A
Coastal Area	Iceland
Estimated Entry Date:	6/7/2026
Estimated Departure Date:	7/16/2026
Estimated Research Start Date:	6/7/2026
Estimated Research End Date:	7/16/2026
Explanation of multiple entries:	N/A
Research will be performed:	Between 12-200 M
Extent to which Iceland will be enabled to participate or to be represented in the research project:	Since the data acquired in the cruise will be made public, Icelandic authorities and scientists will have access to the data
Name, affiliation and contact information for all participants from Iceland:	N/A

7. Port Calls

7.1 List of Port Calls				
Port	Arrival Date	End Date	Special Logistical Requirements	Shipping Agent
St Johns	6/14/2026	6/16/2026	Taking fuel and changing out science party	EIMSKIP Canada Inc. Newfoundland 33 Pippy Place, Suite 305 St. John's, Newfoundland A1B 3X2 Phone: 709 754-7227, x 4211 Fax: 709 754-7999CANADA Contacts: Francis (Frank) G. Barry Email: fb@eimskip.ca Mobile: 709 682-0067 Thordis Thorlacius Email: tah@eimskip.ca Mobile: 709 682-2779

Reykjavik	7/15/2026	7/15/2026	Taking fuel, provisions, crew and science party change, load and unload science gear.	TVG-Zimsen ehf Vatnagardar 22 104 Reykjavik Iceland Phone: +354 561 1688 24 Hour Mobile Service: +354 856 0726 Jon Audun - +354 856 0742 Jóhann Bogason +354 856 0701 *Email: gara@gara.is - Note: Please use this address for all email correspondence with the agent(s). Primary Contact: Johann Bogason (for all confidential) Direct line: 11 354 856 0701 Email: Jóhann Bogason - JOB <Johann@gara.is>
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8. Participation of the representative of the coastal State

8.1 Modalities of the participation of the representative of the coastal State in the research project:
See Section 6.2
8.2 Proposed dates and ports for embarkation/disembarkation:
See Section 6.2

9. Access to Data, Samples and Research Results

9.1 Expected dates of submission to coastal State of preliminary report, which should include the expected dates of submission of the data and research results:
No more than 3 months from the end date of the research as provided in Section 6.1.
9.2 Anticipated dates of submission to the coastal State of the final report:
No more than 2 years from the end date of the research as provided in Section 6.1.
9.3 Proposed means for access by coastal State to data (including format) and samples:
Data will be provided through official channels at no cost to the coastal State(s). Samples will be provided upon request.
9.4 Proposed means to provide coastal State with assessment of data, samples and research results:
Assessment of data, samples and research results will be provided at no cost to the coastal State(s).
9.5 Proposed means to provide assistance in assessment or interpretation of data, samples and research results:
Assistance in further assessment or interpretation will be provided upon request.
9.6 Proposed means of making results internationally available:
Via Websites: https://www.o-snap.org and https://oceanobservatories.org/data/

10. List of Supporting Documentation

10.1 List of attachments, such as additional forms required by the coastal State, etc.:			
Attachment Type	Description	Attachment	Submission Date
Proposed Cruise Track	Canada, Greenland, Iceland	cruise_track.png	12/12/2025 11:51 AM

Supplemental Material	Canada, Greenland, Iceland	Cruise_Prospectus_RVArmstrong_OSNAPE_2026.pdf	12/12/2025 11:52 AM
Supplemental Material	Greenland	OOI_mooring_details.pdf	12/12/2025 11:54 AM
Additional Permit	Greenland	GeneticResources-Application_2025-2026.pdf	12/12/2025 11:59 AM
Supplemental Material	Greenland	Genetic Resource License_approved_expires_1-April-2026.pdf	12/12/2025 12:00 PM
Supplemental Material	Greenland	Danish Form A HazMat 2025-2026.pdf	12/12/2025 12:38 PM
Additional Permit	Greenland	3NM_Application-for-Diplomatic-Clearance-of-Government-Ship-for-vessels-entering-within-3NM-ARXX-2025-2026.pdf	12/12/2025 12:42 PM

Executed: 12/17/2025 7:36:04 PM (Coordinated Universal Time)