



May 18, 2023

Greetings,

We are looking for scientists with experience in physical and/or biogeochemical hydrography and in oceanographic expedition organization who would be interested in participating as **Chief Scientist** on GO-SHIP's (<https://usgoship.ucsd.edu> and <http://www.go-ship.org>) first single-ship high-resolution occupation of the **ARC01** hydrographic section that will cross the full Arctic Ocean. While schedules are not yet set, we are negotiating a late **summer 2024** expedition. Preferred candidates will have extensive previous experience with organizing and executing oceanographic field studies, interest or experience in polar (particularly Arctic) science, and/or will have been a Chief or Co-Chief Scientist or a Principal Investigator on a previous US GO-SHIP cruise.

**Deadline for applications (see below for details): June 16, 2023**

#### **PARTICULARS:**

- We are expecting to sail on the science icebreaker **USCGC Healy**
- 45 days at sea (GO-SHIP program; possible *additional* days to accommodate other programs)
- Likely ports: Trømsø, Norway and Dutch Harbor, Unalaska, Alaska

#### **DUTIES:**

All U.S. GO-SHIP chief scientists are expected to be experienced with sea-going fieldwork.

##### **Pre-cruise:** The Chief Scientist:

- Will take over cruise planning and paperwork from Alison Macdonald (U.S. GO-SHIP Executive Council/ Project Manager) at a mutually agreed upon time before the cruise, will become the Point of Contact with the U.S. Coast Guard and Arctic Icebreaker Coordinating Committee (AICC).
- Will work with USCG personnel and the STARC technical support team to establish mutually agreed procedures and roles for activities in support of the GO-SHIP mission. Assistance and mentoring are available from members of the US GO-SHIP Executive Council who are experienced in Arctic work on USCGC Healy.
- Will lead the selection of student CTD watchstander positions that will be advertised through the U.S. GO-SHIP Executive Council and may be involved in the selection of the Co-Chief Scientist should current GO-SHIP post-doctoral fellows choose not to participate.
- Will act as a mentor to the Co-Chief Scientist throughout the pre-cruise process.
- Will work with the GO-SHIP project manager to organize at least one and possibly more pre-cruise meetings to which participating PIs and vessel operators will be invited. The NSF grant will support Chief Scientist travel to a pre-cruise meeting if video conference is not used.
- Will, along with email communication, maintain an online document and/or a website detailing updates and organize as necessary pre-cruise video conferences to keep the science team apprised of planning developments.

- Will be required to take (or show that they have recently taken) through their own institution or through UCSD, training that speaks to supervision and/or management, as well as conflict resolution. They will work with the GO-SHIP Project Manager to coordinate a Bystander Training particularly for early career and first-time participants, but open to all involved in the cruise and/or its preparation.
- Is ultimately responsible for official pre-cruise activities, including submission and finalization of clearance and permit requests, organization of the sampling groups, lab spaces, berths, and documentation to keep all those involved informed of current plans.

**At sea:** The Chief Scientist will be the principal point of contact with the Captain and other officers and will participate in the scheduled daily meetings of the ship's leadership team. In addition to all duties and decision-making responsibilities that normally fall upon a Chief Scientist (see below), the Chief Scientist will be the scientist-in-charge of one 12-hour watch. At sea duties include mentoring students assigned to that watch as well as mentoring and assisting the Co-Chief Scientist with the students on the other watch. Together with the Co-Chief and other sampling teams, the Chief Scientist:

- Will prepare, maintain, distribute, and execute a running station and sampling plan that meets cruise and program objectives and efficiently utilizes time and seawater resources.
- Will decide sampling depths for each parameter in accordance with GO-SHIP Level 1-3 guidelines.
- Will see that assistance with water sampling (i.e., “sample cop” and/or drawing samples) is provided on every cast as needed; ensure that the CTD watch runs the CTD console on station and completes the routine forms for each station.
- Will assist with at-sea data review and documentation.
- Will support as editor a student-written cruise blog.
- Will write weekly reports to the U.S. GO-SHIP community that includes information on both successes and challenges. These reports are posted on the GO-SHIP website by the project manager.
- Will write the cruise narrative chapter.
- Will work with all on-board teams to prepare the draft cruise report before end of cruise; leave the ship with a copy of all data collected and confirm with the ship’s tech that all measured underway are saved and sent to the appropriate archive.

**Post-cruise:** The Chief Scientist will review and edit the cruise report drafted at sea, and respond as needed to continued inquiries regarding data, quality codes, and documentation. Please note that grant support for post-cruise data analyses is not supported by the NSF grant to SIO unless a specific exception has been made with the program directors.

**Mentoring/training:** The Chief Scientist will include the Co-Chief Scientist in the planning, cruise, and post-cruise periods, and provide mentorship particularly when the Co-Chief is an early career or inexperienced at-sea scientist. Together with the U.S. GO-SHIP student coordinator and project manager, the chief scientist will be responsible for holding one or more virtual pre-cruise meetings to prepare students for their upcoming at-sea experience. It is one of a GO-SHIP Chief Scientist’s responsibilities to train the next generation of GO-SHIP chief scientists.

**SUPPORT:** Salary support for US GO-SHIP academic Chief Scientists will be negotiated. It is usually supplied via subawards from UCSD/SIO to the participant’s institution (see<sup>2</sup> below). It typically covers time at-sea, in port, on travel, several weeks of preparation, and several weeks of post-cruise reporting.

Travel will be paid by UCSD/SIO.

**WHO CAN APPLY:** Although preference may be given to those with ongoing or past research in the Arctic Ocean - all are welcome to apply. In the case of multiple qualified applicants for the position, final selection will be made by the U.S. GO-SHIP Executive Council in consultation with the Principal Investigators.

**HOW TO APPLY:** Email inquiries and/or letters of application to:

Alison Macdonald ([amacdonald@whoi.edu](mailto:amacdonald@whoi.edu))

**Please provide** your CV, a brief summary of your research/field interests and experience and include the name and email address of a reference. **DEADLINE: June 16, 2023.** (Applications may be accepted after this date but may not receive full consideration.)

The cruise is long and will likely encounter challenging weather with rough sea conditions at some point. We therefore recommend that those who apply be reasonably confident that they can not only handle such conditions but can also organize cruise activities around them. Lastly cruise schedules are subject to last minute changes and the timing for this particular cruise is not yet confirmed. Chief Scientist candidates should allow for ample available time (minimum 1 month) at either end of the scheduled cruise dates to allow for possible changes.

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<sup>1</sup> **Further details on cruise activities:** Blogs from some previous occupations cruises can be found on <http://usgoship-p062017.blogspot.com>, <https://i07n.wordpress.com/>, <https://usgoship.ucsd.edu/2022/04/11/p02-2022-student-blog/>, or under the “News” tab on the US GO-SHIP website. The blog and weekly reports from the two most recent US GO-SHIP cruises P02 (2022) and A16N (2023) can be found at <https://usgoship.ucsd.edu/2022/04/16/weekly-reports-from-2022-p02-leg-1/> and <https://usgoship.ucsd.edu/2023/03/13/weekly-reports-from-a16n/>, respectively.

Station stops are planned every ~55 kilometers (closer over steep topography and near coasts) where a CTD/rosette is lowered to measure the temperature, salinity, oxygen, currents, optical properties, and other dynamics from just below the sea surface to approximately 10 meters above the ocean bottom. During each of these stations, water samples up to 36 depths are collected for measurement of various water properties, including several oceanic carbon-related parameters (dissolved organic and inorganic carbon, alkalinity, pH), along with dissolved chlorofluorocarbons and sulfur hexafluoride (SF<sub>6</sub>), dissolved oxygen, salinity, and nutrients. While the ship is both underway and on station it continuously pumps surface seawater through sensors for temperature, salinity, partial pressure of CO<sub>2</sub>; operate standard meteorological sensors; operates a shipboard Acoustic Doppler Current Profiler and collects along-track bathymetric data. Additional ancillary programs (“Level 2 and 3”) are hosted aboard at a lower priority than the core (“Level 1”) measurements. These may include separate or combined casts for Bio GO-SHIP. We also deploy floats and drifters along the track as requested (some float deployments may require additional rosette sampling).

A central Arctic Ocean cruise presents a rare opportunity for a wide range of research. It is thus possible that the science and/or support agencies will add compatible semi-independent research activities to the ARC01 expedition, perhaps increasing cruise duration. Once approved by the Executive Council, the Chief Scientist will be expected to accommodate any such programs fairly in science and ship-time planning.

<sup>2</sup> **Financial support** for the Chief Scientist is provided through an NSF grant to UCSD/SIO, coordinated by Lynne Talley ([ltalley@ucsd.edu](mailto:ltalley@ucsd.edu)). Except in the case of a directly supported project

post-doc, there is no support from this NSF grant for post-cruise scientific analyses, only for time spent on final documentation, which is minimal for this program (almost all work is done at sea). This cruise-specific salary plus benefits support for the Chief Scientist should never exceed  $(3.0 * D / 30)$  months (where D = number of days at sea), and in general will be less than this amount, in many cases much less (typically 2.0), depending largely on pre- and post-cruise project-related activities for each person. A contract agreeing to the guidelines set out by the US GO-SHIP Executive Council must be signed before travel preparations can be made.

### **STILL WANT MORE INFORMATION?**

This cruise is a US contribution to international GO-SHIP <http://www.go-ship.org/>, which is part of the Global Ocean Observing System (GOOS) (<https://www.goosocean.org/>). GO-SHIP is tracked along with other GOOS observing systems through JCOMMOPS (<http://www.jcommops.org/board>).

You can read more about the US GO-SHIP program at: <https://usgoship.ucsd.edu/>

You can find data and cruise reports from the previous ARC01 occupation at <https://cchdo.ucsd.edu/search?q=Arc01>

Questions about working on USCGC Healy and on in-ice science operations can also be addressed to Jim Swift ([jswift@ucsd.edu](mailto:jswift@ucsd.edu)).

Further questions can be directed to Alison Macdonald ([amacdonald@whoi.edu](mailto:amacdonald@whoi.edu)).

