Getting Science Back to Sea

Preparing for Cruises & Questions to Ask

29 MAY 2020
Meeting Agenda

- Risk Assessment Methodology
- Risk Categories
- Risk Analysis
- Cruise Planning Considerations
  - Mobilization/De-mobilization
  - Science Party & Equipment Preparation
  - At-Sea Safety and Vessel Operations Mgt Plans
- Case Studies
- Scheduling in 2020 and 2021
Risk Assessment Methodology

- Clearly identify the risk to be assessed
  - Science Cruise, Departing vessel, etc.

- Form a knowledgeable working group to discuss risks
  - Ensure good mix of people from various facets of Sci Mission and Vessel Ops

- Discuss all potential risks and identify resources:
  - Local, State, Federal, & Country Guidelines
  - Regulatory Guidance: USCG, ABS
  - Port Authorities: Domestic & Foreign
  - Institutional Policies
  - UNOLS COVID-19 Considerations, Updated 15 April 20
  - UNOLS GW Medical Guidance

- Finalize risks and develop mitigation steps

- Present final determination

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Risk Analysis Process & Categories

Risk Analysis

Risk Probability (%) = Likelihood * Consequence

- Low = Mitigation steps not needed
- Medium = Mitigation steps may be needed
- High = Mitigation steps required

<table>
<thead>
<tr>
<th>Risk Rank</th>
<th>Min</th>
<th>Max</th>
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<tbody>
<tr>
<td>Low</td>
<td>1%</td>
<td>16%</td>
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<tr>
<td>Medium</td>
<td>16%</td>
<td>48%</td>
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<tr>
<td>High</td>
<td>60%</td>
<td>100%</td>
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Risk Categories

- **Medical Policy**
  - Testing, temperature, isolation, med evac
  - Shore v. Ship

- **Cruise Logistics**
  - Travel, Pandemic status

- **Science Party**
  - # of Scientists, Equipment prep/delivery

- **Vessel Operations**
  - Policies: COVID-19 mgt plan, cleaning, social distancing
  - Crew Safety
Risk Analysis and Determination

Suggested Determination Documents

- Risk Analysis Summary
- Science Mobilization & Mission Plan
- Vessel Cruise Summary
- Port Agents and Ports Information Summary
- Shipboard communications plan
- Shipboard COVID-19 plan
- Presentation to explain determination
- Funding Agency Concurrence (ONR, NSF, etc.)
Considerations for Cruise Planning

- Understanding host vessel protocols
- Prescreening
  - Who is your science team? What are their health risks? What is their comfort level? Who are your alternates?
- Testing & Self-isolation
  - Is testing available? On what timeline?
  - Can your team self-isolate? Does this require travel ahead of time to isolate in origin port? What is the duration of isolation required?
- Monitoring
  - Self-monitoring and reporting before boarding
- Mitigation
  - What steps can be taken if a key person can not sail?
Implications for Science Mission Planning

- Are ports changed?
- Is cruise length altered?
- Do you scale back/merge science mission?
- What about ancillary science objectives?
- Will your equipment and instruments be ready?
- Is telepresence an option? On what scale?
- Can all critical team members sail? Do you have alternates?

- Lay out a plan that lists your priorities, expected schedule, operational recommendations and safety requirements
  - WHOI personnel joining an outside vessel can do this to ensure WHOI requirements are discussed
  - Outside scientists can do this for setting expectations with WHOI as an operator
  - Make it a living document to share with your whole team to communicate updates
Considerations for Mob/Demob & Travel

- **Institution & Operator policies related to the cruise**
  - Home v Host Policies
  - Vessel Specific & Facilities Access

- **Travel challenges & logistics**
  - Foreign v Domestic
  - Routing
  - Current guidelines (federal, state, local) for sheltering in place

- **Supplemental Funding Opportunities**
  - Program Managers

- **Integration of science with ship**
  - Shipping & Loading logistics to minimize contamination
Considerations for being at Sea

- Does the ship have a standard safety/medical response plan?
  - How many trained medical officers onboard?
  - Is there a shore-side medical provider?

- Is there a COVID-19 response plan?

- Is there a social isolation plan onboard the ship?

- What are the shipboard cleaning policies?

- What are the meal preparation and galley procedures?

- What are the workspace & common space distancing plans?
Outside Institution Approaches

- **July Start Date**
  - US Ports
  - Self Prescreening
  - Testing>Self Quarantine>Testing
  - Reduced science party/ PPE

- **R/V Polarstern MOSAiC Arctic Expedition**
  - International Participants
  - Testing>Self Quarantine>Testing
  - International flight/ PPE
  - Testing>Quarantine>Testing
  - Sign on vessel/ PPE

- **July Start Date**
  - R/V Healy Hab Cruise
  - No testing
  - Quarantine off shore- not popular
  - July Cruise cancelled

- **01 July Start**
  - 14+ days prep for ships (exceptions for emergency/hurricane response)
  - Prescreening
  - Testing>Self Quarantine>Testing
  - Full science party (ROV)/ PPE

- **May Start Date**
  - US Ports
  - Prescreening
  - Testing>Self Quarantine>Testing
  - Reduced science party/ PPE

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## Vessel & Vehicle Scheduling 2020 & 2021

<table>
<thead>
<tr>
<th>2020</th>
<th>2021</th>
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<tbody>
<tr>
<td>Programs have been deferred or reduced</td>
<td>Funding agencies now shifting attention to 2021 schedules</td>
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<td><strong>US ports only</strong> for remainder of the year</td>
<td>Program priorities have not been vetted yet by funding agencies</td>
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<td>Equipment &amp; data recovery for long running programs are a priority</td>
<td>Foreign port calls have not yet been approved</td>
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<td>Cruises close to port are preferred</td>
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<td>Institutions have different approaches to managing COVID risks</td>
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<td>Reduced science operations &amp; party</td>
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<tr>
<td>Self-isolation 2 weeks prior to cruises</td>
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<tr>
<td>Time is being added in-between cruises for cleaning</td>
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<tr>
<td>Risk assessments to be approved by all parties (Science, operator, ONR &amp; NSF etc.)</td>
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<tr>
<td>2020 schedules to be RE-published</td>
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Case Study: ATLANTIS MLR Transit Early Departure

Goal: Obtain approval for the R/V *Atlantis* to sail early to MLR Shipyard

- ~30 Day transit, 21 Shipboard Crew, 2 SSSG Techs
- 25 Risks Identified: 1 High, 14 Medium, 10 Low
- Developed transit plan to mitigate High and Medium Risks
  - Transit to stay close to shore, Identified Refuge Ports, Closely monitor Panama Canal status
- Obtained ONR, WHOI Sr. Admin and NSF Approval
- R/V *Atlantis* successfully transited from WHOI to Anacortes, WA: 16 April – 13 May 2020
Case Studies – OOI Pioneer on *Neil Armstrong*

**INITIAL SITUATION**

- **Goal**
  - Gain consensus that an OOI Pioneer mooring turn can be conducted at sufficiently low risk

- **Initial Scope**
  - WHOI-WHOI, 21-day mission, two legs, up to 42 on board (24 crew, 16 science, 2 SSSG), multiple non-local participants

- **Initial Risk**
  - 36 risks identified, 20 High, 16 Med, 0 Low

**OUTCOME AFTER MITIGATION**

- **Mitigation**
  - Extensive effort among stakeholders to develop a risk mitigation plan spanning pre-cruise preparation to onboard procedures.

- **Reduced Scope**
  - 11-day mission, one leg only, 35 on board (24 crew, 9 science, 2 SSSG), 2 non-local participants

- **Mitigated Risk**
  - 35 risks remaining, 0 High, 14 Med, 21 Low

- **Cruise to take place 7-17 June**
Tioga Returning to Sea

- Have been conducting AUV, Glider ops and CTD sampling since late March
- 3 Science Personnel Max on board
- Science to provide own PPE’s (masks, vests, hard hats and boots)
- Science to provide own lunches and drinks
- Science to social distance as much as possible while on board
- Vessel is fully sanitized after each mission
- Wheelhouse off limits
- Daily Self Assessments required
- [https://whoiforms.whoi.edu/tioga-shiptime-request/](https://whoiforms.whoi.edu/tioga-shiptime-request/)
- Contact Eric Benway and Peter Collins for questions
Visiting Vessels at WHOI

**SCHEDULE**

- Supervisor's Permission
- Link to WHOI chartering website
- Email charters@whoi.edu
- Vessel Documentation
- Mob/ Demob dates
- List: Science Party & Mob Team
- Load Plan* (Dock Maintenance 6/8)
- Deliveries
- On/Off Signers

**REPORT**

- Submit Charterer’s Covid19 Policy & Safety Plan
- Covid19 - Self Assessment:
  - whoiforms.whoi.edu/daily-check-in/
  - Start reporting prior to departure from last port
- Daily reporting for dock access. List your “Supervisor” as the contact
- Notify SSPI@whoi.edu to receive access to the WHOI dock
- Have your clearance with you (digital or printed)

**SAFETY**

- Check in at security
- Wear gloves
- Wear mask over nose & mouth
- Eye protection
- Social distancing on dock
- When onboard, follow vessel’s safety guidelines
- Emergency contacts for operator & family

* Red indicates new procedures
Panelists include:

- **Rob Munier** – VP for Marine Facilities & Operations
- **Kathi Benjamin** – Chief HR Officer
- **Al Plueddemann** – PO Senior Scientist & OOI Pioneer Chief Scientist
- **Tim Twomey** – Director of Ship Operations
- **Eric Benway** – Port Captain
- **Pam Clark** – Marine Ops Project Manager
- **Derek Bergeron** - Captain
- **Kent Sheasley** - Captain
- **Kerry Strom** – Marine Operations Coordinator
- **Kim Malkoski** – Charter Vessel Coordinator
- **Sarah Fuller** - Research Vessel Science Coordinator
Preparation Team – Risk Identifications

- What is the risk of mobilization team being infected during cruise preparation, if diagnostic testing IS available?

- What is the risk of mobilization team being infected during cruise preparation, if diagnostic testing is NOT available?

- What is the risk of mobilization team being infected during cruise preparation, if diagnostic testing NOT available and temperature screening not allowed?

- Will science equipment be ready for the cruise given supply chain problems, shipping delays and restrictions to on-site work?

- Will science team be available for equipment prep given restrictions to on-site work? Will they be able to conduct the necessary work?

- Will the prep and dock mobilization team be isolated from the science party and crew? Will the prep and dock mobilization team be isolated from the science party and crew?
Cruise Logistics – Risk Identifications

- Is effective COVID-19 testing available and in place?
- What are the virus infection rates for the ports of origin and return, where are they on the “epidemic curve”?
- What are current rules (federal, state, local) for sheltering in place, have those rules been lifted for the start/end ports?
- What are institutional policies relating to the cruise?
- Domestic or foreign port, air travel necessary?
- Distance from port?
- Length of cruise?
- Are personnel originating from or transiting through regions of significant infection?
- Can telepresence be used to reduce onboard crew needs?
Science Party – Risk Identifications

- Can the cruise operate with fewer personnel?
- Are there sufficient science personnel to complete the science mission?
- Science party with pre-existing conditions leading to increased health risk if infected, screening questions not allowed?
- Science party with pre-existing conditions leading to increased health risk if infected, screening allowed and conducted?
- Science party personal or family health/safety concerns?
- Will the science party change between cruise legs for a multi-leg cruise?
Shipboard Policy – Risk Identifications

- Will there be a medical professional onboard?
- Is there an outbreak management plan?
- Is there a social isolation plan onboard the ship?
- What are the shipboard cleaning policies?
- What are the meal preparation and galley procedures?
Medical Policy – Risk Identifications

- Will there be a pre-cruise questionnaire for screening of participants (3 weeks prior to cruise)?
- Will there be a follow-up questionnaire for screening of participants (immediately prior to departure)?
- Will there be diagnostic testing (COVID-19 test) of the crew before the cruise?
- Will there be diagnostic testing (COVID-19 test) of the science party before the cruise?
- What is the reliability of COVID-19 test kits?
- What if self-isolation is not effective? Isolation is on the honor system, and unforeseen circumstances may arise.
- What if self-isolation is not possible? UNOLS guidelines are for all family members to isolate for 14 days.
- What if individuals with COVID-19 are asymptomatic, and pre-departure diagnostic testing is not implemented?
- How will health of those onboard be monitored after departure?
- Do we also isolate the medical care provider if they have to treat someone that tests positive for COVID-19?