

APPLICATION FOR CONSENT TO CONDUCT MARINE SCIENTIFIC RESEARCH

1. General Information

1.1 Cruise name and/or number:	F2025-002-RR25 Pickart - Iceland & Faroe Islands (legs 1 & 2)
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1.2 Sponsoring institution(s):		
Name	Address	Name Of Director
National Science Foundation	Rose Dufour Program Director Ship Operations. Phone: 703-292-8811, email: rdufour@nsf.gov	Dr. Sethuraman Panchanathan NSF Director

1.3 Scientist in charge of the project:	
Name:	Robert Pickart
Country:	United States
Affiliation:	Woods Hole Oceanographic Institution
Address:	US
Telephone:	508-289-2858
Email:	rpickart@whoi.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:	Hannah Delapp
Affiliation:	Scripps Institution of Oceanography
Address:	9500 Gilman Drive La Jolla, California 92093-0210 US
Telephone:	858-534-2841
Fax:	
Email:	shipsked@ucsd.edu

2. Description of Project

2.1 Nature and objectives of the project:
The goal of the field program is to determine the pathways, amount, and variability of dense water feeding the Faroe Bank Channel, which contributes substantially to the North Atlantic meridional overturning circulation. A mooring array will be recovered on the northern side of the Greenland-Scotland Ridge, and a shipboard hydrographic/velocity survey will be carried out to map the pathways of dense water. This is a collaborative effort between scientists from the US, Faroe Islands, Norway, and Iceland.

2.2 Relevant previous or future research projects:
This program supported a cruise in 2024 (RATS cruise number F2024-012). During the 2024 cruise 10 moorings were deployed in Faroese waters and a hydrographic survey was conducted. During the 2025 cruise, the 10 moorings will be recovered and a hydrographic survey will be conducted.

2.3 Previous publications relating to the project:
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Semper S, Pickart RS, Våge K, Larsen KMH, Hátún H, Hansen B. The Iceland-Faroe Slope Jet: a conduit for dense water toward the Faroe Bank Channel overflow. Nat Commun. 2020 Oct 23;11(1):5390. <https://doi.org/10.1038/s41467-020-19049-5>.
 Semper, S., Våge, K., Pickart, R. S., Jónsson, S., & Valdimarsson, H. (2022). Evolution and transformation of the North Icelandic Irminger Current along the North Iceland shelf. Journal of Geophysical Research: Oceans, 127, e2021JC017700. <https://doi.org/10.1029/2021JC017700>.

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):

Leg 1 scientific operations to be conducted within the following polygon coordinates (shown in green on Leg 1 cruise map attached):

Lat (deg) Lat (min) Lon (deg E) Lon (min E)

63 11.95 18 0.95
 63 52.40 15 0.40
 64 7.21 14 0.21
 64 57.13 12 0.13
 66 18.13 12 0.13
 66 18.13 5 0.13
 61 28.08 5 0.08
 61 25.06 5 0.06
 61 27.07 11 0.07
 62 29.56 17 0.56
 63 11.95 18 0.95

Leg 2 scientific operations to be conducted within the following polygon coordinates (shown in green on Leg 2 cruise map attached):

Lat (deg) Lat (min) Lon (deg E) Lon (min E)

66 39.48 -12 -0.48
 66 39.48 -3 -0.48
 63 51.72 8 0.72
 62 49.86 6 0.86
 61 59.93 4 0.93
 59 27.71 4 0.71
 59 27.71 -12 -0.71
 66 39.48 -12 -0.48

Standard underway data will be collected during transits to and from port and the op areas.

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:	ROGER REVELLE
Type/Class:	Ship : R/V
Nationality (Flag state):	United States
Identification Number/Lloyds #/MMSI #:	IMO: 9075228
Owner:	U.S. Navy
Operator:	Scripps Institution of Oceanography
Overall length:	83.26 meters
Maximum draught:	5.5 meters
Displacement/Gross tonnage:	3,180.0
Propulsion:	Dual LIPS Z-Drive thrusters
Cruising:	11.5 knots
Maximum speed:	15 knots
Call sign:	KAOU
INMARSAT number and method and capability of communication (including emergency frequencies):	Fleet Broadband 011 - 870 773 150 886, Iridium 011 - 8816 3143 2006, email: rr-master@ucsd.edu
Name of master:	David Murline

Number of crew:	22
Number of scientists on board:	35

4.2 Other craft in the project, including its use:
N/A

4.3 Particulars of methods and scientific instruments:		
Types of samples and measurements	Methods to be used	Instruments to be used
Velocity and attitude measurements	Ship based underway Acoustic Doppler Current Profiling (ADCP) and Hydrographic Doppler Sonar System (HDSS)	OS75kHz & OS150kHz ADCPs, 50kHz & 140kHz HDSS, GPS
Multibeam and single beam survey data	Ship-based underway swath mapping, single beam mapping and sub-bottom profiling	EM124 & EM712 multibeam sonars, Knudsen 3260 3.5kHz & 12kHz sub bottom echosounder, EK80 fisheries sonar
Surface water characteristics	Flow through underway conductivity, temperature, CO2 fugacity, and pH observations	Mounted shipboard sensors
Meteorological and marine variables (e.g. water speed, wind speed, heat flux, air temperature, sea temperature, waves, etc.)	Ship-based underway meteorological and marine sensors and radars	Underway salinity & temperature: Seabird thermosalinograph. Underway temperature profiling: Turo expendable bathythermograph. Scientific wave radar: Rutter WAMOS II-300
Vertical profiles of ocean temperature, salinity, and dissolved oxygen	An instrument will be lowered over the side of the ship using a crane. Water samples to be collected and analyzed on board for salinity using bottles attached to the CTD frame.	A conductivity-temperature-depth (CTD) instrument with bottles attached to the CTD frame.
Moored sensor data of temperature and salinity.	Moorings were previously deployed. We will be recovering the instruments on the moorings during this cruise. Post cruise we will download the data from the moored instruments.	Seabird scientific temperature and salinity sensors.
Autonomous profiles of ocean temperature and salinity.	Sensors attached to a glider.	An autonomous glider has been operating near the deployed moorings since last year. We will recover the glider during the cruise and download the data from the installed instruments.
Marine Magnetic data	Towed gradiometer magnetometer if available.	Magnetics SeaSPY

4.4 Indicate nature and quantity of substances to be released into the marine environment:
Hazardous chemicals will be used in carbonate chemistry, nutrient, and tracer analysis. All chemicals to be loaded and offloaded in port. Please see attached for US MSDS summary and sheets.

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):
No

6. Dates

6.1 Estimated overall project start and end dates:	
Project Start Date: 8/1/2025	
Project End Date: 9/30/2025	
6.2 Coastal State-specific details:	
Coastal Area	Iceland
Estimated Entry Date:	8/1/2025
Estimated Departure Date:	9/30/2025
Estimated Research Start Date:	8/1/2025
Estimated Research End Date:	9/30/2025
Explanation of multiple entries:	During Leg 1 our team may conduct test hydrographic stations on the way to the mooring work. A hydrographic section is planned in Icelandic waters at the beginning of the second leg of the cruise (RR2506). The dates will approximately span August 25th through August 30th. Please refer to cruise maps for details.
Research will be performed:	within 12 nm, Between 12-200 nm, Beyond 200 nm
Extent to which Iceland will be enabled to participate or to be represented in the research project:	There is berth space for an observer from each coastal state. The ship departs from Reykjavík, Iceland and returns to Tórshavn, Faroe Islands
Name, affiliation and contact information for all participants from Iceland:	Iceland: Andreas Macrander, Marine and Freshwater Research Institute of Iceland, andreas.macrander@hafogvatn.is
Coastal Area	Faroe Islands
Estimated Entry Date:	8/1/2025
Estimated Departure Date:	9/30/2025
Estimated Research Start Date:	8/1/2025
Estimated Research End Date:	9/30/2025
Explanation of multiple entries:	Leg 1 scientific operations to begin out of Reykjavík, Iceland approx. on August 15th, 2025. Approximate time of arrival in Faroese waters, August 16th at 12:00 local time, near 63 N 10 W. 10 moorings to be recovered (all are within Faroese waters) and hydrographic stations to be completed along the mooring line. A short port stop is planned (less than a day -no overnight) on August 25th to drop off a few science party members in Tórshavn. On the 25th, we will begin Leg 2 and depart Tórshavn. Weather permitting, we will begin with the northwest portion of our hydrographic survey as indicated by a tentative cruise track on the Leg 2 cruise map. We will proceed in a clockwise fashion around the Faroe Islands. This will require multiple reentries into Faroese waters. It is difficult to know the exact date/time for these reentries due to weather. Additionally, our operations must remain flexible in the event that observed phenomena/ ocean currents/water masses relevant to the scientific study are observed in unexpected locations. As a tentative estimate: - Northwest operations near Faroese and Icelandic water boundary: August 25th through August 29th. - Northeast/East operations near Faroese/Norwegian/UK water boundary: September 2nd through September 12th. - Southeast/South operations near Faroese and UK water boundary: September 13th through September 15th. Please refer to cruise maps for more details.
Research will be performed:	within 12 nm, Between 12-200 nm, Beyond 200 nm
Extent to which Faroe Islands will be enabled to participate or to be represented in the research project:	There is berth space for an observer from each coastal state. The ship departs from Reykjavík, Iceland and returns to Tórshavn, Faroe Islands
Name, affiliation and contact information for all participants from Faroe Islands:	Denmark (Faroe Islands): Karin Margretha Larsen karinl@hav.fo Hjálmar Hátún Hjálmarh@hav.fo

7. Port Calls

7.1 List of Port Calls

Port	Arrival Date	End Date	Special Logistical Requirements	Shipping Agent
Reykjavik	8/1/2025	8/15/2025	Loading Science gear, science party, taking ship provisions and possibly changing out crew.	TVG-Zimsen Primary Contact: Johann Bogason (for all confidential) Direct line: 11 354 856 0701 Email: Jóhann Bogason Johann@gara.is
Torshaven	8/25/2025	8/25/2025	Provisions, fuel and to embark/disembark science party & crew	Faroe Ship Eystara Bryggja Postboks 47 FO-110 Tórshavn Tel: + 298 34 90 00 INFO@FAROESHIP.FO
Torshaven	9/18/2025	9/21/2025	Provisions, fuel and to embark/disembark science party & crew	Faroe Ship Eystara Bryggja Postboks 47 FO-110 Tórshavn Tel: + 298 34 90 00 INFO@FAROESHIP.FO

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:
Data will be provided no more than 60 days from the end date of the project (December 2026) through official channels at no cost to the coastal State(s). Samples will be provided upon request.

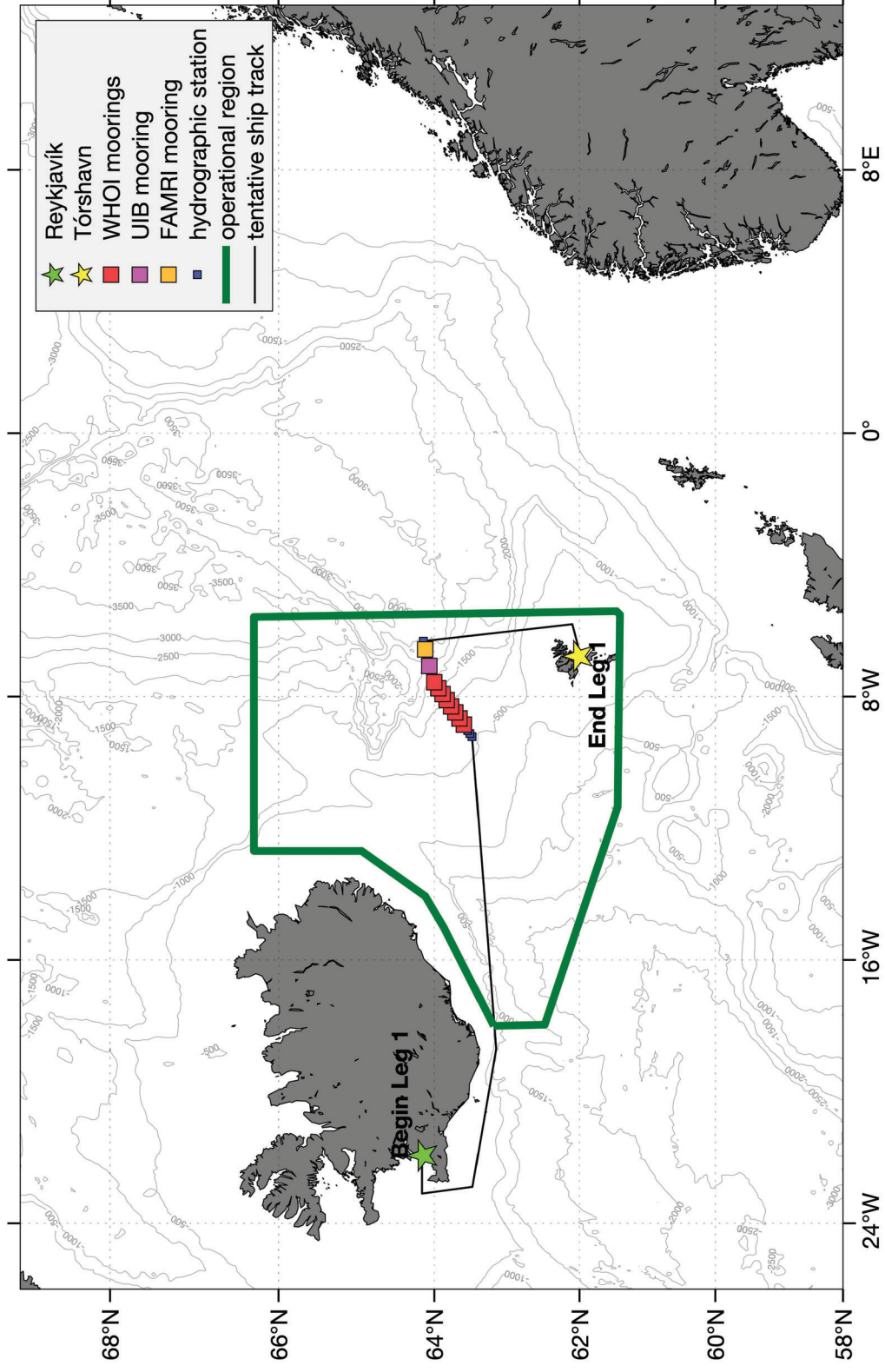
10. List of Supporting Documentation

10.1 List of attachments, such as additional forms required by the coastal State, etc.:			
Attachment Type	Description	Attachment	Submission Date
Proposed Cruise Track	Leg 2 (RR2506) tentative cruise map	leg2.png	12/20/2024 12:31 PM
Supplemental Material	Hazardout materials overview and MSDS sheets	msds.zip	1/7/2025 3:57 PM
Proposed Cruise Track	Tentative cruise map for Leg 1	leg1.png	1/8/2025 11:34 AM
Supplemental Material	Spreadsheet with bounding coordinate information for Leg 1	bounding_region_leg1.xlsx	1/8/2025 11:35 AM
Supplemental Material	Spreadsheet with bounding coordinate information for Leg 2	bounding_region_leg2.xlsx	1/8/2025 11:35 AM

Supplemental Material	Denmark_Notification-of-Proposed-Research-Cruise-mandatory-to-submit_v3	Denmark_Notification-of-Proposed-Research-Cruise-mandatory-to-submit_v3.docx	1/8/2025 11:59 AM
Supplemental Material	Denmark_Application-for-Diplomatic-Clearance-of-Government-Ship-for-vessels-entering-within-3NM_v3	Denmark_Application-for-Diplomatic-Clearance-of-Government-Ship-for-vessels-entering-within-3NM_v3.docx	1/8/2025 11:59 AM

Executed: 1/8/2025 7:57:28 PM (Coordinated Universal Time)

UFO tentative cruise waypoints
RR2505 (8/15-8/25) Reykjavík-Tórshavn; recover moorings



UFO tentative cruise waypoints
RR2506 (8/25-9/18); Tórshavn-Tórshavn; hydrographic survey

