

COVID-19 Risk Assessment for Underway Operations aboard Scripps Institution of Oceanography Vessels

Executive Summary

This document provides a framework for assessing and mitigating the risks associated with sea-going science during the COVID-19 pandemic. **Safety of crew and science parties remains paramount.** The Scripps Marine Superintendent, research vessel Masters, and Chief Scientist must consider many factors prior to producing an overall risk assessment specific to each mission. This document outlines required steps and considerations for producing an assessment and communicating its findings.

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References

1. George Washington Medical Faculty Associates (GW MFA) recommended list at:
<https://www.unols.org/news/ships-news/updated-coronavirus-covid-19-considerations-scientists-and-operators>
2. International Chamber of Shipping (ICS) – Coronavirus (COVID-19) Guidance for Ship Operators for the Protection of the Health of Seafarers [https://www.ics-shipping.org/docs/default-source/resources/coronavirus-\(covid-19\)-guidance-for-ship-operators-for-the-protection-of-the-health-of-seafarers.pdf](https://www.ics-shipping.org/docs/default-source/resources/coronavirus-(covid-19)-guidance-for-ship-operators-for-the-protection-of-the-health-of-seafarers.pdf)
3. Centers for Disease Control (CDC) Maritime Recommendations
<https://www.cdc.gov/quarantine/maritime/recommendations-for-ships.html>
4. CDC COVID-19 Travel Recommendations by Country <https://www.cdc.gov/coronavirus/2019-ncov/travelers/map-and-travel-notice.html>

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Introduction

Safety of crew and science party is paramount.

The Marine Superintendent, vessel Master and the Chief Scientist must consider many issues in determining whether COVID-19 outbreak risks can be managed or mitigated such that a cruise can be conducted safely. It is reasonable and expected that the Marine Superintendent, vessel Master and the Chief Scientist may have differing opinions as to whether a science cruise can be carried out safely. As with all operations, each has the authority to veto a cruise after careful consideration of all appropriate factors and assessing the risk of unsuccessful completion of science and/or adverse health effects to the crew and the science party.

The Chief Scientist or the Marine Superintendent may make the determination that the risks are unacceptable and that the cruise should be postponed or canceled. If so, they shall document the basis for that decision in writing and pass to each other, and additionally to the UNOLS Office, NSF Ship Operations, ONR (for Navy-owned research vessels and for ONR-funded science), NSF Science Program Manager (for NSF funded science), and other agencies that fund the affected science program. Vessel Masters will communicate their determinations to the Marine Superintendent.

This document will be updated as new developments arise that further inform decision making and risk assessment related to science operations during the COVID-19 pandemic.

The Chief Scientists, the vessel Master, and the Marine Superintendent shall take the following into consideration in determining whether risk is at an acceptable level for conducting a scheduled science cruise on a Scripps Institution of Oceanography vessel.

Pre-Cruise Planning - Cruise Risk Assessment

CRUISE LOGISTICAL CONSIDERATIONS

- Is effective COVID-19 testing available and in place?
- What are the virus infection rates for the port of embarkation and any anticipated port(s) of call? Consider along track ports of refuge, storm evasion and repairs as well.
- Where on the “epidemic curve” are load and unload port(s) and the home of crew / science party? Is it now safe to work in that port? Have Shelter in Place orders been lifted? Can necessary crew and science party personnel safely travel to the port?
- What are current rules (federal, state, local) for sheltering in place, and/or essential services that may not permit oceanographic science operations? Have those rules been lifted for the port of origin for the cruise and the end-port?
- What are institutional requirements regarding personnel working onboard ships in light of the pandemic?
- What are the current U.S Coast Guard (USCG) regulations regarding seagoing operations nationally or in that particular region?
- Domestic or foreign port? Are there potential access issues (both for air travel and for the vessel)? Verify shore leave and crew exchange policy for port in question.
- What is the distance from port? Is it possible to come into port nightly?
- What is the length of cruise?
- For longer duration deep water cruises more than a two-day steam from a US port – would a qualified medical person onboard (e.g. nurse, a physician’s assistant, or a doctor) be helpful?

- Are there potential access issues for surrounding countries where the ship might need to transfer personnel ashore in the event of a medical emergency?
- Have marine scientific research (MSR) clearances been obtained, and do they remain unchanged by the pandemic? (The US State Department has indicated that all new MSR requests will require six months processing, as a minimum, as a result of the virus outbreak.)
- Can the cruise operate with fewer personnel to help lower the population density and increase the possibility of social distancing?
- How much travel is required by science and crew to reach the vessel? Air travel? How many different locations? Are personnel originating from or transiting through regions with significant rates of infection?
- Can telepresence be used to reduce the number of required onboard participants? If so, what resources are necessary to increase bandwidth? What equipment?

CHIEF SCIENTIST CONSIDERATIONS

Instrumentation and Equipment

- Can all aspects related to conducting the science be ready to support the cruise?
 - Instrumentation
 - Sampling equipment
 - Lab equipment
 - Essential systems / equipment – examples include:
 - ROV, AUV
 - Gliders
 - OBS, OBN
 - Lab or other specialized vans
 - Winches, spoolers
 - Coring
 - Portable Multi-channel Seismic
 - Can instruments be prepared in time for a cruise while there are restrictions to onsite work?
 - Will the mobilization be hampered by requirements to self-isolate or self-quarantine?
 - Can equipment be shipped in time for cruise?

Science Party

- The Centers for Disease Control and Protection (CDC) advises that older adults and people of any age who have serious underlying medical conditions might be at higher risk for severe illness from COVID-19.
- In light of this information, we ask that all participants carefully consider their own medical condition before committing to embarking on a shipboard research mission. Those who are at higher risk may elect not to participate. This is further described in Appendix A.
- Can the cruise operate with fewer personnel to allow for a lower density of people and higher ability to socially distance?
- Are there sufficient science personnel to complete the science mission?
Having insufficient science party could be due to the following:

- Institutional and/or governmental travel restrictions preventing work onboard or travel to the vessel.
- Science Party personal safety concerns or care/concerns for their families.

MARINE SUPERINTENDENT CONSIDERATIONS

Mariners and marine technicians

- The Centers for Disease Control and Protection (CDC) advises that older adults and people of any age who have serious underlying medical conditions might be at higher risk for severe illness from COVID-19.
- In light of this information, we ask that all participants carefully consider their own medical condition before committing to embarking on a shipboard research mission. Those who are at higher risk may elect not to participate. This is further described in Appendix A.
- Are there sufficient crew and marine technicians to complete the cruise?

Having insufficient ship's crew could be due to the following:

- Institutional and/or governmental travel restrictions preventing work onboard or travel to the vessel.
- Crew personal safety concerns or care/concerns for their families.

Preparing for Operations

- Scripps has separately promulgated a COVID-19 Preparedness Plan. This plan includes isolation procedure for infected or possibly infected personnel. The Plan additionally includes vessel-cleaning protocol, social distancing and cohorting policy.
- Scripps has established a protocol for pre-embarkation quarantine and testing described in the COVID-19 Preparedness Plan. See Annex B of Reference 2
- Scripps Ship Operations will ensure all vessels have stocked sufficient supplies for cleaning (see Annex C of Reference 2).
- Scripps Ship Operations will ensure all vessels have stock sufficient medical supplies onboard (see Reference 1 and Annex C of Reference 2).
- Scripps Ship Operations will ensure all vessels display COVID-19 awareness and mitigation strategy posters throughout the vessel (see Annex A of Reference 2)

When Operations Move Forward

PRIOR TO TRAVELING TO THE EMBARKATION PORT

- Testing – Complete testing as outlined in the “Preparing for Operations” above.
- Pre-cruise Screening -- Require all personnel to affirm that they exhibit none of the symptoms associated with COVID-19 as defined by CDC.

MITIGATION IN PORT

- Follow the practices and procedures defined in the COVID-19 Preparedness Plan.

MITIGATION AT SEA

- Follow the practices and procedures defined in the COVID-19 Preparedness Plan.

IF SOMEONE GETS SICK ONBOARD

- Follow the practices and procedures defined in the COVID-19 Preparedness Plan.

Marine Superintendent and Vessel Master Considerations for Going to Port

- What port will allow the ship to enter?
- What is the current situation regarding the status of the virus outbreak in the port?
- Is there sufficient appropriate care available in the port?
- Will the ship be quarantined in port? If so, does the port have appropriate services to support the ship's presence for two weeks or more?
 - What are port requirements/guidelines for quarantine of a vessel?
 - How long? Is it for 14 days? 14 days from last infected person?
 - Will personnel be quarantined?
 - On the ship or off the ship?
 - Is space available?
 - If delayed in port – is there science gear that must be offloaded and shipped elsewhere?
 - If delayed in port, will the port support travelers arriving / departing from the vessel (i.e. crew turn over, science party returning to home, etc.)
- If the ship can depart port without quarantine in place orders
 - Can the ship still meet USCG COI manning requirements for proper number and type of credentialed personnel with those remaining onboard?
 - Can the science party continue with fewer people?

Upon Arrival in Port

- Where will the ship be moored? The ship shall be moored in a secure location where access to the ship can be controlled to essential personnel.
- Will the ship be quarantined?

COVID-19 Risk Determination

Mindful of the above, the Marine Superintendent, the vessel Master, and the Chief Scientist shall complete independent risk assessments. This is done to determine whether the risk of successfully completing the research cruise without experiencing a COVID-19 outbreak is at a sufficiently low level (see risk levels below).

The Chief Scientist, the Marine Superintendent and the vessel Master shall assess risk as **Low**, **Medium** or **High** using the following criteria:

Low Risk

- Science operations are strictly local – within a two-day transit back to a US port.
- Local/state COVID-19 regulations/guidelines do not prohibit personnel working on the ship nor the cruise departing the dock.
- Local crew and science personnel have strictly adhered to local governmental self-isolation guidelines/regulations.
- All personnel (crew and science party who have traveled by air to the port of call) have successfully completed the Scripps pre-embarkation protocol (see ***Preparing for Operations*** guidelines above).
- Science party has been reduced to the minimum necessary to carry out the work.

- Policies and procedures outlined in the ***Preparing for Operations*** section above are in place and enforced.

Cruises assessed a **Low Risk** may be conducted. The Marine Superintendent and Chief Scientist shall communicate to Dr Bruce Appelgate (Associate Director, SIO), the NSF Ship Operations Program Manager, the NSF Science Program Manager (for NSF funded science), the ONR Program Manager for cruises on ONR-owned ships or for ONR-sponsored programs, and the UNOLS Office of the **Low** risk assessment and subsequent decision to conduct the cruise.

Medium Risk

- Science operations are > two days from a US port.
- Local/state COVID-19 regulations/guidelines do not prohibit personnel working on the ship nor the cruise departing the dock.
- All personnel (crew and science party who have traveled by air to the port of call) have successfully completed the Scripps pre-embarkation protocol (see ***Preparing for Operations*** guidelines above).
- Science party has been reduced to the minimum necessary to carry out the work and ideally the vessel is not at full berthing capacity.
- Policies and procedures outlined in ***Preparing for Operations*** above are in place and strictly enforced.

Cruises assessed as **Medium Risk** may be conducted if sufficient risk mitigation strategies are identified and implemented. The Marine Superintendent and Chief Scientist shall communicate to Dr Bruce Appelgate (Associate Director SIO), the NSF Ship Operations Program Manager, the NSF Science Program Manager (for NSF funded science), the ONR Program Manager for cruises on ONR-owned ships or for ONR-sponsored programs, and the UNOLS Office of the **Medium** risk assessment and subsequent decision to conduct the cruise. **Risk mitigation strategies shall be identified, reported to all appropriate parties, and implemented.**

High Risk

A cruise will be deemed high-risk if any of the below bullets apply

- Participating local personnel (crew and science party) have not strictly adhered to local governmental self-isolation guidelines/regulations.
- Non-local personnel (crew and science party who have traveled by air to the port of call) have not or cannot successfully self-isolate (see Self-isolation guidelines above).
- Policies and procedures outlined in *Preparing for Operations* have not been established nor enforced.

Cruises assessed as **High Risk** will not be conducted. The Marine Superintendent and Chief Scientist shall communicate to Dr Bruce Appelgate (Associate Director, SIO), the NSF Ship Operations Program Manager, the NSF Science Program Manager (for NSF funded science), the ONR Program Manager for cruises on ONR-owned ships or for ONR-sponsored programs, and the UNOLS Office of the **High** risk assessment and subsequent postponement or cancelation decision.

Decision Making

After the Marine Superintendent and the Chief Scientist have taken into account the considerations and completed their separate risk assessments – they shall review their assessments together. They will make a final, joint determination. The Marine Superintendent and Chief Scientist shall then make a joint recommendation as to whether the science cruise should proceed. If the Marine Superintendent and the Chief Scientist cannot agree on a singular recommendation, each shall report their recommendation and the basis of it to the appropriate entities – as noted below for the different risk assessment and cruise execution determinations. In cases where assessments differ, operations will follow the more conservative of the two recommendations.

Canceling or Postponing a Cruise

If a decision results in the cancellation/postponement of a cruise, both the Chief Scientist and Marine Superintendent must:

- Document in writing reason for cancellation. Submit to:
 - Chief Scientist / Marine Superintendent (skelety@ucsd.edu)
 - Dr Bruce Appelgate, Associate Director SIO (tba@ucsd.edu)
 - UNOLS Office: doug@unols.org, alice@unols.org
 - NSF Ship Operations: rdufour@nsf.gov
 - NSF Science Program Manager – for NSF-funded science
 - ONR – for ONR vessels and ONR-funded science: robert.sparrock1@navy.mil
 - Other agencies/institutions that fund the cruise
- Document cost impacts resulting from the cancellation/postponement in accordance with the funding agencies grant guidance

Financial Considerations of Mitigation Measures

Mitigation measures may cause financial impacts to the Scripps Ships Operations and Marine Technical Support, and our science parties. The financial impacts should only be considered after completion of the risk assessment for the safety of crew and science personnel. In cases where finances are impacted, the Marine Superintendent, Technical Support Manager, and Science Party will:

- Maintain appropriate records and cost documentation substantiating charges for cancellation or other fees related to interruption of operations or services, or the mitigation measure itself.
- To the maximum extent practicable, institute all reasonable actions lessening the cost to the US Government.