Guide to Developing Mentoring Programs for the International Ocean Community

THE OCEAN FOUNDATION

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Acknowledgements

Contents

Executive Summary

The whole ocean community can benefit from the mutual exchange of knowledge, skills, and ideas that occurs during an effective mentorship program. This Guide was developed based on evidence from various established mentorship program models, experiences, and materials to compile a list of recommendations for developing mentorship programs with **three main priorities**:

1   **Aligned with the needs of the global ocean community**

2   **Relevant and practicable for international audiences**

3   **Supportive of Diversity, Equity, Inclusion, Justice, and Access (DEIJA) values**

This document is intended to present a framework for mentorship program planning, administration, evaluation, and support. The framework provides tools and conceptual information that can be used for various types of mentorship projects. The target audience is mentorship program coordinators who are developing a new mentorship program or looking to improve or redesign an existing mentorship program. Program coordinators can use the information contained in this Guide as a starting point to develop detailed guidelines that are more specific to the goals of their organization, group, or program.

Based on existing research and programs, the collective experience of the co-authors, and informational meetings conducted with others working in the mentorship space, this Guide includes the following **key recommendations**:

+ Set explicit goals to guide the mentorship program's development and evaluation

+ Continuously prioritize the needs and input of the intended beneficiaries

+ Establish clear roles, expectations, and communication guidelines for all parties involved

+ Provide appropriate training and materials for program coordinators and participants

+ Encourage open communications, mutual learning, and a sense of community

In addition to these recommendations, several other options are presented for mentorship program coordinators to consider, including a glossary, checklist, and resources for further exploration and research.

Introduction

Capacity development is necessary to meet global ocean science, education, and conservation objectives and is a major goal of the United Nations Decade of Ocean Science for Sustainable Development (UNESCO-IOC, 2021). Yet, there is a substantial disparity in funding, capacity, and infrastructure to meet these goals internationally (Isensee, 2020; Spalding et al., 2023). Given the transboundary nature of the ocean and the billions of people depending on it for their livelihoods, capacity development requires growing the international community of ***marine/ocean practitioners*** and increasing equitable access to data, knowledge, technology, and learning (UNESCO-IOC, 2021). Among the many types of capacity development activities (e.g., trainings, ***fellowship*** programs, workshops, degree programs, etc.) mentoring programs are particularly well-suited to enhance knowledge and build partnerships within the ocean community, and mentoring is credited as a major pillar for engaging future generations in the ***co-design*** of transformative ocean solutions (Satterthwaite et al., 2022). In an assessment of individuals working in various ocean education professions in the Caribbean region, 92% of participants agreed, on average, that having a mentor is important for career advancement, professional growth, networking, skills development, building a sense of community, and fostering long-term collaboration between peers (The Ocean Foundation, 2022).

Mentorship consists of sharing knowledge, skills, connections, and experiences with another person through advising, training, or coaching. In most mentorship programs, the role of the "mentee" is to work toward their ***professional development*** goals and continuously listen, learn, and accept feedback. The role of the "mentor" is typically to draw upon their expertise to help guide the mentee's career development or project goals. Mentors may also provide some level of social and emotional support. Participating in a mentorship program can be a valuable growth opportunity for both the mentors and mentees; it is important to note that mentors also benefit from interacting with emerging professionals who can offer insight into the evolving views and attitudes within the ocean community (Newby & Heide, 2013; Atkins et al., 2020). By connecting individuals with differing levels of experience, mentoring programs can help foster relationships among participants that span sectors and disciplines, as well as regional to international borders, which is a necessity for effective ocean science, management, policy, and education (Hong & Page, 2004; Medin & Lee, 2012). Ideally, the mentorship relationship facilitates a meaningful, respectful, and two-way exchange of ideas that is equally valuable to both mentors and mentees and serves to advance the ocean community as a whole.

Diving Deeper:

While this publication makes use of the term "capacity development", the authors acknowledge that other variations of the term exist such as "capacity building" and "capacity sharing". In any case, it is critical to recognize the wealth of existing knowledge and expertise held by local community members and to acknowledge the value of ethical, traditional, linguistic, social, and spiritual wisdom that exists in many cultures (Spalding et al., 2023).

In this Guide, we share key recommendations that are broadly applicable to mentorship programs across ocean disciplines, as well as options for mentorship program planning and implementation that can and should be adapted to suit the specific goals and scope of the program. In addition to the guidance presented here, we encourage those looking to establish their own mentoring programs to look to and seek advice from other programs with a similar vision and strategy. The following criteria can be used to identify programs with good practices, such as:

- ✛ Positive and enduring impact

- ✛ Active participation and communication between program coordinators and participants

- ✛ Approaches that are not overly complex, are transferrable, and can be easily implemented and adapted

- ✛ Representative of the target community and responsive to local perspectives and needs

- ✛ Mechanisms in place for program monitoring and evaluation and conflict resolution

The recommendations presented in this Guide are derived from the collective expertise of the co-authors, who have broad experience in establishing and coordinating regional, national, and international networks and mentoring programs for **ocean practitioners** (scientists, resource managers, educators, policy advisors, etc.). Additionally, we gathered information from various sources including published literature (such as peer-reviewed articles, white papers, empirical studies, etc.), direct observation, reviews of existing mentoring programs (Morrison et al., 2013; Miloslavich et al., 2019; Tilbrook et al., 2019; Urban & Seeyave, 2021),

"The recommendations presented in this Guide will be a valuable resource for the ocean community. Speaking from my role as co-lead of the UN Decade ECOP Mentoring sub-team, this Guide will definitely help us shape the ECOP Programme's future Mentoring Programme."

- Laura Khatib,
Co-founder, Guardians of the Blue

and informational interviews with others working in the mentorship space (e.g., the Global Ocean Acidification Observing Network's Pier2Peer Program, California State University at San Marcos's Planet Mentorship Program, the MPAConnect Program supported by the NOAA Coral Reef Conservation Program and the Gulf and Caribbean Fisheries Institute, the University of California at San Diego's Mentoring for All Initiative, and the American Society of Adaptation Professionals Mentoring Program). We acknowledge that there are many relevant mentorship programs that serve different goals and audiences within the international community of ocean practitioners, and encourage readers to to look to such programs as examples to aid in designing their own mentoring programs. For example, the Early Career Ocean Professionals (ECOP) Programme of the UN Decade of Ocean Science for Sustainable Development maintains a list of endorsed mentoring programs on its website (ECOP Programme, 2023). While not an exhaustive resource, this may serve as a useful starting point for further research into the existing landscape, opportunities, and challenges within this space.

Diving Deeper:

The term "ocean practitioner" is used throughout this Guide to refer to any person who is actively engaged in an ocean discipline or profession. This term is used intentionally to be inclusive of all people working across a variety of ocean-related fields, which may include art, science, business, education, and more.

Program Planning

Establish Leadership Roles

Two types of leadership roles need to be established at the start of any mentorship program: the ***program coordinator*** and ***advisory committee***. The program coordinator is someone who manages the day-to-day operations and oversees the administrative activities of the mentorship program (see Program Coordinating Checklist for a printable, step-by-step checklist for developing a mentoring program). They ensure that the program is delivered on time, within budget, and in alignment with the mission of the organization or group that is leading the program. The program coordinator role should be clearly defined and assigned at the start of the planning stage. It is recommended that the individual or individuals who hold this title remain in the position for multiple years to avoid inconsistencies and issues that can occur from frequent turnover.

In any mentorship program, one of the main roles of the coordinator is to facilitate strong communication between all groups involved and to gather frequent feedback to enable adjustments and provision of support as needed. Coordinators must be mindful in their approach to serving the target population and may find it helpful to organize an initial event where community members can openly share their needs and concerns (e.g., a listening session, visioning workshop, etc.). It is the coordinator's responsibility to ensure that Diversity, Equity, Inclusion, Justice, and Access (***DEIJA***) values are at the forefront of program planning and implementation; therefore, coordinators should undergo relevant training to increase their awareness and understanding of DEIJA practices. Depending on the scope or location(s) of the program, it may be useful to establish regional/local assistantship (i.e., a local contact or coordinator) who can help manage more region-specific operations, provide community-based insight to help guide the program, and be responsive to local participant needs.

How the coordinator communicates with participants sets the stage for the entire mentorship program. Coordinators should strive to foster a motivating, dynamic, and supportive atmosphere by encouraging open communication with all participants. At the start of the program, the coordinator should take the time to introduce themselves, provide background information to establish credibility, share any personal experiences they have had with mentoring, and explain the importance of mentorship to the future of the ocean community (e.g. jobs, policies, conservation, etc.). The coordinator should avoid using overly technical terms or acronyms that may be unfamiliar to individuals who are new to the ocean community, and explain that they want participants to feel safe and comfortable coming to them with any questions or concerns throughout the program and in the future.

The amount of coordinator support needed depends on the scale and scope of the mentorship program. It could range from light involvement (e.g., less than five hours a month to answer questions, create new pairings, and update foundational documents) to high involvement (e.g., 20+ hours a month organizing seminars and remote activities, creating and disseminating newsletters, and recruiting new partners). Any new mentorship program should evaluate its internal administrative capacity before committing to a particular size or scope and explicitly outline the expectations of the coordinator at the start of the program.

An external advisory committee should also be formed to help ensure the mentorship program is co-designed to reflect the needs of the intended program beneficiaries and local communities, desired program outcomes, and broader ocean science, education, or conservation goals. Committee members should be representative of the target population and offer diverse perspectives, including a mix of subject matter experts, resource managers, local partners, etc. Where possible, program coordinators should try to identify other relevant programs in the region or communities of interest and work to explore opportunities for alignment and/or partnership. This can strengthen local collaborations, avoid duplication of existing efforts unnecessarily, and ensure that benefits and opportunities available to the target communities are maximized.

The main responsibility of the advisory committee is to provide useful advice to guide the mentorship program structure, matching/pairing strategy, marketing, and program evaluation. However, it is pertinent that mentorship programs intended to benefit lesser-resourced regions avoid structuring the committee in a way that allows wealthy or powerful regions or partners to dominate the decision-making process (Harden-Davies et al., 2022). To address economic inequities affecting accessibility to volunteer-based opportunities such as advisory committee participation, stipends can be offered to graduate students, individuals whose institutions are unable to provide funding to support their involvement, and/or individuals from lesser-resourced regions. However, program coordinators should not be deterred from developing the mentorship program if funding is not readily available, as the non-monetary benefits of mentorship on career development can be substantial. If funding is initially limited, program coordinators should consider exploring opportunities to leverage additional financial support and identify priority areas for future investment should funding become available.

The advisory committee should be established early on in the planning stage and consulted regularly throughout the continued development of the mentorship program. While collaborating with an advisory committee requires additional time and administrative support from the program coordinator(s), it is an important step to building a mentorship program focused on inclusivity and continual improvement.

Diving Deeper:

The Organisation for Economic Co-operation and Development maintains a list of all countries and territories eligible to receive Official Development Assistance (ODA), which includes low and middle income countries as published by the World Bank and Least Developed Countries as defined by the United Nations. This can be a helpful starting point for determining which advisory committee members are eligible to receive stipends to support their participation. See DAC List of ODA Recipients for further information.

Define the Program Goals and Target Audience

Program planning should follow these three key initial steps: 1) develop goals, outputs, and outcomes that take into account unique community needs (which can be achieved through conducting a needs assessment before implementing the program, and by engaging the target community throughout the program design and implementation), 2) set the scope of activities, objectives, and deliverables, and 3) define who the program or activity is targeting, including the definition or parameters for *early-career*, if applicable.

Common, broad examples of program goals include:

+ Providing opportunities to support career/project development

+ Preparing early-career ocean professionals for leadership roles

+ Growing technical and scientific capacity to address ocean challenges

+ Enabling exchange of knowledge and perspectives

among local, regional, or international ocean communities

+ Fostering connections and building a sense of community among ocean practitioners

+ Promoting DEIJA values and practices

+ Increasing the retention/success of ocean practitioners in a given field or workplace

Set the program goals to be as explicit as possible. Programs should also clearly identify whom the program is targeting and determine criteria for participation. This will vary depending on the program goals since individual needs differ based on prior opportunities, funding, and education in a given region, and because people at different career stages benefit from different types of training. Criteria should be defined for both mentors and mentees and may include things like years of work experience, language(s) spoken, geographic location (or ocean basin), relevant skills and expertise the participants wish to share and/or acquire, or sector (public, education, science, resource management, legislative, etc.).

Diving Deeper:

The UN Decade of Ocean Science for Sustainable Development ECOP Programme states that an early-career ocean professional (ECOP) is a person that self-identifies as being early in their career, with 10 years or less of professional experience in any field related to the ocean. This definition is not limited to employed/paid positions and the term "professional" is used to be inclusive of individuals working across different sectors.

Decide the Appropriate Mentorship Structure

There are several types of mentoring relationship structures (listed below), which may be more or less relevant depending on the program goals and/or availability of participants. Coordinators may choose to implement a combination of these structures to best meet the needs of their audience.

SENIOR-TO-JUNIOR MENTORING

A well-qualified and more experienced mentor is paired with a more junior mentee to offer career or project-related guidance and advice. This traditional, one-on-one structure supports career development for mentees and helps them build their professional network and prepare for leadership roles.

PEER-TO-PEER MENTORING

Peer mentors are participants at similar career stages or experience levels, where neither or none of the mentor(s) has an obvious senior role. This structure is useful for encouraging co-learning and building a community amongst participants and is often utilized during onboarding into a workplace or program. Peer-to-peer mentoring may either consist of *peer groups* or a one-on-one structure.

REVERSE MENTORING

Reverses the traditional one-on-one mentorship structure so that the junior/early-career participant serves as the mentor to a more senior mentee. This structure exposes leaders to new perspectives and can help provide participants from underrepresented backgrounds with a direct voice to leadership.

GROUP MENTORING

One or several mentors advise several mentees simultaneously. This structure may be useful for organizations where recruiting mentors is difficult due to the time commitment required or the unequal balance of participants across career stages. This is also useful if mentees have undergone a similar training/experience/ course together or are part of an existing *cohort*.

CO-MENTORING

Multiple mentors are assigned to one mentee. This structure can be useful for helping the mentee gain multiple perspectives and ensuring they have continuous support if a mentor is unavailable for every meeting or must take leave during part of the program (e.g., for fieldwork or other commitments). Although this approach requires involvement from more mentors, it can also reduce the time burden placed on any single mentor.

Mentoring relationships can also vary in the degree of formality or level of involvement expected of mentors and mentees:

+ **Formal Mentoring**: The program is more structured with a set duration, meeting frequency, and longer-term goals and outcomes. In formal relationships, there should generally be a clear alignment between the mentee's desired career path and the mentor's professional experience or subject matter expertise.

+ **Informal Mentoring**: The program structure is more fluid and mentees can seek out mentors for timely advice and guidance as needed. This reduces the time commitment required of mentors and exposes mentees to a broader network, but mentors and mentees may not build as deep or meaningful relationships. Informal mentoring relationships often consist of more generalized coaching or support.
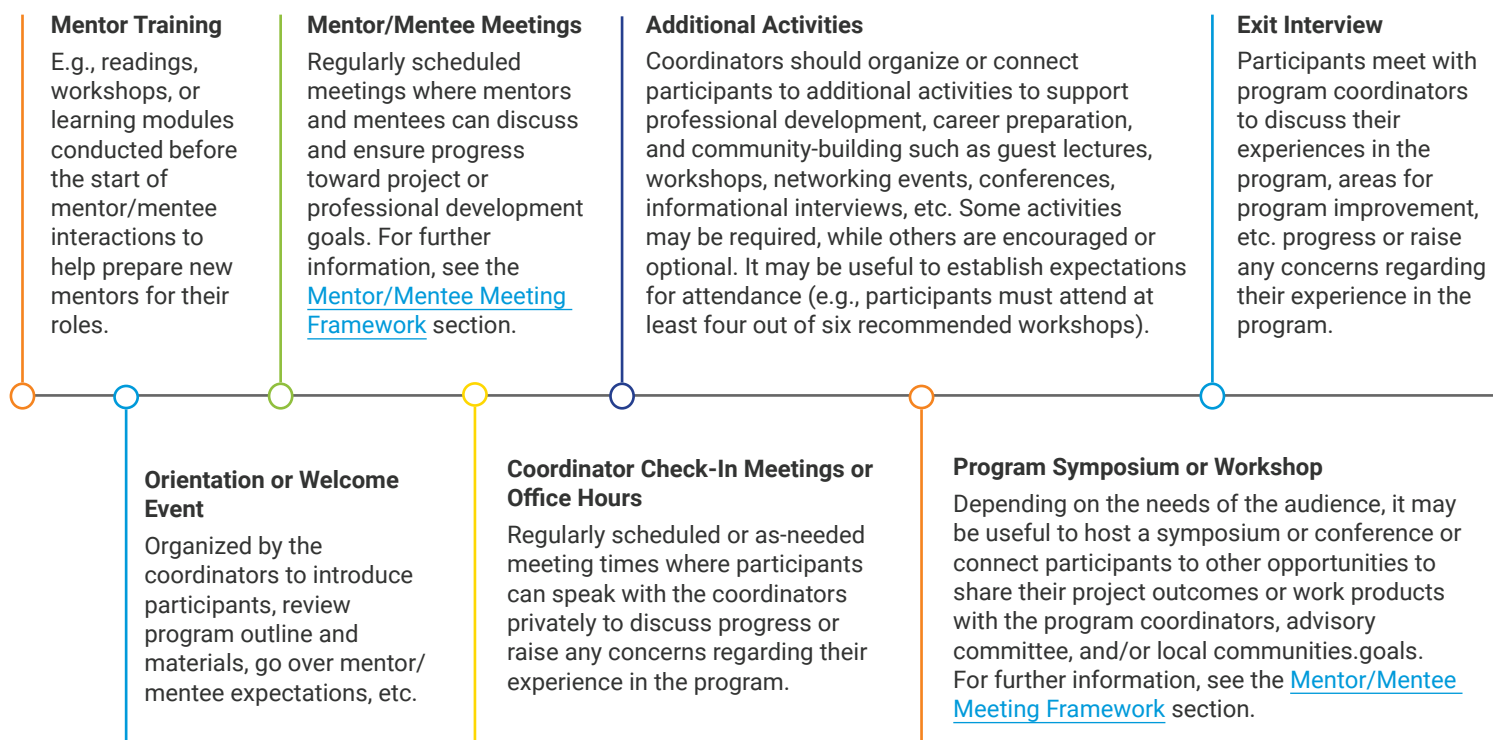
Set the Program Timeline and Scope of Activities

To develop the program timeline, coordinators must first define the duration/longevity of the program, expectations for the frequency of mentor/mentee meetings, and the schedule of program activities, milestones, or deliverables.

The program duration will vary depending on the goals of the mentoring relationship, from short-term (e.g., several months for infrequent flash mentoring or courses, workshops, field campaigns, etc.) to long-term (e.g., one or more years over the course of a project, position, degree program, etc.). The duration may also be determined by the availability of funding or other resources. For example, project-based mentorships may have limited funds or equipment to support projects beyond a certain length or cost. All mentoring programs should establish a fixed duration of some length so that participants can

benefit from new partnerships, increase their network, experience a sense of accomplishment from completing the program, and have an opportunity to exit as needs and priorities evolve.

The program timeline should specify the frequency of mentor/mentee meetings (e.g., monthly) and include a schedule of program activities. This could include any cohort or coordinator meetings, trainings, milestones, or project deliverables. Examples of common activities that may be included in the timeline are shown in the graphic. However, programs may vary in duration as well as the types, number, and frequency of activities included. Program coordinators should structure the timeline and activities based on the program's goals, availability of resources, logistical feasibility, among other factors.

Mentor Training
E.g., readings, workshops, or learning modules conducted before the start of mentor/mentee interactions to help prepare new mentors for their roles.

Mentor/Mentee Meetings
Regularly scheduled meetings where mentors and mentees can discuss and ensure progress toward project or professional development goals. For further information, see the Mentor/Mentee Meeting Framework section.

Additional Activities
Coordinators should organize or connect participants to additional activities to support professional development, career preparation, and community-building such as guest lectures, workshops, networking events, conferences, informational interviews, etc. Some activities may be required, while others are encouraged or optional. It may be useful to establish expectations for attendance (e.g., participants must attend at least four out of six recommended workshops).

Exit Interview
Participants meet with program coordinators to discuss their experiences in the program, areas for program improvement, etc. progress or raise any concerns regarding their experience in the program.

Orientation or Welcome Event
Organized by the coordinators to introduce participants, review program outline and materials, go over mentor/mentee expectations, etc.

Coordinator Check-In Meetings or Office Hours
Regularly scheduled or as-needed meeting times where participants can speak with the coordinators privately to discuss progress or raise any concerns regarding their experience in the program.

Program Symposium or Workshop
Depending on the needs of the audience, it may be useful to host a symposium or conference or connect participants to other opportunities to share their project outcomes or work products with the program coordinators, advisory committee, and/or local communities.goals. For further information, see the Mentor/Mentee Meeting Framework section.

Diving Deeper:

Participant time zones should be taken into consideration when planning any required or recommended program activities. Asynchronous or recorded resources can be a useful way to support equitable participation across countries/regions. Program coordinators can use online tools such as a world clock, time zone converter, or availability polls to easily compare meeting times and participant schedules.

Program Planning:
Key Takeaways

The two types of leadership roles that need to be established first when forming any mentorship program are the program coordinator role and an advisory committee.

✔ There are several types of mentorship structures, which may be implemented individually or in combination to best meet the program goals and/or participant availability and needs.

✔ Fostering strong and frequent communication at the beginning of the mentorship program will lead to deeper connections, collaborations, and success later in the program.

✔ Explore opportunities to engage the target community throughout the program design process and make an effort to identify and align with other relevant programs in the region or field.

✔ Set clear and descriptive goals and outcomes. This will help define a more accurate timeline for the overall program.

Recruiting & Application Process

Marketing and recruitment efforts should be part of an intentional and inclusive process that utilizes new, traditional, and location-appropriate communication channels to attract diverse participants for both the mentor and mentee roles. Program coordinators should take proactive measures to engage local communities by leveraging connections within the advisory committee and professional associations, universities, nonprofit organizations, government agencies, and civil society.

Advertising the Program

It is important to clearly convey how the program promotes **mutual learning** for mentors and mentees, the expected time commitment, as well as any requirements to apply (such as computer and internet access). Depending on the needs and motivations of the program's target audience, it may be useful to focus on a combination of the following benefits when recruiting participants:

- Networking opportunities with new audiences (experts, youth, and/or emerging ocean professionals)
- Completion of educational goals, career advancement, and/or professional development
- Expanded technical skills to support workplace development or fulfill institutional employment needs
- Acquisition and implementation of diverse ocean knowledge and perspectives
- Increased feelings of trust, confidence, and professional satisfaction
- Enhanced leadership, decision-making, and managerial skills
- Enhanced public speaking, organization, and presentation skills
- Improved communications, listening, and **interpersonal** skills
- Opportunities to travel, participate in fieldwork, and/or co-present at conferences, events, or meetings
- Financial compensation, **scholarship**, or funding to support research and/or co-development of projects
- Provisioning of tools, equipment, or infrastructure
- Discovery of new and innovative solutions to ocean health challenges

Reaching applicants from groups that have historically been excluded from ocean career pathways requires particular attention. Inland communities, for example, can lack engagement around ocean and coastal issues, and in the Global South, there are significant gaps in scientific support for ocean observation and research (UNESCO-IOC, 2021; Spalding et al., 2023). To authentically engage diverse participants, first take the time to understand the communication methods and cultural spaces that are most important for reaching the target audience, as well as any locally relevant ocean challenges. In addition to commonly used advertising methods such as websites, email, and social media, marketing materials should be distributed in places where diverse groups congregate (e.g., schools, churches, vocational training centers, markets, businesses, etc.) and in multiple languages, if possible. Program coordinators can also reach out to internal teams, committees, or task forces that are focused on DEIJA initiatives at partner organizations. The number and/or percentage of applicants who come from diverse backgrounds is an important metric for program coordinators to review.

Designing the Application

Typically, applicants are asked to complete an online questionnaire (e.g., a Google Form) to formally register their interest in participating. Mentorship programs that are centered around the co-design of an ocean-related project may also require a proposal that describes the initial project concept. It is important to ask applicants what they hope to gain from the mentorship experience and their expectations surrounding the program. Application forms can also include questions about broader passions, hobbies, or life interests. To determine the best fit between mentors and mentees, the application questions should be closely tied to the pairing/matching strategy (described in the Pairing/Matching section).

Common application questions include:

+ Applicant name, location, age, pronouns, contact information, and/or other demographic information as needed

+ Job title and name of school/employer

+ What is your current career stage?

+ Which language(s) do you speak fluently?

+ Which ethnic group do you most identify with?

+ What technical skills are you hoping to gain/share?

+ What interpersonal skills are you hoping to gain/share?

+ Taking into account your existing obligations, approximately how many hours per week are you available to participate in the mentorship program?

+ Approximately how long can you commit to being involved as a mentor/mentee?

+ How would you describe your current skill level in [insert subject area]? (e.g., novice, advanced beginner, competent, proficient, or expert)

+ What is your preferred communication style? (e.g., verbal, nonverbal, written, or visual)

+ Have you participated in a mentorship program previously?

+ Have you worked internationally or with diverse communities previously?

+ What professional challenges have you had to overcome (or hope to overcome)?

+ What type of financial support might you need to participate at the highest level in the program? (e.g. scholarship, travel funds, conference registration, equipment, etc.)

+ How would this financial support help advance your project/career/educational goals?

+ Briefly describe your ideal mentor/mentee.

Using a single, standardized format (i.e., an online questionnaire) and primarily multiple-choice questions can help simplify the application process, facilitate data analysis, and avoid selection bias. Ask questions that are intended to collect general information about the applicant's background, experience, and goals, but be mindful to avoid questions that may inadvertently favor applicants who come from a place of privilege (for example, someone who has had access to a college education is not necessarily more knowledgeable or experienced than someone who has not been afforded these types of opportunities). Be transparent about the application process and criteria for selecting participants. This could include providing the decision-making criteria to applicants in advance and/or organizing Q&A (Question-and-Answer) sessions, either in person or virtually, to address questions or concerns from prospective applicants. Encourage applicants to reach out if they require any special accommodations as they move through the application process.

Recruiting & Application Process:
Key Takeaways

✔ Advertising efforts should be intentional and clearly convey the anticipated benefits, opportunities, and participation requirements for both mentors and mentees.

✔ It is imperative to reach a broad audience, specifically including underrepresented or marginalized groups, so all potential interested parties are able to participate.

✔ Applications should use a standardized format and ask questions about the applicant's interest in the program, general background, and career goals to help the program coordinators match the mentor/mentee pairs.

Pairing/Matching

Once participants are selected, there are two main ways to assign mentor/mentee matches (or groupings): administrative-led and participant-led. In "administrative-led matching", the program coordinators determine matches, which may be done either manually or using an *algorithm*. Manual pairing allows coordinators to consider a broad range of factors to help create matches where both participants feel comfortable and safe sharing their thoughts, expectations, aspirations, and challenges. This generally requires more time and administrative effort on behalf of the program coordinator(s), which is an important consideration as the program grows. Alternatively, algorithms can reduce the amount of administrative effort involved and, depending on how the algorithm is designed, may be tailored to emphasize specific aspects of compatibility.

"Participant-led matching" gives participants a voice in selecting someone they feel would be most compatible or beneficial to their professional development or desired project outcomes. With this approach, mentees can indicate their preferred partner(s) from a list of available, potential matches either during or after the application process, and the pairing is then proposed to the other party. In any mentorship program, the coordinator(s) should recruit mentors as early as possible and prior to soliciting applications from mentees. By recruiting a pool of mentors in advance, coordinators have the option to share the list of available mentors or their areas of professional expertise and allow prospective mentees to indicate their top choice(s) during the application process. This can help familiarize mentees with the overarching intent of the program and may reduce dissatisfaction

Fostering positive mentoring relationships through effective matching can enhance mutual learning and connection. In laboratory settings, mentorship can play a valuable role in helping ocean scientists exchange knowledge, data, and research skills related to topics such as fish and invertebrate biology.

with the mentor/mentee matches. However, participant-led matching can inadvertently lead to participants choosing a partner they feel comfortable with rather than someone who offers a new perspective or challenges them. Alternatively, both the mentors and mentees may produce ranked lists of their preferred partners, from which matches are then determined by the coordinator(s). With any pairing/matching approach, keep in mind that the ultimate goal is to promote mutually harmonious and beneficial relationships between participants.

Mentoring relationships tend to work best when participants share common interests that can help foster a deep, lasting connection. Participant compatibility can be assessed by several factors, and coordinators can capture this information using thoughtfully designed and specific application questions (see Designing the Application section). Compatibility factors may include career path and stage, institutional affiliation, prior experience in the field or serving as a mentor, and/or preferred communication or mentoring style (some participants prefer more hands-on, structured guidance while others prefer a more informal style). If the program spans multiple countries or geographic regions, consider whether the program will allow "domestic" or "in-house" pairings, i.e., where mentors and mentees are from the same country/region or institution, respectively. For international or cross-cultural pairings, consider practical aspects like language and time zone, as well as ethnic or cultural background, gender identity, etc. This can help identify shared customs

or values and may indicate whether participants will feel comfortable expressing themselves.Resources suggest that mentor/mentee matches are most successful when both participants are reliable, enthusiastic, willing to learn and grow, open to sharing knowledge and perspectives, and have aligned expectations on what they hope to gain from the experience. Mentors are particularly well-qualified when they have demonstrated success in regularly setting and meeting goals in their professional or personal lives and have prior experience in community engagement, capacity development, and/or mentoring. In general, formal mentoring relationships are optimal when the mentor has firsthand experience in what the mentee aspires to do professionally and can provide guidance on how to get there. It is less common to pair people with different career paths, expertise, or backgrounds, although this approach may be useful in peer mentoring or when the primary goal is to promote the sharing of diverse perspectives.

Program coordinators can facilitate introductions by emailing both participants and/or setting up the program orientation or introductory meetings. Alternatively, either the mentor or mentee can reach out to their partner, which may work best if mentors/mentees were involved in the matching process ("participant-led matching") through ranking, accepting proposed pairs, etc. Be sure to ask participants what information they are comfortable sharing with their mentor/mentee prior to initial meetings so that each party is fully prepared.

Pairing/Matching:
Key Takeaways

✔ There are two main ways to assign mentor/mentee matches that vary in terms of participant input and administrative effort: administrative-led, where program coordinators determine the match, or participant-led, where the mentee chooses their mentor.

✔ Recruiting a pool of qualified mentors prior to recruiting mentees is advised so that potential participants know what to expect or have the option to indicate their preferred mentor, and so program coordinators have a sense of the skills/expertise available.

✔ Prioritizing matches among participants that share common interests can increase compatibility, which is important for the success of the mentoring relationships and can be assessed through a variety of mechanisms.

✔ The most successful matches occur when both parties are reliable, enthusiastic, share common interests, and are willing to grow together throughout the process.

Communications

To foster a sense of community among previous, current, and prospective participants, program coordinators should establish and maintain clear communication channels. External communications (public-facing) can help to support advertising, recruiting, and fundraising efforts, while also enhancing the visibility and credibility of the program. Internal communications (between participants, advisory committee members, and/or coordinators) can support participant performance and engagement, build trust, and facilitate an inspiring environment in which people feel safe sharing their ideas. Encourage mentors and mentees to discuss their preferred communication methods, frequency of communications, and timeframe to respond to one another during their initial meetings.

The following tools can be used to support communications before, during, and after the mentorship program:

+ **Online Presence**: At a minimum, coordinators should create and maintain a simple web or social media page (e.g., a Facebook page) that describes the program, provides contact information for the program coordinator(s), links to the application form, and explains how and when to apply.

+ **Internal Database**: Coordinators have a responsibility to maintain a database (e.g., using Microsoft Excel or Google Sheets) of individuals who have been involved with the program in some capacity, including past participants, current pairs/groupings, applicants, etc. The database can help coordinators identify diversity gaps to inform future advertising and recruiting efforts, track participant accomplishments to support program evaluation and reporting and enable smooth transfer of program materials during staff transitions.

+ **Newsletter**: Program updates can be shared through periodic email newsletters or by posting through other means (e.g., listserv, online platform, printed materials, etc.). This helps to keep participants and other stakeholders engaged and up to date on program news and successes.

+ **Social Media or Messaging Apps**: Internet-based tools that cater to international connectivity (e.g., WhatsApp, Facebook Messenger, etc.) can be useful for maintaining contact between participants across different geographies.

+ **Events**: Community-building events (in person or virtually) for program cohorts (i.e., groups of mentors or mentees that participated in the program at the same time) can be a helpful way to create additional connections and facilitate networking among all participants.

Maintaining effective communications can help create a network for participants to stay connected and support each other in the long term. This is particularly true for programs that aim to connect individuals across distinct geographic regions. While coordinators can facilitate opportunities for mentors and mentees to remain in contact beyond the duration of the program, participants are free to dictate their own level of commitment after the program concludes.

Diving Deeper:

Studies show that access to networking opportunities is a significant barrier to entry for 48% of people (The Ocean Foundation, 2022). Mentorship programs are an important mechanism for building networking, communication, and leadership skills among participants.

Communications:
Key Takeaways

✔ Having strong internal and external communication systems in place is essential to coordinating a successful mentorship program, both during the program and afterward.

✔ Facilitating connections and conversations outside of the core program activities can assist with long-term networking and community engagement.

Program Materials

Strong mentorship programs are built on clearly communicated goals, roles, and expectations. A key mechanism for this is developing materials that participants can easily reference throughout the program for information and guidance. If possible (i.e., if funding or other resources exist), work with a graphic designer, graphic artist, or visual designer to create a consistent brand or visual identity for the mentorship program. Distinctive, well-designed program materials can help attract participants, recruit advisory committee members, and engage partners and stakeholders by exhibiting a level of professionalism and visual appeal that enhances the program's performance and credibility.

The following materials should be created and shared with participants, and additional materials may be necessary for internal purposes (e.g., to support the program coordinator with administrative processes like planning, marketing, recruiting and selecting participants, pairing/matching procedures, and evaluation and reporting requirements). Maintaining records of all activities and materials used is necessary to ensure the program is administered consistently over time, particularly if there is regular or anticipated turnover of coordinators or other program leadership roles.

Program Summary

An outline of the general program goals, deliverables, and structure (type of mentorship, timeline, etc.). Coordinators may wish to include information on how mentors/mentees are selected and paired for transparency in the process. This may also include general information on the benefits of mentorship program participation, commitments to DEIJA values, and the history, mission, and track record of the program and/or organizations involved.

Detailed Program Schedule

A detailed schedule of program activities that communicates the duration of the program, frequency of mentor/mentee meetings, dates and times of activities, deadlines for major milestones or project deliverables, timeframe for program evaluation, etc.
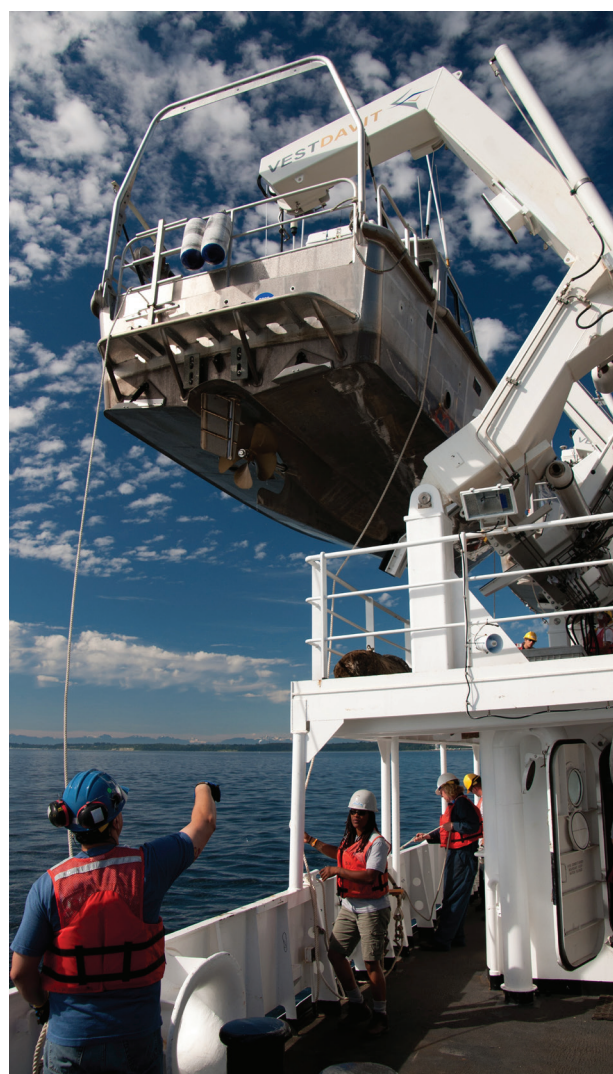
Mentoring can be a useful training component for ocean practitioners who work at sea on marine research and exploration vessels, particularly for women, minorities, and people of lower socioeconomic backgrounds who may have less access to mentoring opportunities (Brown-Nagin, 2015).

Roles and Responsibilities, Code of Conduct, and Pledge Form

Provide a clear description of roles and responsibilities for mentors, mentees, and program coordinators. A code of conduct should also be included to describe expectations on the treatment of others, avenues for reporting inappropriate behavior, and any disciplinary actions (e.g., removal from the program) that may be taken if the code of conduct is not followed. Programs should also include a pledge form or other written commitment where participants and coordinators can confirm that they have read and understand their responsibilities, as this is an effective method for promoting involvement and accountability (McKenzie-Mohr, 2011).

Mentor/mentee expectations may include:

+ Participating in program meetings and activities, including required reporting to the program coordinators

+ Maintaining open communication, availability, and accessibility throughout the program

+ Active listening and being willing to give and receive feedback with empathy, respect, discretion, and non-judgment

+ Willingness to participate in program evaluation methods

+ For cross-cultural pairings, tolerance and respect for each other's differences

+ If financial or infrastructure support is provided, commitment to proper use, grant reporting requirements, and/or public recognition/acknowledgement

Coordinator roles and responsibilities typically include:

+ Transparency in all aspects of program coordination

+ Establishing and supporting mentorship pairings, groupings, or teams

+ Communicating relevant program information, professional development opportunities, etc. in a timely manner

+ Providing logistical support (e.g., planning/scheduling meetings, maintaining program records/materials, providing funding/infrastructure/equipment, etc.)

+ Fundraising to procure financial support for the program and/or participants

+ Leading program evaluation and reporting efforts

+ Providing avenues for mentors/mentees to report problems (e.g., with the program, pairings, etc.) and addressing participant needs/concerns

Mentorship can be an important element of capacity building related to water sampling, testing, and monitoring projects around the world. Program materials should provide a clear framework for project communications, accountability, and expectations to guide participants toward success.

Mentor/Mentee Meeting Framework

Agendas and discussion topics for mentor/mentee meetings can be useful to keep participants on track towards career/project development. In practice, some mentorship program participants have reported preferring an unstructured "safe space" to talk and check in, while others prefer programs with clear agendas and goals for each meeting. Coordinators should provide a meeting framework that consists of a suggested agenda, discussion topics, or worksheets to help participants document and summarize meeting outcomes. The meeting framework should also include the expected frequency of meetings as well as guidance on how participants can contact each other between meetings. Maintaining consistency in the frequency and duration of meetings is important. Templates for mentor/mentee meetings and project development are useful to help guide participant discussion and progress. Templates are available online through a variety of resources (e.g., mentoring platforms and software, university programs, professional societies, etc.), which we encourage program coordinators to use or look to for inspiration in designing more program-specific meeting frameworks or discussion templates.

The meeting framework should include guidelines that encourage participants to openly discuss their goals/ expectations, what they hope to achieve through the program, relevant backgrounds/skills, and ideas for potentially drafting a professional/project development plan. Share discussion questions in advance to give adequate time for reflection prior to meetings. In addition to offering structured questions that are intended to assist participants with setting goals or expectations for the program, also provide questions that are fun and engaging to stimulate conversation and build rapport among participants. The program coordinator(s) should attend initial mentor/mentee meetings to facilitate a productive and reciprocal conversation.

Possible discussion questions include:

- What are your project/career goals?

- What is the next step you would like to take in your career?

- What resources, networking opportunities, or skills would you like to access or share?

- What kind of mentoring/communication style do you prefer?

- What is the most interesting thing you have learned about [insert subject area] recently?

- What is the most exciting thing you have done?

- What is something you are especially proud of?

- If you could visit any beach in the world, where would you go and why?

Future meeting agendas should include time for participants to share progress updates related to their professional or project goals, as well as any challenges they are facing.

Mentoring programs can take many forms, with some participants preferring more hands-on, structured guidance and others preferring a more informal mentorship style. In either case, mentor/mentee meetings are useful to keep both participants on track toward career or project development.

Professional or Project Development Plans

Professional or project development plans can be used as a tool for participants to formalize their goals and expected outcomes and determine steps or milestones for achieving these targets. Development plans can also be a helpful mechanism for mentors and program coordinators to monitor progress. Templates/worksheets should be provided to guide development plans so that all participants have a clear understanding of how to set and reach their professional or project goals. Encourage participants to be as specific as possible, envision both short-term and long-term goals, and revisit/reassess these goals throughout the program to evaluate progress. In general, mentorship practices and professional development planning should be based on the goals and expectations of the mentee(s) and carried out with the support and guidance of their mentor.

Additional Resources

Additional resources can be provided to enhance participants' experiences in and beyond the mentorship program. For example, connecting participants to established ocean professional networks/societies, meetings, and funding or professional development opportunities is recommended, as this encourages their integration into the broader ocean practitioner community after they have completed the program. It is particularly useful to focus on local opportunities if the program is focused in a specific region or area, especially in regions where internet connectivity, access to online resources, or funding for international travel is limited. Sharing educational resources (e.g., books, videos, online modules, etc.) can facilitate learning opportunities on specific ocean topics. Additional resources on mentoring may also be beneficial, especially for mentors who are serving in this role for the first time.

Diving Deeper:

The term "SMART Goals" refers to setting goals that are Specific, Measurable, Achievable, Realistic, and Time-bound. This is a useful approach for reinforcing accountability and helping ensure the mentorship program remains on track. Other variations include "SMARTER Goals" which adds Evaluated and Revised to the SMART Goals framework and "SMARTIE Goals" which refers to goals that are Strategic, Measurable, Ambitious, Realistic, Time-bound, Inclusive, and Equitable.

Program Materials:
Key Takeaways

✔ Well-designed program materials are creative, informative, visually appealing, and to the point. Program materials are used as a tool to support participants throughout the mentorship program and to help keep track of major milestones.

✔ Materials can and should be developed based on available references, such as those in this document and from other mentorship programs.

✔ Mentor/mentee meetings should be formatted based on the preference of both parties (i.e., more structured versus more casual) and should remain consistent throughout the project.

✔ Goals should be well-defined, achievable, and consistently monitored throughout the process. Professional development plans are useful for keeping participants on track to achieve their goals during the mentorship program.

Evaluation & Reporting

Evaluation is another important component of any mentorship program to encourage continual improvement and provide opportunities for participant input and adaptive management. Program coordinators must set measurable goals and assess the success of the program over time, including asking for feedback from the mentees and mentors (Morrison et al., 2013). In early communications with participants, provide a brief outline of the evaluation process and expectations for participant involvement. While a thorough review of evaluation approaches is beyond the scope of this Guide, we summarize several relevant tools and metrics below. Interested readers should refer to other literature (e.g., Odell, 1992; Haddock-Millar et al., 2018; NASEM, 2019) for additional guidance.

Several tools or instruments may be used for evaluating the effectiveness and impact of the mentorship program, such as:

Application Forms: to assess program demand based on the number and diversity of applicants; there are several free online resources available for administering forms and surveys (e.g., Google Forms)

Program Surveys: to gather quantitative and qualitative data to assess changes in participants' perceptions of their knowledge and skills, or impact on future behaviors and aspirations (it is helpful for surveys to be anonymous so participants feel comfortable responding openly and honestly); surveys may be collected pre-, post-, or mid-program, or at other regular intervals (e.g., annually or semi-annually)

Focus Groups: to gather qualitative data and reveal similarities and differences between participants' attitudes, feelings, beliefs, and experiences around a specific program aspect

Final Presentation/Report: to assess the "final product" of program participation and how much participants learned after the program has reached completion

Interviews/Testimonials: a follow-up step after analyzing other evaluation data to gather qualitative insights related to program satisfaction, processes, and competencies

Webpage Visits, Social Media Impressions, Email Subscribers/Views: to gather analytical data about outcomes of program advertising and communication methods

Diving Deeper:

Adaptive management refers to making adjustments as the mentorship program progresses and evolves. This proactive approach encourages close monitoring, incorporating flexibility into the design of the program, and making decisions that are responsive to unexpected changes or new knowledge/information.

These tools can be used to gather key metrics, which should be aligned with the overarching goals and expected benefits of the mentorship program. Metrics should be continually considered as the program progresses and refined as insights into program results are gained. Useful evaluation metrics may include:

- Number and diversity of participants
- Number of participants who integrated subsequent changes into their programs (skills development and application of learning)
- Number of degrees, certificates, or promotions awarded (educational/career advancement)
- Number of presentations given at conferences or events
- Number and type of projects co-developed (reports, videos, websites, policies, etc.)
- Percent program satisfaction (including with matching/pairing, coordinator support, etc.)
- Percent increase in sense of career confidence, trust, etc.

- Number/frequency of communications or meetings conducted during the program
- Frequency/longevity of communications maintained after the program
- Number of participants who later transitioned from the mentee to mentor role
- Number of additional sources of support (funds, partners, etc.) leveraged for future projects/research
- Number of participants who wish to be featured in a program newsletter
- General/descriptive feedback about participant experiences with the program

While also useful, conducting evaluations of changes in behavior is inherently complex and generally requires long-term observation of participants. Although this is beyond the scope of most mentorship programs, it can be possible with support from an expert evaluator or by consulting behavioral change resources (e.g., McKenzie-Mohr & Associates, Inc., the Center for Behavior & the Environment, Sustainability and Behavior Change Program at UC San Diego Extended Studies, etc). Whichever evaluation tools are ultimately used, it is imperative that the results are used to inform future programmatic changes.

Evaluation & Reporting:
Key Takeaways

✔ Successful mentorship programs include a thorough evaluation and reporting process, which allows coordinators to receive honest feedback to help guide program improvement in the future.

✔ Metrics collected from the evaluation process should be clear and have meaning behind them. Evaluation methods can change over time as the project develops,

provided that the metrics continue to support the overarching goals and expected benefits of the mentorship program.

✔ Coordinators should regularly review and reflect on program evaluation data and make adjustments as needed to better support current and future program participants.

Conclusions

The knowledge, experience, and views of current ocean professionals can create a spark of passion that catalyzes the next wave of ocean experts around the world. Mentoring relationships help to transfer a variety of life skills that are not typically taught in textbooks or online. Mentors can be of any age, and mutual learning occurs when diverse perspectives and experiences are passed on to others with a shared foundation of environmental concern and understanding. An emphasis on relationship-building, global awareness, and DEIJA is particularly relevant for the international community of ocean practitioners. By prioritizing local community input, appropriate training, and effective and intentional communications, mentorship programs can create valuable opportunities for individuals across disciplines and backgrounds to grow and learn, ultimately advancing the ocean community overall. The recommendations presented in this Guide are intended to provide a framework for program coordinators looking to develop, redesign, or improve upon a mentorship program with these key principles in mind. Although mentoring program structures can be as diverse as the international communities of ocean practitioners they are meant to serve, we hope that this Guide presents a starting point for coordinators to develop mentoring programs that are specific to the goals of their organization while addressing the need to develop global capacity and equity for ocean science, education, and conservation.

Mentoring programs can be as diverse as the international communities of ocean practitioners they are meant to serve. They can facilitate a mutual exchange of scientific training as well as traditional, ethical, and social knowledge and practices.

Glossary

Advisory Committee: A group of experts and/or interested stakeholders that provides feedback, perspectives, and recommendations during the development and implementation of a program or project.

Algorithm: A procedure used for solving a problem or performing a computation; a precise step-by-step series of rules that leads to a product or the solution to a problem.

Capacity Development: "The process by which individuals and organizations obtain, strengthen, and maintain the capabilities to set and achieve their own development objectives over time" (UNESCO-IOC, 2021), sometimes referred to as "capacity building", "capacity sharing", "capacity strengthening" "knowledge exchange", "skills sharing", or "partnerships", as influenced by norms, worldviews, and context (Harden-Davies et al., 2022).

Co-Design: An approach by which community members or stakeholders are invited as collaborators in program or project development.

Cohort: A group of participants that go through an entire program together. In cohort-based programs, participants may engage in the same group or educational activities. These programs may be contrasted with those that have more rolling admissions, where participants may start and leave the program at different times and pairings may be more informal.

DEIJA: Diversity, equity, inclusion, justice, and accessibility.

Early-Career: Stage of career development with limited (e.g., 0-10 years) professional experience that includes students, recent graduates, new faculty or program/project managers, etc.

Fellowship: An association of peers or practitioners that generally share one another's interests. Fellowship programs are typically funded, short-term opportunities focused on professional, academic, and/or personal development. Fellowship programs often include mentoring as a major component.

Interpersonal: Relating to relationships or communication between people.

Marine/Ocean Practitioners: Marine research scientists, resource managers, educators, and/or people engaged in the commercial or recreational maritime and fishing industries.

Mentorship: A process of sharing knowledge, skills, and experiences with another person through advising, training, or coaching to help them progress.

Mutual Learning: An outcome of mentoring relationships whereby both the mentor(s) and mentee(s) benefit from new knowledge, experiences, and networks.

Peer Groups: A collection of people who share similar interests, backgrounds, ages, and/or career levels.

Professional Development: A process of gaining new skills, experiences, or networks through continued educational, training, or professional opportunities.

Program Coordinator: An individual who plans, coordinates, and oversees all aspects of the mentorship program.

Scholarship: A grant or payment made to support a person's education or professional development.

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Program Coordinating Checklist

Mentoring programs play a key role in the growth and professional development of ocean practitioners, and are critical for enhancing capacity and engaging future generations of ocean professionals. This Guide to Developing Mentoring Programs for the International Ocean Community is intended to present a framework for mentorship program planning, administration, evaluation, and support. The recommendations presented in the Guide are broadly applicable across ocean disciplines, but can and should be adapted to suit the specific goals and scope of each program. This checklist outlines key steps described in the Guide that program coordinators should follow when developing mentoring programs.

Planning

- ☐ Establish leadership roles and governance structure (program coordinators, advisory committee)
- ☐ Assess budget/funding availability and determine priority areas for financial investment
- ☐ Define the program goals and target beneficiaries (including relevant qualifications and compatibility factors)
- ☐ Perform outreach to any existing or similar mentorship programs in the target region
- ☐ Decide on the program structure, scope of relevant activities
- ☐ Decide appropriate pairing/matching processes
- ☐ Set the program timeline (duration, frequency, milestones, etc.)

Marketing and Communications

- ☐ Connect with local communities and target beneficiaries to determine appropriate communication channels for reaching desired and diverse audience
- ☐ Develop messages about the value of mentoring and the program goals
- ☐ Make the program timeline clear (e.g., deadlines for application, expected duration, etc.)
- ☐ Develop marketing materials (ads, newsletters, website, social media accounts, posts and stories, etc.)
- ☐ Build pathways of communication for existing, former, and prospective participants (e.g., newsletters, mailing lists, Slack channels, etc.)

Recruit Participants and Solicit Applications

- ☐ Design application questions (in addition to basic background/demographic questions, be mindful to design questions in a way that captures relevant compatibility factors)
- ☐ Build questionnaire and a database to capture and store applicant responses and information
- ☐ Share and market the application across appropriate and diverse communication channels to reach target audience
- ☐ Engage the advisory committee in helping to market the program and recruit participants
- ☐ Hold Q&A meetings to provide clarifying information about the program or application process for prospective applicants

Pairing/Matching

- ☐ Decide appropriate pairing/matching processes (administrative- or participant-led, manual or algorithm-based)
- ☐ Select and match participants in accordance with the program structure

- ☐ Communicate participant selection and facilitate match introductions

Create and Share Program Materials

- ☐ Create program materials (e.g., a handbook for participants/program coordinators)
  - ○ Program summary
  - ○ Detailed program schedule
  - ○ Roles and responsibilities
  - ○ Code of conduct
  - ○ Pledge forms
  - ○ Guidance/framework for mentor/mentee meetings
  - ○ Templates for professional or project development
  - ○ Compile any additional resources and materials

- ☐ Share program materials and make them readily available and accessible to participants (either deposit online or share printed copies)
- ☐ Continually update program materials to reflect any changes in the program

Evaluation and Reporting

- ☐ Set measurable "SMART" goals to assess the success of the program over time
- ☐ Develop evaluation and reporting metrics
  - ○ Include required metrics for relevant funding or administrative agencies
  - ○ Incorporate feedback into the program design as needed
- ☐ Update and maintain the database of participant data and evaluation metrics
- ☐ Develop and deploy tools to regularly assess program results and/or participant experiences (e.g., program/participant surveys, focus groups, reports, etc.)

- ☐ Synthesize evaluation data and compile progress reports
- ☐ Communicate program outcomes and successes with participants, partner organizations, and relevant stakeholder groups
- ☐ Engage the advisory committee in reflecting on program outcomes/results