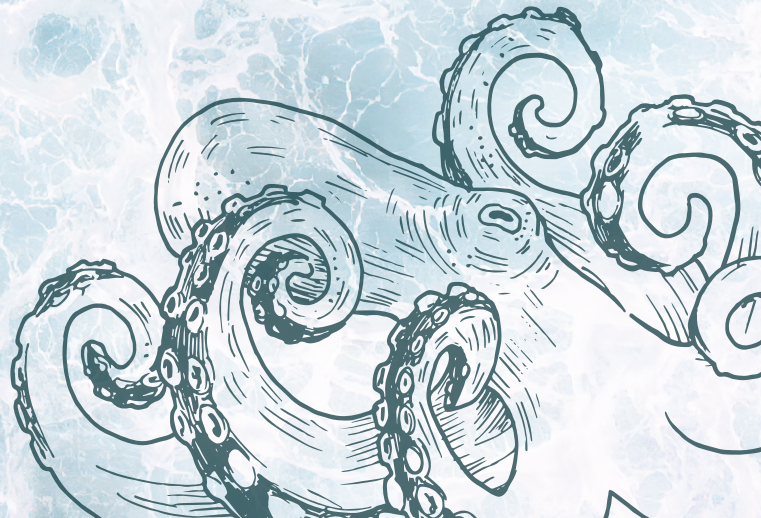


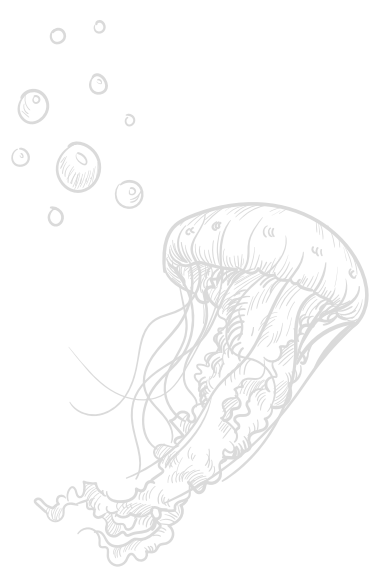


IN KUPE'S WAKE

**A VOYAGE OF EXPLORATION
FROM HAWAI'I TO AOTEAROA**

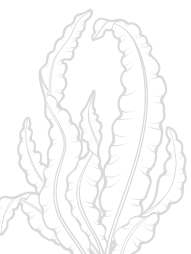
VIRTUAL WORKSHOP REPORT





INDEX

Introduction	5
Background	7
National Pacific Priorities Workshop	8
In Kupe’s Wake Workshop Design	10
In Kupe’s Wake Workshop Summary	12
Principles	14
Guidelines	18
Challenges	24
Next Steps	26
Sponsors	28
Appendix A: Additional Resources	30
Appendix B: Workshop Agenda	32
Appendix C: Council of Elders	34
Appendix D: List of Participants	38



*As ocean
explorers,
we follow in
Kupe's wake.*



INTRODUCTION

In Māori legend, Kupe was the great Polynesian navigator from Hawaiki who discovered Aotearoa New Zealand in the course of pursuing a giant octopus. His voyage across the Pacific links Hawai'i and Aotearoa New Zealand and the Polynesian Islands along the way. As ocean explorers, we follow in Kupe's wake.

Named after the legend, the workshop, In Kupe's Wake, organized by [Ocean Exploration Trust](#), [Schmidt Ocean Institute](#), and [NOAA Ocean Exploration](#), brought together Pacific Island community leaders, indigenous practitioners, and educators, from Hawai'i, Samoa, the Cook Islands, and Aotearoa New Zealand. The two-day virtual gathering, which took place in January 2022, centered around how exploration organizations can engage with Pacific Island communities in Polynesia and build toward collaborative partnerships that serve island needs for sharing ocean science information and educational materials.

Guided by Kumu Ramsay Taum, hui navigator, participants first heard from presenters who shared

perspectives on the relationship between traditional knowledge, wisdom, and western science, providing examples of how these complementary ways of understanding broadened our knowledge of the ocean, and outlined appropriate ways to engage Pacific Island communities. The rich discussion that followed resulted in identifying a series of principles, guidelines, and challenges for the three coordinating entities and other institutions considering ocean research and exploration in Polynesia. Participants stressed that conversations like those that took place during In Kupe's Wake are a critical first step and must be acted on for long-term and continued engagement with Pacific Island communities.



DEEP OCEAN EDUCATION PROJECT



IN KUPE'S WAKE: A VOYAGE OF EXPLORATION FROM HAWAI'I TO AOTEAROA

VIRTUAL WORKSHOP REPORT

In Māori tradition, Kupe sailed from his home of Hawaiki (the legendary home of Polynesians) in pursuit of a giant octopus that had prevented him and his tribe from catching any fish. In chasing the octopus across the Pacific, he discovered Aotearoa, or “land of the long white cloud.” Kupe’s voyage links Hawai’i and Aotearoa New Zealand and the Polynesian Islands along the way, including the Samoas and the Cook Islands. As ocean explorers, we follow in the wake of Kupe and many other Polynesian voyagers as we seek to experience and understand the deep ocean.

BACKGROUND

Ocean Exploration Trust, Schmidt Ocean Institute, and NOAA Ocean Exploration have operated in the Eastern and Central Pacific for many years; expedition details can be viewed on their respective websites. For the next few years, Ocean Exploration Trust is operating E/V *Nautilus* within the Papahānamokuākea Marine National Monument, Pacific Remote Islands Marine National Monument, and other areas within the Central Pacific. Schmidt Ocean Institute is refitting a new ship of ocean exploration and research, R/V *Falkor (too)*, which will be deployed to the Pacific likely in 2023. And NOAA Ocean Exploration will return to the Pacific in 2023 to build upon its successful 2015-2017 CAPSTONE expeditions to explore the then-new Pacific marine protected areas. Each of these organizations has had experience working closely with Pacific Island communities in the past—with notable successes¹²³,—and have made engaging traditional leaders as well as government agencies and ministries a high priority. While each organization has made

efforts to engage the communities they work with, they collectively recognize the need for further and deeper engagement.

The three organizations share a common mission to provide high-quality information and products for educators and others interested in the global ocean. At the [2018 National Ocean Exploration Forum “All Hands on Deck,”](#) which focused on public engagement, the three ocean exploration organizations, along with NOAA’s Education Office, agreed to collaborate to reach educators, align education products where possible, and create a single portal where interested parties could access content from the three organizations. This resulted in the creation of the [Deep Ocean Education Project](#), which delivers the best visual content and lessons directly to educators and the public, displays the current location and activities of each organization’s ship, and other features that make it easy to access this information. That collaboration has continued in hosting In Kupe’s Wake.

1 [Re-envisioning the Collective Voyage for Ocean Exploration](#)

2 [Exploring the Deep Ocean Through Pacific Island Partnerships](#)

3 [SOI 2020 Impact Report](#)

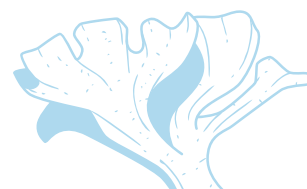


NATIONAL PACIFIC PRIORITIES WORKSHOP

In Kupe's Wake follows a dialogue opened in the 2020 virtual Workshop to Identify National Ocean Exploration Priorities in the Pacific. Hosted by the Consortium for Ocean Leadership, the workshop included a diversity, equity, and inclusion panel that considered the priorities of Indigenous communities in Alaska and across the Pacific. While each of the other workshop panels identified the importance of engaging Indigenous communities in the Pacific, this focused panel provided specific advice on how to establish and build relationships in the Pacific by first understanding key principles. Panel members included distinguished cultural practitioners and leaders from the region. Through presentations and rich discussion, panelists offered key guidance, including:

- ⦿ Indigenous languages preferred terminology, and proper communication are important.
- ⦿ Organizations proposing to conduct exploration should ask how they can contribute to island communities in a positive and meaningful way.
- ⦿ Time is required to build and sustain relationships with Indigenous communities in the Pacific.
- ⦿ Consultation is important, but collaboration is the goal.
- ⦿ Organizations should embrace traditional knowledge systems as complementary and equivalent to science.
- ⦿ Where traditional knowledge from a specific community is used, that community must be engaged to ensure that the knowledge is used in an appropriate way.

As this advice makes clear, ocean exploration organizations must adopt a new mindset for identifying priorities, planning, conducting operations, and delivering results. The Workshop to Identify National Priorities for Ocean Exploration in the Pacific challenged the organizations to do more to understand the culture of Pacific Island communities—both what they hold in common and where they are different—to build relationships with these communities well in advance of expedition planning, and to adapt planning, operations, and sharing of results to include Pacific Island community priorities, cultural protocols, and opportunities to complement traditional ways of knowing.



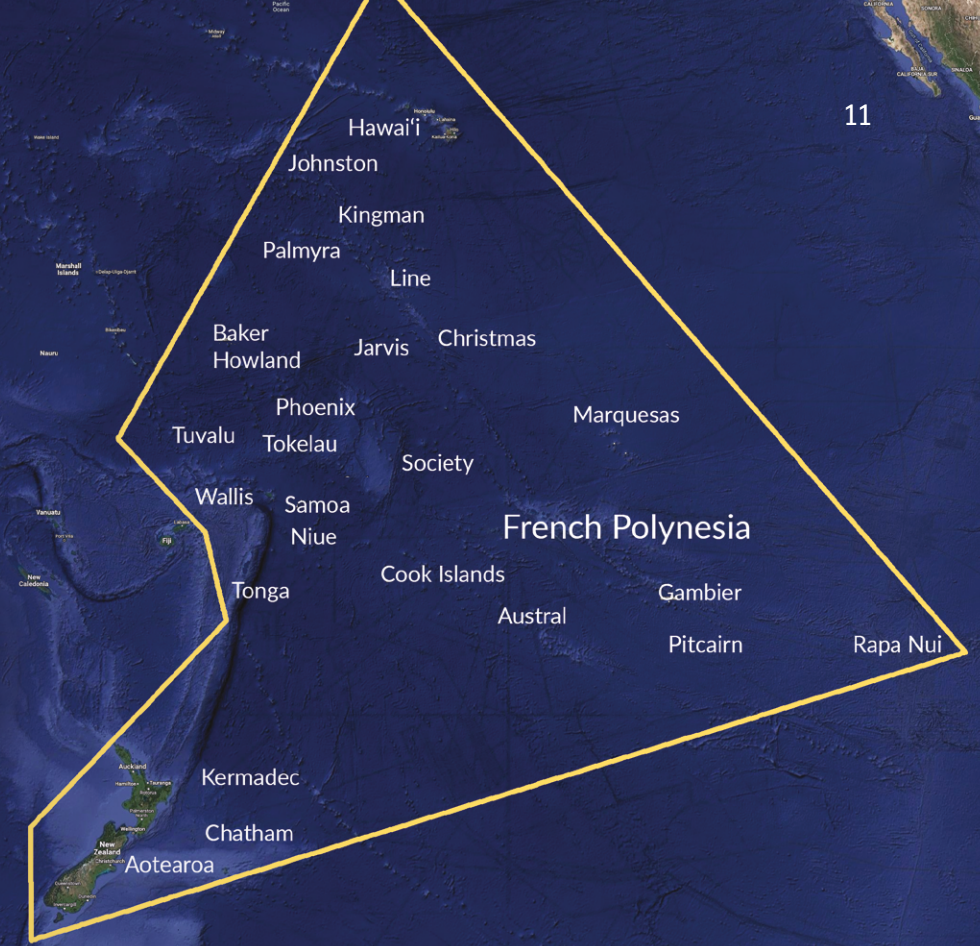
IN KUPE'S WAKE WORKSHOP DESIGN

In Kupe's Wake allowed for a more in-depth discussion of how organizations like Ocean Exploration Trust, Schmidt Ocean Institute, and NOAA Ocean Exploration should think about ocean exploration in the Pacific in collaboration with Indigenous Island communities within the context of the advice panelists gave in 2020.

in the southeast, and Aotearoa New Zealand in the southwest. We are grateful to the Council of Elders, several of whom were panelists in the Pacific Priorities Workshop, for their direction and advice. Kumu Ramsay Taum, Papali'I Tusi Avegalio, Kahu M. Kalani Souza, Bill Thomas (all panelists), as well as Noelani Puniwai of the University of Hawai'i and Jacqui Evans, founder of Moana Foundation. The Council of Elders were integral to the design of In Kupe's Wake and helped ensure that we invited appropriate participants. Dan Hikuroa of the University of Auckland also provided invaluable advice and perspective.

Polynesian Triangle

Ocean Exploration Trust
from Holger Behr - Own work,
[Public Domain](#)



The workshop organizers designed In Kupe's Wake in collaboration with Pacific Priorities panelists, who served as a Council of Elders, to build on the workshop advice. The workshop was also intended to begin to establish relationships across the Pacific through a dialogue focused on educators and their needs for ocean exploration content. The organizers and the Council of Elders decided to focus on the Polynesian Triangle as a starting point, given many similarities in traditional ways of knowing and community structure across the region. The Polynesian Triangle reaches from Hawai'i in the northwest, Rapa Nui (Easter Island)

In collaboration with the Elders, we designed In Kupe's Wake to engage formal and informal educators and Polynesian cultural practitioners in a dialogue about:

- ⌕ How ocean exploration expeditions can provide information in a way that is most useful to Indigenous and local communities;
- ⌕ How to put ocean exploration expeditions in the relevant cultural context; and,
- ⌕ How traditional knowledge and wisdom can inform ocean exploration;
- ⌕ How ocean exploration can be a way to share traditional knowledge and wisdom with non-island communities.
- ⌕ What principles and guidelines should be used to help connect ocean exploration expeditions with educators in Indigenous and local communities;





IN KUPE'S WAKE WORKSHOP SUMMARY

The virtual workshop was held on 18 and 20 January 2022, with a day between to allow for reflection on the presentations and discussion on the first day (see agenda at Appendix B). Kumu Ramsay Taum served as the navigator, or facilitator, for the meeting with support from the other Elders.



‘Nothing about us, without us.’ All too often, ocean exploration and science organizations have discussions about how to engage with Indigenous communities without consulting the communities themselves. ‘Nothing about us without us’ is an important first principle in engaging with Indigenous communities.

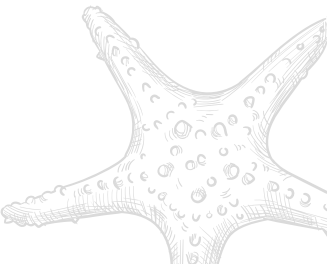
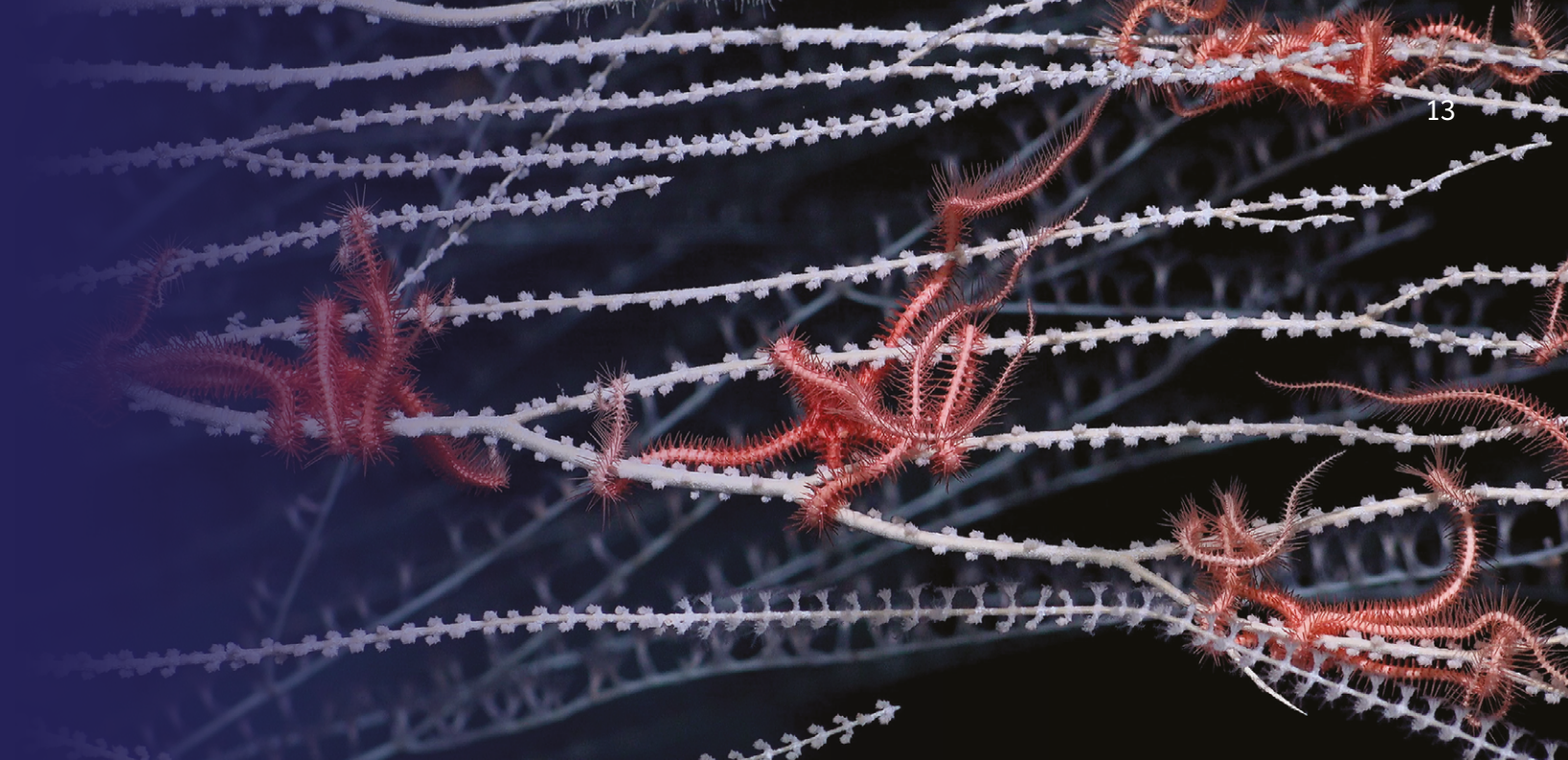
Malia Evans,
Hawai‘i

After opening protocols to start the first day, panelists set the tone and context for In Kupe’s Wake; presentations introduced the convergence of tradition and science, Polynesian ways of understanding, conducting science in sacred spaces, and shared case studies from Papahānamoukūākea Marine National Monument and the Cook Islands. In the active discussions among participants that followed, rapporteurs captured key observations and points of advice. An open chat allowed participants to record additional comments or questions and to share resources. We encouraged participants to post photos that showed their connection to their environment and share reflections they may have had during the day between the two sessions.

Discussion continued on the second day, with the Elders playing an active role shaping the dialogue and responding to questions about the role of traditional knowledge in

science operations, explaining cultural perspectives, or giving examples of how traditional knowledge and science are complementary and indeed essential to a more complete understanding of the ocean world. Participants went into some detail about the obligation of organizations like Ocean Exploration Trust, Schmidt Ocean Institute, and NOAA Ocean Exploration to support students and early-career scientists from Pacific Island communities and provide them with meaningful opportunities to participate in ocean exploration expeditions. The second day concluded with reflections from the Elders urging that the work of building relationships, creating opportunities, and weaving together traditional knowledge and science continue and grow as the three organizations consider ocean exploration and research in the Pacific.

The results of the workshop are outlined below as Key Principles, Guidelines, and Challenges. “Principles” set the general context for ocean exploration and research organizations to reference as they consider working in Polynesia and in other island communities. “Guidelines” offer specific advice from the participants to the organizations entering and working in communities. “Challenges” describe areas where science organizations will likely struggle to reconcile how they typically think or operate with the world view and cultural mores of Polynesia. This summary of principles, guidelines, and challenges is by no means complete. Other important guides and references capture and expand on concepts similar to these (See Appendix A, Additional Resources). As relationships grow in Polynesia, new guidelines and challenges will emerge in time.



PRINCIPLES

” One of the important foundations in linking together science, mātaranga Māori, and traditional knowledge is to be super careful about and to understand the role of world view and therefore important concepts like whakapapa (the Māori system of understanding one’s identity in a wider context of family and natural systems).

Dan Hikuroa,
Aotearoa New Zealand

Multiple worldviews exist at once; these worldviews orient our understanding of the natural world. Traditional knowledge has been developed over thousands of years, is empirical, and has similarities with scientific knowledge—for example, traditional knowledge is based on hundreds or even thousands of years of observations of the natural world. It is also experiential (as opposed to experimental) and relational in that it sees individuals as part of the same ecosystem, whether that is Papatūānuku (Māori), Papahānaumoku (Hawaiian) or Tina Lalolagi (Samoan) and therefore related to everything, living and non-living. It is crucial to see traditional worldviews and scientific world views as both separate and complementary.

Without language, there is no knowledge. A traditional approach means opening oneself up to receive knowledge rather than being the agent of creating it. While in some languages words are labels, in native language systems, words are descriptive and sometimes prescriptive. Understanding and valuing the knowledge contained within language is an important first step toward a collaborative partnership with Pacific Island communities.

Polynesians traditionally see the ocean as sacred. It is the place of ancestors, the home of gods. Accordingly, from a Polynesian perspective, ocean exploration is a spiritual activity in a sacred space. This spiritual, ancestral, and sacred context must frame the pursuit of scientific knowledge. There is no knowledge without understanding the relationships among the living and the spiritual; the ancestors, the present and those that have yet to be born.

”

Indigenous people have, can, and do systematically acquire scientific knowledge through observations, through experiment, and through theoretical explanation. This Indigenous knowledge is a different way [than western science] of approaching the same thing.

Papail'i Failautusi Avagaliao,
Samoa and Hawai'i

- To Polynesians, the ocean has intrinsic value and merits; understanding and protection on that basis alone—not just, for example, that sustainable management of ocean resources creates economic value.
- Protocols and ceremonies⁴ define appropriate ways of interacting with Indigenous peoples, their communities, and biocultural resources like animals, geological features, and the ocean space itself. Including appropriate protocol (and individuals to lead protocols) in ocean exploration activities is an essential part of collaboration with Pacific Island communities.
- In building relationships, ocean exploration and research organizations should be mindful that Pacific Island communities ultimately feel comfortable enough to invite the organizations into their ocean to conduct operations. A mindset that assumes the work will take place whether or not the organization is invited to explore or to conduct science is not one that respects the people and culture of Polynesia.

⁴ Protocols are rules regarding how certain activities are to be executed in ways that respect traditional ways of being; that is, how participants must conduct themselves. Ceremonies invite the Polynesian pantheon to ask them for permission to engage in their spaces (earth, sky, ocean) and to witness the actions that we take.



As a Cook Islander who grew up in New Zealand, I thought by living in the Cook Islands I'd be able to conduct my research and as a by-product, I would learn about my culture and language. But I was wrong. It was the other way around; by living in the Cook Islands I was able to learn about my culture and language and as a by-product, I was able to conduct my research.

Ant Vavia,
Cook Island



- ⊗ Relationships with Pacific Island communities must be reciprocal and not transactional; collaboration should not be a means to an end (such as securing a research permit), but a relationship that gives to communities as communities share traditional knowledge. A reciprocal relationship involves commitment, time, and trust.
- ⊗ Importantly, community members should identify the needs of local communities, not presumed by researchers coming into the region to work. Typical planning timelines will need to change as relationships and the trust they earn take time to establish and to nurture.
- ⊗ Ocean exploration and research, done in collaboration with Pacific Island communities and in ways that create benefits for them, can help connect individuals to their heritage and the natural world.
- ⊗ Interactions should take place in the context of family and kinship. Stewardship follows closely. Families are not always harmonious, but work together to resolve issues to the benefit of all. This way of thinking is fundamentally different from how organizations might normally approach planning, operations, and conduct of ocean exploration activities. Again, it takes time to establish a familial-like partnership, and so the work of building relationships must begin much earlier than the time typical ocean exploration expeditions dedicate for planning.
- ⊗ Ocean exploration and research can help connect island communities across Polynesia and Oceania. There is an urgent need for scientific understanding to be shared across the Pacific and, in so doing, help establish (or reinforce) cultural and science-based relationships among different communities.



It's important to recognize the distinction between knowledge and wisdom. In Kupe's Wake collected knowledge, which is documented in this report.

But wisdom is knowledge put into practice: what will organizations do differently as a result of our workshop?

Ramsay Taum,
Hawai'i

- ⊗ Conversely, a collaborative approach creates opportunities for ocean exploration organizations and the scientific community they work with operate in ways that shift their perspectives on how they plan and conduct science. These organizations can—and should—then share their new understanding and approach with others in the ocean exploration and science community to help encourage better ways of engaging with and weaving together Indigenous community interests and concerns and science.
- ⊗ If there is an urgent need for knowledge that meets Pacific Island communities' requirements for information that helps them understand and manage the ocean resources under their care, there is an equally urgent—and longer-term—need for members of these communities to have opportunities to become scientists (in the current “Western” sense of science) themselves and to see a career ladder that permits Pacific Island scientists to enter and remain in the field. Ocean exploration organizations are uniquely well positioned to offer many of these opportunities.
- ⊗ Education is a fundamental need across Polynesia and Oceania. But needs are different than simply providing materials. Ocean exploration activities and the scientific discoveries that result need to be woven together with traditional knowledge and wisdom, and delivered through local channels. Ongoing engagement beyond delivery of education materials is needed, including opportunities for teacher training, classroom engagement with ocean exploration expeditions, and other activities that can take place long after the expedition is over. These needs change the typical planning and budgeting processes ocean exploration and research organizations use and will require longer lead times and more funding dedicated to education, data sharing, and community engagement.

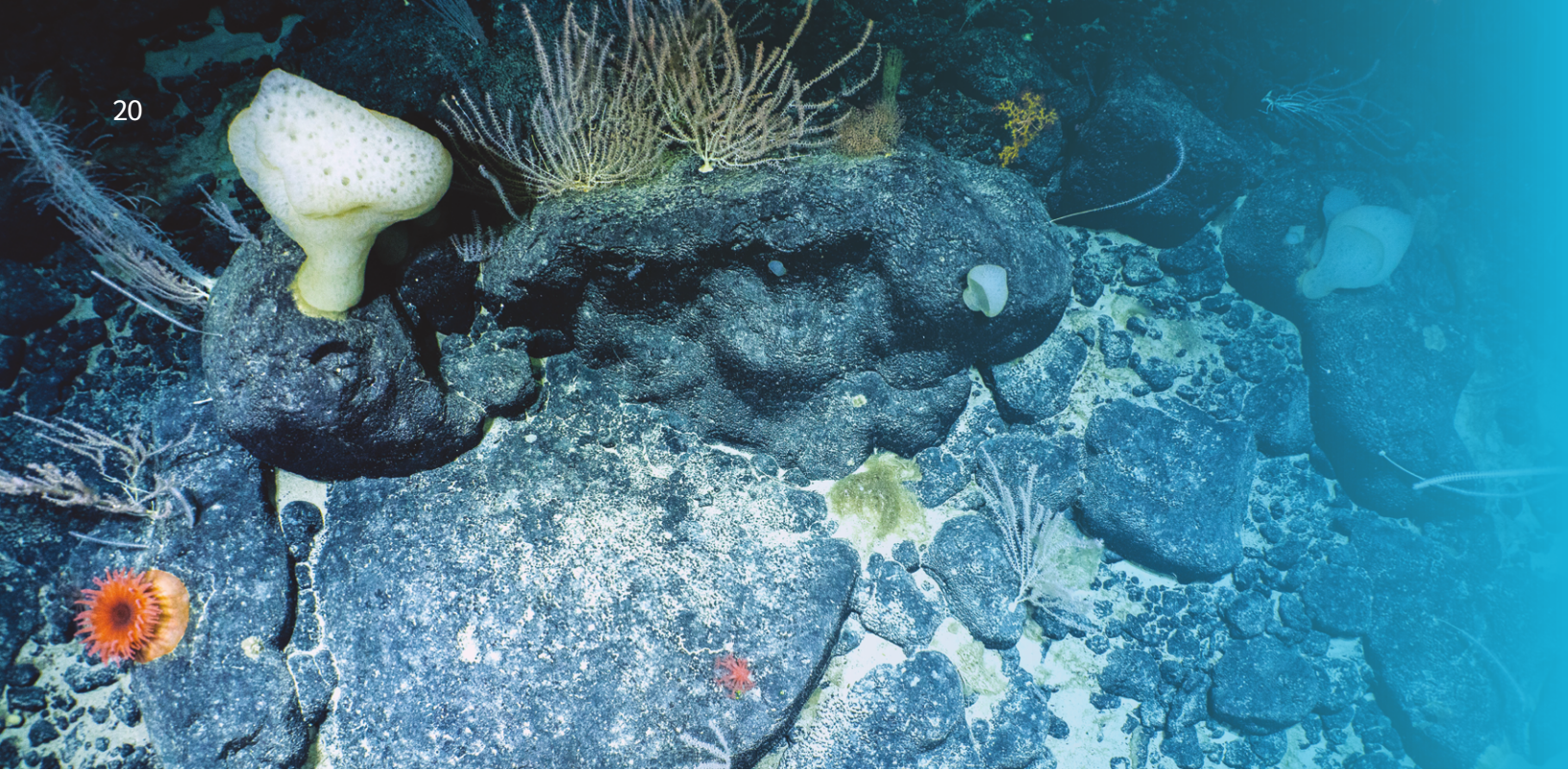


GUIDELINES

One of the important foundations in linking together science, mātaranga Māori, and traditional knowledge is to be super careful about and to understand the role of world view and therefore important concepts like whakapapa (the Māori system of understanding one's identity in a wider context of family and natural systems).

Dan Hikuroa,
Aotearoa New Zealand

- ✕ Weaving appropriate protocol and ceremony into expeditions and integrating the concept of asking permission to explore builds an intimate connection to places and communities that helps to create a richer understanding of what is discovered (or made visible) during expeditions.
- ✕ The focus of this workshop was on Polynesia and communities across Polynesia. While there are many commonalities among different islands and cultures, they are not homogenous, even within island groups. Ocean explorers and researchers must understand and respect differences and adapt accordingly—which is not possible without investing in relationships in advance.
- ✕ Science questions should originate with place and address local community needs; the community needs to have equity in the exploration activities proposed. For this to happen, Indigenous communities must participate from the first stages of expedition planning as partners and collaborators, must have opportunities to participate in expeditions at sea and on shore, and be part of the process of assessing and analyzing results. Funding agencies and organizations that work off of proposals submitted by researchers must encourage those individuals to demonstrate understanding of local community needs and a commitment to collaborating with local community members in their ocean exploration and outreach efforts.
- ✕ Ocean exploration and research organizations should build trust by asking how they can contribute to a community's well-being and wholeness as a starting point. They should seek to co-develop strategies for action that can be taken by ocean exploration and research organizations to ensure community needs are met.
- ✕ Relationships build an architecture of participation and engagement. A prescriptive checklist of actions for an organization to take is not useful because it does not account for the fluidity and reciprocity a relationship entails. For example, this report contains useful information for organizations planning ocean exploration work in the Pacific. But the relationships established in advance will determine whether an organization's work is relevant to Island communities, not the organizations' own interpretation of this report's recommendations.
- ✕ Relationships can help address in advance concerns that ocean exploration information might be used for extractive purposes (for example, deep sea mining) or to further past ocean resource degradation. There is often a mistrust of science that is based in a perception that science is conducted for the scientist's sake and does not benefit the community or accrue benefits to the living and non-living ecosystems in which the work is taking place. It can take time to replace this often justified mistrust with confidence that the work proposed will benefit the community.



”

Polynesian culture, its way of understanding, and its traditions are rich and complex. We need to do our homework, like learning the stories, learning the histories—and not assuming it’s someone else’s job to teach us. Just as if we’re going to go into a lab, we learn the methodology. We study all of the techniques we need to use. We read the manuals of the machines we’re going to use. We should do the same when we go into a space to understand the cultures that are present.

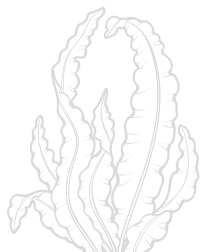
Noelani Puniwai,
Hawai‘i







- ⊗ Ocean exploration and research organizations should create space for cultural practices and protocol—which are too often added on as an afterthought, if at all. Similarly, organizations should work with community educators to weave together Indigenous knowledge and science results to ensure traditional knowledge is not an afterthought.
- ⊗ Through relationship building and dialogue, ocean exploration and research organizations should seek to establish a shared definition of what science is from the perspective of different world views. They can create opportunities to co-interpret data from these different perspectives. In doing so, organizations should address concerns about science observations being torn from the place in which they were taken and so removed from the right cultural, community, and geographic context. Again, this will require different approaches or methods for data gathering as well as for data-sharing and archiving than typical ocean exploration or ocean science organizations practice. Improvements in current data sharing and archiving and new products that deliver data as information for decision-makers is necessary but not sufficient. Full consideration of Indigenous data governance is required. New metadata may be needed to set ocean exploration and science results into context with local communities so that it may be digested and integrated alongside traditional knowledge.



- ⊗ Place names can convey deep meaning and connectedness. Native place names should be incorporated into expeditions using appropriate protocols. In cases where place names are not identified, naming should be done in conjunction with the communities that have history and relationship with the adjacent lands and oceans.
- ⊗ Ocean exploration organizations should create opportunities for mentorship, engagement, and nurturing of students at all levels to help Pacific Island communities build the next generation of leaders, scientists, resource managers, and knowledge holders. These new opportunities should be organized into a system that allows Pacific Island scientists and decision makers to move up the career ladder in ocean science and related fields, not one-off experiences.
- ⊗ Ocean exploration and research organizations can help address a critical need for more Indigenous scientists and opportunities for Indigenous scientists to stay involved in ocean sciences. Internships, placements aboard ships, creating mentorship opportunities, and developing ways for Indigenous scientists to be involved in analyzing ocean exploration results are low-cost and high-impact ways to ensure Pacific Island communities can participate fully in ocean exploration expeditions.



-  Data and information must be shared quickly in ways that are useful to communities. This will require ocean exploration and research organizations to re-evaluate how they provide data and information and in what forms. Most of the data collected during ocean exploration and science expeditions is not useful to community decision-makers in the form in which it is archived. Organizations can invest in understanding how data and information should be developed and provided and deliver content accordingly, mindful of, and in coordination with, regional organizations (e.g., South Pacific Regional Environmental Programme, Pacific Community, etc.) that may be involved in supporting decision-makers across the Pacific.
-  Organizations should be aware of regional initiatives to build cultural and science connections across the Pacific and work within the context they establish. Examples include the Pacific Community's Pacific Regional Culture Strategy.
-  During expeditions, scientists engage using a particular language and way of interacting. This is important, but these interactions and the discoveries under discussion need to be relayed to communities in terms that are relevant to them. Narration in local languages, storytelling, using stories that weave together traditional knowledge and science, references to particular cultures, and humor are all possible ways to reach local audiences.
-  While cultural references are important (e.g., wayfinding and voyaging), do not try to substitute them for the time and effort required to build relationships. A superficial understanding of Polynesian culture, or even adherence to a list of principles such as those in this document, does not imply permission to move forward without full community engagement and collaboration. As noted elsewhere, this engagement and collaboration can't exist outside of relationships established and nurtured well in advance of expeditions.



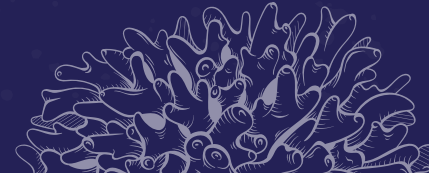


CHALLENGES

”

It seems ocean exploration organizations are used to operating in a competitive manner even when collaborating in some initiatives. I notice a need for humility and rebuilding of respect in order to authentically come together to decenter how things have been done and rebuild them with Indigenous communities centered.

Lehua Kamalu,
Hawai'i



”

We need to shift our mindset of being an agent of knowledge creation, which is what we are taught as scientists to understand that the knowledge is there. When we put ourselves in the right frame of mind to receive it, it will reveal itself.

Dan Hikuroa,
Aotearoa New Zealand

- ⊗ Often the conversation is about how Indigenous knowledge can be incorporated into scientific knowledge (or the process of acquiring scientific knowledge.) But should it be the reverse? Can “decentering” western science yield a deeper understanding?
- ⊗ There is often a skepticism about science and scientists. Researchers should be prepared to address the question of whether the exploration proposed is for “science” or for “the people.” Relationships built over time are the means for explaining how science benefits the community.
- ⊗ Ocean exploration and research takes place in the context of institutions that need to be reformed and opportunities that need to be created and made available. What can ocean exploration organizations do to make a positive contribution in highlighting the need for and providing support to Indigenous representation in academic institutions, for example? In providing role models for Pacific Island communities? In creating internships and scholarships for Pacific Island youth? In leveraging the existing programs and presences of groups like the [East-West Center](#), the [Big Ocean Managers](#) network? In supporting initiatives underway at regional organizations such as the [South Pacific Regional Environmental Programme](#), Pacific Community, and the [Pacific Island Forum](#)?

”

Relationships with individuals allowed us to come together for a rich discussion of principles, guidelines, and challenges. But individuals come and go, and it's critical that organizations show their commitment to collaborating with Indigenous Pacific Island communities by changing the way they do business.

Ramsay Taum,
Hawai'i

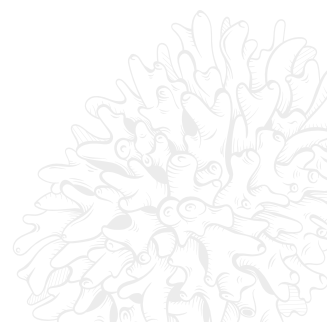
- ⊗ Ocean exploration and research organizations must approach the Pacific with humility. As it takes deep courage to confront and understand world views different from one's own, organizations need to develop the maturity to accept and engage in ways that will likely be uncomfortable, or appear to be inefficient, but yield knowledge and understanding far greater than if the organization had not undertaken the challenge and grown.

Workshop participants made it clear that with the right approach to the Pacific Islands, Indigenous communities are eager to engage and to participate. The three organizations that came together to initiate this workshop have a unique opportunity to change the paradigm for how ocean exploration and science is done in the Pacific, and to share experience gained with other organizations that wish to do similar work. Leading by example and sharing what we learn with the broader ocean exploration and science community will create new norms that accelerate the weaving together of traditional knowledge and science toward a more complete understanding of our ocean world.

”

It's common to think of leadership as being at the front. But the great sails of our voyaging canoes were woven. The weavers are in a straight line and they weave forward. If one weaver is ahead of another, the sail will be out of symmetry. This is a metaphor for a different way of thinking about leadership: the community 'weaves forward' together.

Papail'i Failautusi Avagalio,
Samoa and Hawai'i



NEXT STEPS

In Kupe's Wake provided rich information and thought-provoking challenges for ocean exploration and ocean research organizations to consider. Ocean Exploration Trust, Schmidt Ocean Institute, and NOAA Ocean Exploration will take on the following next steps in response to the workshop:

- ④ Use In Kupe's Wake recommendations to catalyze internal discussions about how the organizations should respond and how the recommendations will influence planning, operations, and sharing of results in future expeditions;
- ④ Share In Kupe's Wake recommendations broadly within the ocean science community and encourage other organizations to consider the recommendations in their own activities. Use the reflections presented here in other presentations and gatherings to grow thoughtful conversation on how the ocean science community can best respond and build capacity in the Pacific Island regions they are working in;
- ④ Commit to maintaining momentum in building relationships and community partnerships in the Pacific as expeditions are planned and conducted;
- ④ When appropriate, help connect local communities with other organizations that may facilitate the advancement of local community research and education needs.; and,



- ④ Lead by example in defining internal processes and activities moving forward for ocean exploration initiatives. Some of the existing initiatives that we will continue to build upon include, among others:
 - collaboration with Pacific Island communities well in advance of expeditions to set priorities, collecting and sharing data in a way that is customized for community use, and collaborating with regional organizations to distribute expedition data broadly;
 - collaborate with Pacific Island communities to co-develop science and outreach plans for expeditions;
 - bringing local artists, educators, and students to contribute to expeditions;
 - creating educational content in local languages, working in collaboration with Indigenous practitioners and cultural groups to advise on how best to present the research and involve the community; and,
 - offering small capacity grants for technology equipment so that groups can actively participate in the research in real-time.

More can and should be done. The organizations will share these and other approaches that result from In Kupe's Wake with the broader ocean science community.



SPONSORS



Ocean Exploration Trust is dedicated to exploring the global ocean, developing new tools and technologies, and sharing our expeditions and career role models with the world. More information is at [Nautilus Live | Ocean Exploration Trust](https://www.oceanexplorationtrust.org/).



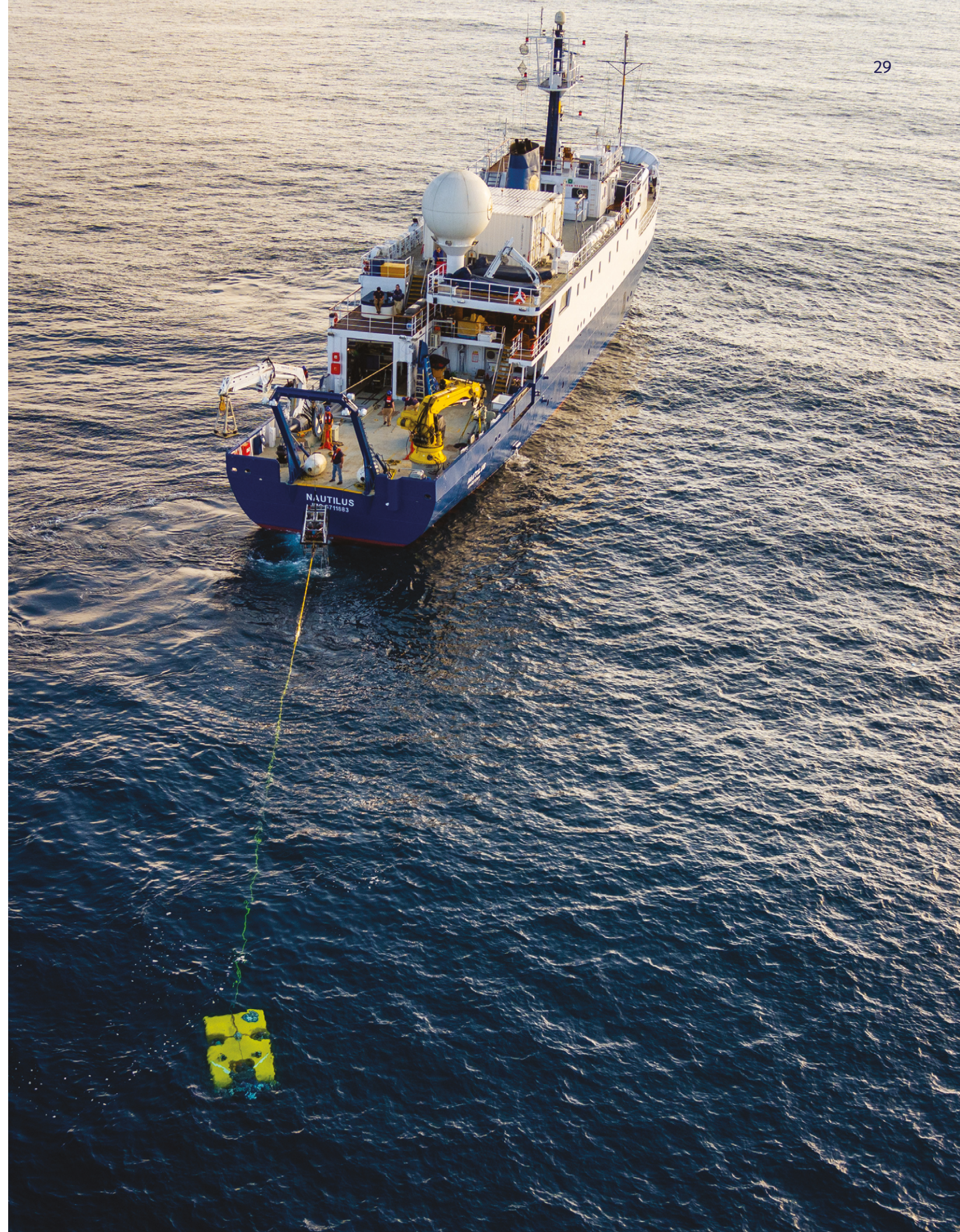
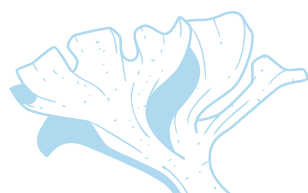
Schmidt Ocean Institute combines advanced science with state-of-the-art technology and catalyzes open sharing of information, to foster a deeper understanding of our ocean. More information is at [Schmidt Ocean Institute](https://www.schmidtocean.org/).



NOAA Ocean Exploration is the only federal program dedicated to exploring our largely unknown ocean. More information is at Home: [NOAA Office of Ocean Exploration and Research](https://oceanexploration.noaa.gov/).



The National Marine Sanctuary Foundation and NOAA's Office of Education provided financial support for In Kupe's Wake.





APPENDIX A - ADDITIONAL RESOURCES

DEEP OCEAN EDUCATION PROJECT A HUB FOR UNDERWATER RESOURCES

This website is a collaboration among NOAA, Ocean Exploration Trust, and Schmidt Ocean Institute to bring together ocean exploration education resources from the three organizations in one place.

OCEAN EXPLORATION: PACIFIC PRIORITIES WORKSHOP OCEAN LEADERSHIP

Our workshop is the result of recommendations made during a NOAA-sponsored community workshop to identify priorities for ocean exploration in the Pacific. The report is available at this site. The Diversity, Equity, and Inclusion Panel ([DE&I Panel Discussion: Workshop to Identify National Ocean Exploration Priorities in the Pacific - YouTube](#)) noted the importance of engaging with Pacific communities as collaborators and partners and the need to share results with educators, decision makers, and leaders in culturally relevant ways.

During the workshop, participants shared guidelines, articles, and other references with each other, including these described below:

KULANA NOII

is a set of guidelines for engaging with Indigenous communities in Hawai'i and published by Hawai'i Sea Grant. It is a source of rich perspective and information.

RISING VOICES FOR INDIGENOUS AND EARTH

Sciences brings together Indigenous and non-Indigenous experts to jointly address climate change and other issues. Its archive of reports of guidelines is an important reference for ocean exploration organizations and others seeking to engage collaboratively with Pacific Island communities. The [Rising Voices Ethics Guidelines](#) document is a good place to start.


DIALOGUES ON CENTERING JUSTICE IN THE NCA5 SUMMARY REPORT


documents a Rising Voices for Indigenous and Earth Sciences event focused on climate and environmental justice concerns from a diversity of Indigenous perspectives to help inform the Fifth National Climate Assessment. It contains useful information about centering Indigenous knowledge systems.

GUIDELINES FOR CONSIDERING TRADITIONAL KNOWLEDGES IN CLIMATE CHANGE

developed by an advisory group to the U.S. Department of the Interior's Advisory Committee on Climate Change and Natural Resources Science and the North Pacific Landscape Conservation Cooperative, is a good source of important perspectives and information.

Bill Thomas shared a policy brief and a presentation about Indigenous data governance that highlight principles and appropriate approaches for collaborating with Indigenous communities.

 [Indigenous data governance for transdisciplinary climate resilience research \(uci.edu\)](#)

 [Policy Brief- Native Nation Rebuilding for Tribal Research and Data Governance.pdf \(arizona.edu\)](#)

Dan Hikuroa co-wrote a [short article](#) that discusses mātauranga Māori (Māori traditional knowledge) and science and suggests guiding questions to ask when considering the nature of mātauranga Māori and traditional knowledge in general.

Dan Hikuroa's Mātauranga [Māori-the ūkaipō of knowledge in New Zealand](#), published in the Journal of the Royal Society of New Zealand, outlines some of the ways mātauranga Māori includes knowledge acquired in a way similar to science, but explained through a Māori world view.

[Weaving Indigenous Knowledge into the Scientific Method](#) is a Nature article that shares advice from several researchers on how to engage with Indigenous communities.



APPENDIX B - WORKSHOP AGENDA

JANUARY 18TH, 2022

- 10:00

●

OPENING PROTOCOL & WELCOME
Hui Navigator – **Kumu Ramsay Taum**
Hawai'i – **Rev. Kalani Souza**
Samoa – **Papali'i Failautasi Avagalio**
- 10:30

●

EXPLORING OUR OCEAN: OUR CONTEXT FOR GATHERING
Value of integrating traditional knowledge and wisdom with western science; Connecting generations through education; Value of collaboration; Expected outcomes
- 11:00

●

THE LEGACY OF POLYNESIAN UNDERSTANDING, VOYAGING, AND SCIENCE
Perspectives on Polynesian understanding and its relationship to ocean exploration and science

A New Understanding: the Convergence of Tradition & Science
– Dan Hikuroa | Senior Lecturer in Māori Studies, University of Auckland

Polynesian Ways of Understanding
–Kalani Quiocho | Cultural Resources Coordinator, Pacific Islands Region, NOAA Office of National Marine Sanctuaries

Kānaka 'Ōiwi (Native Hawaiian) Engagement Supporting the Co-Management of PMNM
–Kanoë Morishige | Native Hawaiian Specialist, Papahānamokuākea Marine National Monument

Science in Sacred Spaces: reimagining native science and research in Papahānaumokuākea
–Haunani Kane | Assistant Professor, Center for Global Discovery and Conservation, Arizona State University

Lessons learnt from Ocean Exploration in the Cook Islands
–Jacqui Evans | Founder, Moana Foundation
- 12:15

●

BREAK
- 13:15

●

OCEAN EXPLORATION IN THE PACIFIC: ABOUT OCEAN EXPLORATION TRUST, SCHMIDT OCEAN INSTITUTE, AND NOAA OCEAN EXPLORATION

Ocean Exploration Trust
– Allison Fundis | Chief Operating Office

Schmidt Ocean Institute
– Carlie Wiener | Director of Communications & Engagement Strategy

NOAA Ocean Exploration
–Kristen Crossett | Chief, Outreach and Education Division
- 13:45

●

ENGAGING AND SUPPORTING EDUCATORS SERVING INDIGENOUS AND LOCAL COMMUNITIES IN POLYNESIA: PART I OF A HUI DISCUSSION
What are the unique needs of island educators?
How can we put ocean exploration results in the context of Polynesia's voyaging tradition? How can we make ocean exploration expeditions culturally relevant?
- 14:45

●

DAY 1 CLOSING REMARKS

JANUARY 20TH, 2022

- 10:00

●

OPENING PROTOCOL
Hui Navigator – **Kumu Ramsay Taum**
Hawai'i – **Rev. Kalani Souza**
- 10:15

●

OPENING REMARKS
- 10:30

●

ENGAGING AND SUPPORTING EDUCATORS SERVING INDIGENOUS AND LOCAL COMMUNITIES IN POLYNESIA
Part II of Hui discussion
- 12:00

●

BREAK
- 12:30

●

PANEL DISCUSSION: PACIFIC ADVISORY ELDERS
Observations from the hui
A way forward
Building community across the Pacific
- 13:45

●

DAY 2 CLOSING REMARKS
- 14:15

●

CLOSING PROTOCOL

APPENDIX C - COUNCIL OF ELDERS



RAMSAY TAUM

Recognized locally, nationally and internationally for transformational leadership in sustainability, cultural, and place based values integration into contemporary business models. Advocates team building, strategic partnerships, community brilliance and creative thinking.

He graduated from The Kamehameha Schools, attended the United States Air Force Academy at Colorado Springs, and earned a B.S. degree in Public Administration from the University of Southern California. His eclectic background and experience in business, government and community service makes him a valuable asset in the public and private sectors and has been instrumental in for-profit and non-profit business.

A recognized cultural resource, sought after keynote speaker, lecturer, trainer and facilitator. Is especially effective working with Hawai'i's travel, leisure and retail industry where he integrates Native Hawaiian cultural values and principles into contemporary business.

Mentored & trained by respected kūpuna (elders), he is a practitioner & instructor of several Native Hawaiian practices: ho'oponopono (stress release and mediation), lomi haha (body alignment) and Kaihewalu Lua (Hawaiian combat/battle art).



KALANI SOUZA

Kalani Souza is a Hawaiian practitioner and cross-cultural facilitator currently working with the University of Hawai'i's National Disaster Preparedness Training Center Community Outreach Specialist. He is a certified Federal Emergency Management Agency instructor, and he serves on the Indigenous Knowledge Hui of the Pacific Risk Management Ohana that works to mitigate and respond to natural disasters. Additionally, Souza serves as a cultural competency consultant for the National Oceanic and Atmospheric Administration Pacific Services Center. He is a former board member for the Ala Kahakai Trail Association National Park Service, works with Indigenous Peoples Climate Change Working Group and Rising Voices Indigenous Peoples and Practice in Climate Science and Adaptation with National Climate Atmospheric Research Center. Souza is the founding Director of the Olohana Foundation, a non-profit 501(c) 3 focused on community capacity and global response to climate adaptation.



JACQUELINE EVANS

Jacqui has worked over thirty years to protect the health of the marine environment in the Cook Islands through science, policy development, community empowerment and advocacy. She has worked alongside traditional leaders on Rarotonga to re-establish traditional marine protected area practices after they were abandoned for forty years. She also had a central role in the establishment of Marae Moana, the Cook Islands Marine Park covering more than 700,000 square miles of the South Pacific ocean. Jacqui has a Bachelor of Science in Environmental Studies (biology emphasis) from the University of the South Pacific (USP), Fiji and a Master of Arts in Geography from the University of Hawaii, Honolulu. She has won several scholarships and awards including a 3-year East West Center Pacific Islands Development Program scholarship, the USP Prem Prasad Prize for the most outstanding student in Geography at USP, the 2001 Cook Islands BPWA Woman of the Year for the Environment Award and the 2019 Goldman Environmental Prize.



NOELANI PUNIWAI

Noelani Puniwai is passionate about cultivating the next generation of students to mālama ‘āina. She has been trained academically (PhD in Natural Resources and Environmental Management, UH Mānoa; MSc. in Environmental Science, Washington State Univ; BA in Marine Science, UH Hilo) to practice malama ‘āina/kai. Yet through her experiences in her culture, science training, and student mentorship, she’s recognized that feeling aloha ‘āina, he alo a he alo, face to face must also be practiced, moving beyond exclusively intellectual pursuits. Her research interests include coastal ecosystems, cultural geography, knowledge co-production, and seascapes. Noe believes that we can use the rigor and methodologies of pono science, the foundational wisdom of our kūpuna, and our experiential daily practice of aloha ‘āina to awaken responsible action for the future of our Hawai‘i.



FAILAUTUSI AVEGALIO (DOC TUSI)

Papail'i Failautusi Avegalio is the director of the [Pacific Business Center Program](#) and the executive director of the Honolulu Minority Business Enterprise Center at the University of Hawai'i at Mānoa's [Shidler College of Business](#). A former research fellow with the Pacific Islands Development Program at the East-West Center, Avegalio is the first native from Oceania to become a professor at the Shidler College of Business. Deeply involved in developing and delivering NDPT Ccourses in American Samoa and throughout the Pacific, he has consulted extensively for governments, colleges and universities, financial institutions and businesses throughout the Pacific. He also has been the primary organizer of many events including the University of Hawai'i Stars of Oceania, and the Global Breadfruit Summits in Hawai'i, including the 2017 summit planned for Apia, Samoa.

Avegalio received his BS in education and BA in social sciences from Emporia State University in Kansas, his MA from Truman State University in Missouri and his doctorate in educational administration from Brigham Young University in Provo, Utah. A Polynesian ali'i, he holds the traditional title of “Papali'i” from Savali, Samoa.

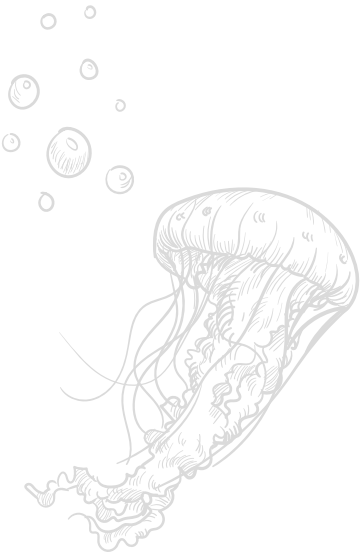


BILL THOMAS

Bill Thomas is the Senior Advisor for Islands, Indigenous, International Issues for the NOAA Office for Coastal Management. Prior to his current position, he was the first Director for the NOAA Pacific Services Center in Honolulu from 2002-2013. He also served in various leadership positions for NOAA’s National Marine Sanctuary Program and National Estuarine Research Reserve System from 1980-1990 in addition to working as a Sea Grant Extension agent from 1978-1990 . Bill then took a 12-year hiatus from NOAA to serve as the Director for Community and Alumni Relations and Special Assistant to the Senior Vice President for Academic Affairs at the University of Hawai`i between 1990 and 2002.

An active participant in ocean and coastal resource management issues since his earliest days as an undergraduate at the University of Hawai`i in 1970, he earned his undergraduate (Biology) and graduate degrees (Zoology) from the University of Hawai`i.

He has served on numerous local, state, and federal committees and has served in a leadership for several. One of NOAA’s few Native Hawaiians in a leadership position, he has focused his professional work on ecosystem services and sustainable communities, mitigation of coastal hazards, impacts of climate variability on coastal and marine resources, and integration of indigenous sciences into decision making at all levels.



APPENDIX D - LIST OF PARTICIPANTS

FIRST	LAST	AFFILIATION
Rosie	Alegado	University of Hawai'i at Mānoa
Failautusi	Avagalio	University of Hawai'i at Mānoa, In Kupe's Wake Elder
Kaipu	Baker	University of Hawai'i at Mānoa
Pomai	Bertelmann	Nā Kālai Wa'a & Polynesian Voyaging Society
Janice	Castro	Office of Coastal Management- Commonwealth of the NMarianas
Andy	Collins	NOAA Papahānaumokuākea Marine National Monument
Megan	Cook	Ocean Exploration Trust
Kristin	Crossett	NOAA Ocean Exploration
Aurora	Elmore	NOAA Ocean Exploration
Malia	Evans	NOAA Papahānaumokuākea Marine National Monument
Jacqui	Evans	Cook Islands Moana Foundation, In Kupe's Wake Elder
Claire	Fackler	NOAA Office of National Marine Sanctuaries
Jonathan	Fiely	Ocean Exploration Trust
Genene	Fisher	NOAA Ocean Exploration
Allison	Fundis	Ocean Exploration Trust
Bel	Gaoteote	NOAA National Marine Sanctuary of American Samoa
Susan	Haynes	NOAA Ocean Exploration
Dan	Hikuroa	University of Auckland
Liz	Hoadley	National Marine Sanctuary Foundation
Lehua	Kamala	Polynesian Voyaging Society
Haunani	Kane	Arizona State University
Randy	Kosaki	NOAA Papahānaumokuākea Marine National Monument

FIRST	LAST	AFFILIATION
Judy	Lemus	University of Hawai'i at Mānoa
Hau'oli Jacob	Lorenzo-Elarco	Honolulu Community College, NWHI Native Hawaiian CWG
Lynette	Low	Kaimuki High School
David	McKinnie	Independent Consultant
Mackenzie	Millikan	Iolani School
Kelly	Moran	Ocean Exploration Trust
Kanoe'ulalani	Morishige	NOAA Papahānaumokuākea Marine National Monument
Hannah	Nolan	Schmidt Ocean Institute
Jacob	Ottaviani	Ocean Exploration Trust
Lisa	Pereira	Schmidt Ocean Institute
Hoku	Pihana	Nā Wa'a Mauō Marine Stewardship Prog. NWHI Native Hawaiian CWG
Noelani	Puniwai	University of Hawai'i at Mānoa (Kamakakūokalani Center for Hawaiian Studies), In Kupe's Wake Elder
Kalani	Quiocho	NOAA Office of National Marine Sanctuaries
Bob	Richmond	University of Hawai'i at Mānoa
Mary	Roney	Waikiki Aquarium
Adam	Soule	NOAA Ocean Exploration Cooperative Institute (URI)
Kalani	Souza	Olohana Foundation. In Kupe's Wake Elder
Narissa	Spies	U.S. Fish and Wildlife Service · National Wildlife Refuge System
Kanoelani	Steward	Ke Kula Kaiapuni o Lahaina, NWHI Native Hawai'ian CWG
Ramsay	Taum	Hawai'i Pacific University, In Kupe's Wake Elder
Bill	Thomas	NOAA Office of Ocean Management, In Kupe's Wake Elder
Diane	Tom-Ogata	Educator in Honolulu, HI
Antony	Vavia	University of Auckland
Carlie	Wiener	Schmidt Ocean Institute
Jamie	Zaccaria	Ocean Exploration Trust



DEEP OCEAN EDUCATION PROJECT

www.deepoceaneducationproject.org