

## Transferable knowledge in deep-sea expedition leadership

### Take-homes from the 2023 COBRA Master Class

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The second virtual COBRA Master Class took place from February 14 - May 16, 2023, to train early career COBRA Fellows in deep-sea expedition planning from start to finish. The Fellows acquired skills and tools to successfully design, propose, and execute deep-sea oceanographic field research, with a collaborative, just, equitable, diverse, and inclusive approach. The Fellows followed the Octopus Odyssey expedition of the Schmidt Ocean Institute's RV *Falkor* (too) via WhatsApp, to get real-world exposure to daily cruise operations and planning. They contributed to developing an open-access "how to" manual and as a teaser, they listed take-home messages that may help aspiring deep-sea expeditions leaders to start planning successfully, and early!

### Assets:

- Identify the simplest, essential assets to answer your research questions.
- Different organizations manage different assets for different regions.
- Get in touch early to secure access to equipment and to share specifications with ship crews.
- Find out which functioning costs can be assumed by ship time vs research grants.
- PLAN EARLY!

### Team Science:

- Draw on the full diversity of the personnel in scientific teams to harness the breadth of experience and expertise.
- Diversity hides: recognize that everyone is diverse in their own way.
- Build your team with different skills, personalities, and backgrounds.
- Do not hesitate to handle problems early when arising before it gets too complicated or toxic.
- Communicate abundantly and transparently to the extant team.
- Make sure everything is clear to everyone, incl. responsibility such as first authorships.
- Write formal Collaboration Agreements, dated, and signed by all parties.
- COORDINATE EARLY!

### Proposals and Funding:

- Deep-ocean research is expensive, and it requires a lot of proposal writing and submissions.
- While seemingly obvious, proofread your proposal, trying to not anger reviewers.
- Think bigger and establish a long-term strategy: international agencies and philanthropic organizations may finance your project(s).
- Applying without immediately available funds can be perilous: secure fund contributions from team members.
- COOPERATE EARLY!

### Respectful Concept Development:

- 78% of countries have the deep sea within their EEZ, but little access for scientific study.
- Unlearn parachute science practices, by co-creating ideas with local partners.
- Work with foreign collaborators by including their visions, opinions, and backgrounds.
- Contact potential collaborators early so everyone can actively and significantly contribute.
- Respectful exchange strengthens the project.
- COMMUNICATE EARLY!

### Cruise Preparation:

- The chief scientist has big (administrative) responsibilities and full-time leadership roles.
- Besides your science, consider logistics, conflicts, permits, operations, and coordinating people.
- Break up tasks and deadlines into smaller, manageable goals.

- Don't hesitate to delegate.
- Plan well ahead of time.
- Stay organized.
- PREPARE EARLY!

#### At-sea Operations:

- Months to years of planning becomes realized when at sea.
- Create daily logs for all participants (dives and sample logs).
- Focus on the main priorities.
- Have a daily plan but be flexible.
- Be kind to the crew.
- Prioritize safety.
- Make sure everyone gets enough sleep.
- Have fun!
- SCHEDULE EARLY!

#### Unwritten Rules:

- From authorship to data sharing to naming seafloor features, unwritten rules exist.
- Anticipate challenges to minimize their impact but leave space for feedback and forgiveness.
- Deep-sea research is excellent to spread diversity, equity, justice, and inclusion.
- DON'T WORK TOO LATE :)

#### Intro to Deep Data:

- Deep-sea science largely focuses on getting new data, but funders push for open data, which might already be publicly available.
- Repositories can be tricky to navigate but you can be lucky and find existing or preliminary data.
- Explore different databases and all available information for your study area.
- Potential collaborators may be interested in sharing data with you.
- KNOW DATA NEEDS EARLY!

#### Data Management Plan to Cruise Report:

- Solid DMPs lead to better results.
- DMPs demonstrate commitment to quality assurance and quality control and assure long-term archiving and accessibility of information.
- May sound like loads of work but saves time for your future self.

REPORT EARLY!

#### Outreach:

- Choose an outreach style or event that speaks to you, to do with love and joy.
- Engage with the public or define specific target audiences.
- Contact societies, journals, and potentially interested initiatives.
- Consider artistic and educational channels.
- EXPLORE EARLY!

Ocean Law:

- Permits are additional steps but protect national interests.
- Multinational ventures can lead to surprising legal situations.
- Talk to a legal expert.
- INQUIRE EARLY!