

Taking the pulse of coastal  
ocean life - together



Strategic Plan 2019-2024



Smithsonian Institution

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# MESSAGE FROM THE DIRECTOR

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MarineGEO launched in 2013, just as a global wave of activity in marine biodiversity observing was taking off. It's been exciting to ride that wave. But the world of global ocean observing is dynamic and has evolved substantially from where we started six years ago. To stay on the crest, MarineGEO needs to evolve too. We asked the MarineGEO community—our colleagues throughout the Smithsonian and our partners around the world—to help us chart the course forward together.

Our strategic planning journey over the last year has clarified and strengthened our shared goal: MarineGEO will be a global leader in the science of coastal marine life and ecosystems, using the power of long-term, collaborative research and a common toolkit. MarineGEO is unique, balancing the world-class track record and brand of the Smithsonian Institution with the collective innovation and energy of our global partner network. As a community, we need not only a clear vision of our goal, but flexibility in forging the path to reach it. Great ideas come from anyone, anywhere—as we've learned from experience. That is MarineGEO's key strength. We are committed to following the best ideas, regardless of their source, and making space for this innovation.

We have invested our best efforts over the last year in listening and dialogue. We committed to acting on key recommendations as quickly as possible. To that end, we already have pressed forward to plan our first biennial network meeting in 2020. We've also completed MarineGEO's first search for collaborative project ideas initiated from the grassroots of the network. The selected project also will commence network-wide in 2020.

The plan we present here builds on almost a decade of work to establish MarineGEO as a producer of first-rate science focused on societal needs. As an open, voluntary network, we must also ensure partner engagement, and the science we create together, are their own rewards. We aim to make MarineGEO a model network, with effective governance and transparent, fair decision-making in support of the science and the community.

I am excited and proud of our community's dedication, creativity, and initiative. We have a newly clarified vision and mission, and an ambitious, yet concrete plan to advance them. Importantly, we've built them together. I am pleased to present MarineGEO's first strategic plan for 2020-2024. Let's get to work!

Sincerely,



J. Emmett Duffy, Director  
MarineGEO and Tennenbaum Marine Observatories Network  
Smithsonian Institution





# WHO WE ARE

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The Ocean harbor a great share of Earth's biological diversity, driving much of its productivity, providing more than half of the oxygen we breathe, and feeding billions of people worldwide. Yet marine life and ecosystems are changing rapidly on local and global scales, profoundly affecting the services they provide to humanity. Scientific discovery and fundamental understanding of marine life and the benefits it provides to people are key frontiers to forging a sustainable future. Solving such global scientific and conservation challenges requires global coordination and communication.

Led by the Smithsonian Institution, the Marine Global Earth Observatory (MarineGEO) is a network of scientists collaborating around the world to understand how coastal marine ecosystems work, how they are changing over the long term, and how to maintain their function in a rapidly changing future. Because both marine life and people are concentrated along coastlines, we focus on nearshore seabed habitats, including coastal reefs and vegetation among others.

MarineGEO was conceived over a decade ago and born in 2013 with a generous gift from Michael and Suzanne Tennenbaum that established the Tennenbaum Marine Observatories Network (TMON) as its nucleus. TMON and the MarineGEO program it supports aspire to lead the world in the science of coastal marine life and ecosystems. We do so by convening the world's scientists to build a dynamic picture—together—of how and why these ecosystems are changing across the modern ocean.

In brief, MarineGEO

- ◆ Is a globally distributed, collaborative network.
- ◆ Focuses on linking environmental change, biodiversity, and ecosystem functioning in the coastal zone where biodiversity and people concentrate.
- ◆ Integrates a standard toolkit of observation, experiments, and knowledge synthesis.
- ◆ Leverages the power of shared, open data.





## Our MISSION

As a global partnership,  
we discover how  
coastal ecosystems work  
—and how to keep them  
working—through science

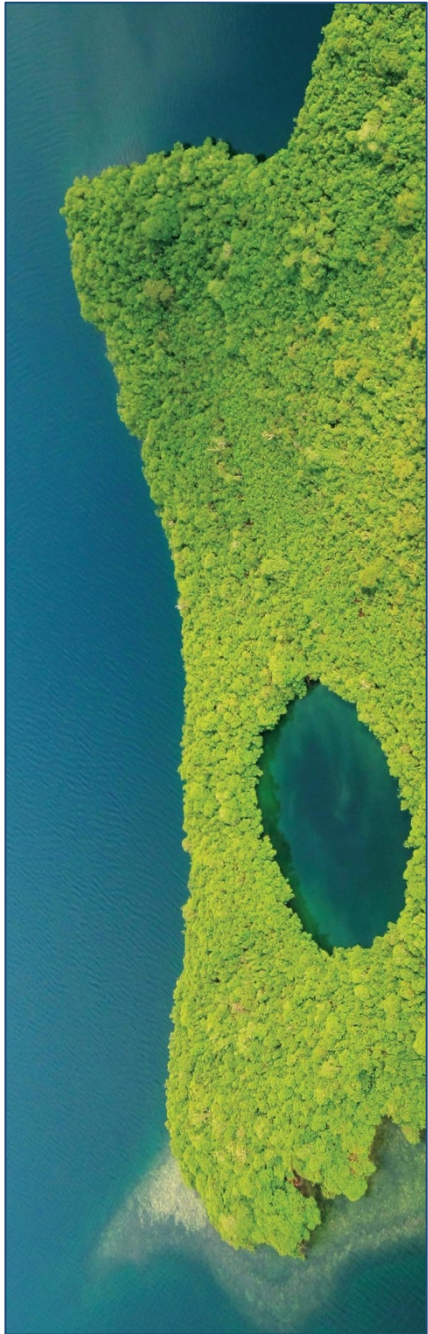
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## Our VISION for the future

Healthy and diverse coastal ecosystems,  
revealed through networked science  
and safeguarded by an informed society



## Our VALUES



- ◆ **Do it together.** We are a community, committed to supporting each other and to following the best ideas regardless of their source. We achieve more together than we can individually.
- ◆ **Lead the way.** We work with purpose, striving to nurture a global community that takes on challenges and breaks new ground, using the best science to build open-source knowledge of how marine ecosystems work, and supporting the people who build it.
- ◆ **Discover the secrets.** We are driven by curiosity to know and understand ocean life and ecosystems, how they are changing, humanity's place in the world, and how to use that knowledge for the common good. We take a long view, go wherever the evidence leads, and explore new ways to get there.
- ◆ **Share information for solutions.** We share our tools, open-source knowledge, and stories to understand and communicate the value of coastal ecosystems and to inform action.
- ◆ **Respect nature and people.** We respect the inherent worth of nature and the dignity of all people. We treat one another with respect and do not tolerate discrimination or harassment. Wherever we are, the people we work with are equal partners.
- ◆ **Advance and grow.** We work individually, collectively, and tirelessly to master our craft and impact, improving ourselves and the world.

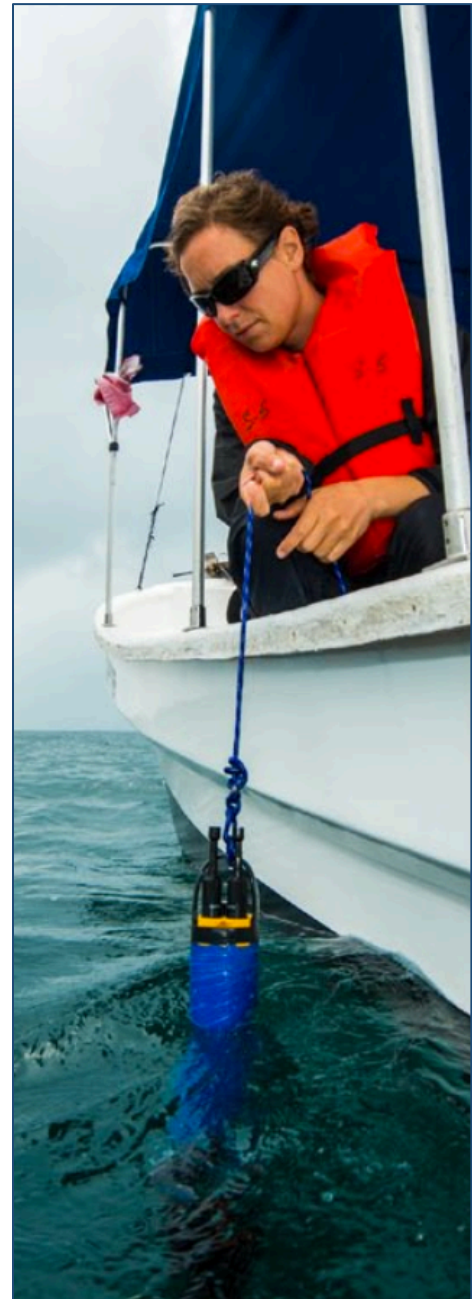


# HOW WE ARE EFFECTIVE

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## Our **STRENGTHS**

- ◆ **Global network.** As a global community, we integrate place-based and global research. The distribution of partners and sites across the globe increases our ability to address grand challenges in science and conservation that are answerable only through a global scope.
- ◆ **Partnerships.** The Smithsonian Institution is a trusted broker of knowledge, whose research grows stronger through partnerships. As a network, we capitalize on our diversity of collective expertise, ecological breadth, and collaborative spirit to advance long-term observation and research of Earth's coastal marine life and ecosystems. By working together, we can achieve understanding at scales none of us could accomplish alone.
- ◆ **Science.** Our research integrates long-term monitoring of coastal life and ecosystems with coordinated experiments using standardized, intercomparable methods. With this approach, data sharing, and knowledge synthesis, we learn how coastal ecosystems work, how they are changing, and the implications of that change.
- ◆ **Our niche.** We focus on biodiversity, because it is essential to ecosystem health and function, and on the nearshore coastal zone, where people and marine life most interact and are concentrated. MarineGEO uniquely integrates long-term, sustained observations with coordinated, global experiments in a range of coastal habitats to understand the hows and the whys of ecosystem change through question-driven research.



## Our OPPORTUNITIES



- ◆ **Big questions.** Our seas are changing rapidly, while the consequences for humans and ecosystems remain poorly understood. MarineGEO asks crucial questions on a global scale about the condition of marine life and ecosystems, how and why they are changing, how they are connected, and how we can keep them working.
- ◆ **Network & community growth.** With a strategic approach to network development, we increase our collective capacity to lead a locally and globally relevant future for marine science. By building complementary sets of skills, expertise, and geographic coverage, we generate bigger opportunities to pursue complex research.
- ◆ **The next generation.** We aim to provide useable, actionable intelligence about our coastal ecosystems to communities seeking a sustainable future. We train students and researchers in the collaborative science necessary to tackle the timely issues of our planet and ultimately to increase appreciation of the value of coastal ecosystems to human well-being.
- ◆ **Fundraising.** MarineGEO launched with a solid foundation of financial support. As the network grows and diversifies, additional funding streams are essential to maximize our contributions to science and coastal sustainability.



# OUR CHARTED PATH

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This strategic plan is the central guiding document charting MarineGEO's direction for the years 2020 through 2024. It is the product of a thorough strategic planning process that began with background research into the history of MarineGEO and an analysis of Strengths, Weaknesses, Opportunities, and Threats (SWOT) based on input from members of the MarineGEO community and other stakeholders. Two workshops followed to revise and fine-tune the plan. Carrying out the strategic plan and accomplishing our ambitious, purposeful goals are the collective responsibilities of the entire MarineGEO network. MarineGEO Central, the Executive Committee, and the Working Groups are committed to the objectives and supporting strategies laid forth here to position MarineGEO as a global leader in the science of coastal marine life and ecosystems. The MarineGEO community will revisit this plan regularly to assess progress, set priorities, and make needed revisions.

- GOAL 1 Cultivate a transformative, societally-relevant research program
- GOAL 2 Foster a skilled, collaborative community of practice
- GOAL 3 Engage the world in coastal literacy
- GOAL 4 Capture and serve high-quality data to stakeholders and end-users
- GOAL 5 Demonstrate organizational excellence

# GOAL 1

## Cultivate a transformative, societally-relevant research program

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### Objective A

Drive relevant MarineGEO research centered on grand challenges and pressing real-world questions.

- ◆ Identify and investigate motivating research questions as a network and in response to societal needs.
  - ◆ Align research goals with real-world needs by collaborating with end-users in management and policy.
  - ◆ Define the backbone of core, long-term observations of environment, biodiversity, and ecology to support the motivating research questions and internationally adopted biological variables.
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### Objective B

Generate major discoveries by fostering large-scale ecological science.

- ◆ Implement a thematic, long-term research model while delivering short-term impacts and funding.
  - ◆ Increase production of high-impact publications.
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### Objective C

Conduct collaborative research experiments and projects focused on addressing MarineGEO motivating questions and priorities.

- ◆ Create a program to solicit and support ideas from MarineGEO participants for networked, hypothesis-driven research projects.
  - ◆ Pursue research questions and projects specifically targeted toward publications and other products.
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### Objective D

Become a leader in design and service of coastal marine ecology protocols that are standardized, elegant, and essential to address MarineGEO research questions.

- ◆ Develop a streamlined, globally scalable and comparable suite of standardized MarineGEO protocols and data templates for monitoring, experiments, and biodiversity censuses.
- ◆ Determine the appropriate frequency and requirements for each protocol for each type of partner.
- ◆ Ensure protocol simplicity and ease of execution through a process of testing and reviewing candidate protocols with network partners.
- ◆ Track all measurements to determine which are taken at each observatory.

# GOAL 2

## Foster a skilled, collaborative community of practice

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### Objective A

Communicate clear expectations and process for partnership.

- ◆ Define criteria, roles, responsibilities, and benefits of all types of partnership.
- ◆ Establish the application process, selection criteria, template partnership agreement, and onboarding procedures for new partners.
- ◆ Launch and incentivize network hubs to capitalize on member expertise and address regional needs.

### Objective B

Build capacity among network partners to conduct global biodiversity research through training, data analysis tools, and infrastructure advances.

- ◆ Deliver training in field ecology, taxonomy, data analysis, and other skills relevant to MarineGEO research.
- ◆ Provide a standardized kit of basic equipment and supplies for network partners to conduct core research.
- ◆ Train partners in data collection, standards, and management to ensure high quality, reliable data.
- ◆ Translate protocols for experiments and core MarineGEO observations into additional languages to increase participation and comprehension.

### Objective C

Grow and strengthen network membership strategically on a global scale.

- ◆ Conduct a gap analysis and make recommendations for diversifying network membership across geographies and habitats.
- ◆ Develop an action plan and timeline for strategically expanding and fostering the observatory network and research project participation.
- ◆ Identify and recruit partners of all types who can help advance our scientific objectives.

### Objective D

Create opportunities for face-to-face and virtual interaction and collaboration.

- ◆ Convene biennial network meetings to plan network projects and governance, conduct training, synthesize and draft products, and share findings.
- ◆ Implement strategies to increase cross-pollination and collaboration through digital tools and researcher exchanges.
- ◆ Create a clearinghouse of observatory characteristics, contacts, assets, and research activities to facilitate collaboration among network members.



# GOAL 3

## Engage the world in coastal literacy

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### Objective A

Build capacity among early-career researchers, students, and community members through involvement in MarineGEO research.

- ◆ Increase research opportunities for student, postdoctoral, and volunteer participation, mentorship, and exchange.
- ◆ Create template educational modules to integrate MarineGEO research and data analysis in curricula for undergraduate and graduate courses.
- ◆ Leverage partner institutions' internships, including Research Experiences for Undergraduates (REUs), and volunteer programs for MarineGEO objectives.

### Objective B

Engage a broad range of stakeholders to increase the relevance and impact of MarineGEO science on society's ability to address and solve big questions.

- ◆ Identify and establish relationships with end users to address mutual grand challenges.
- ◆ Nurture outreach, engagement, and leadership within local and marine research communities.

### Objective C

Inspire and educate students and the public in the science of coastal marine life and ecology.

- ◆ Deliver coastal literacy education to students and the public through hands-on and digital activities.
- ◆ Feature MarineGEO in local public events, seminars, and outreach.
- ◆ Develop and grow a repository of MarineGEO education and outreach activities as a shared network library of coastal literacy resources.
- ◆ Create a dynamic database of the network's education professional points of contact.

### Objective D

Promote MarineGEO identity, work, and people through a variety of communication avenues.

- ◆ Leverage communications staff across the network to assist and amplify MarineGEO communications.
- ◆ Collect and distribute network updates through a regular newsletter and standardized templates using common branding.
- ◆ Develop a comprehensive, yet focused, communications plan for the network and broader audiences.
- ◆ Develop and implement a marketing strategy to raise MarineGEO's profile, attract collaboration, and garner funding.

# GOAL 4

## Capture and serve high-quality data to stakeholders and end-users

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### Objective A

Understand our diverse audiences' data needs and meet them.

- ◆ Establish pipelines to deliver data in a timely manner to network members and established, international data portals to maximize integration and interoperability.
- ◆ Develop and implement metrics to track data provenance and use across MarineGEO and downstream public repositories.
- ◆ Conduct a needs assessment of data users to evaluate their short- and long-term data product needs and requirements.
- ◆ Create data tools specific to our two most important audiences, researchers and decision-makers.

### Objective B

Develop and disseminate an operational, user-friendly, and open data management model.

- ◆ Design a data system architecture with rapid and automated data workflows for ingestion, curation, access, archiving, and version control of data compliant with recognized community standards.
- ◆ Define data platform and tool requirements based on best practices and incorporating growth projections for data architecture, management, and coordination.
- ◆ Establish data streams for ecological, environmental, and taxonomic data.

### Objective C

Design an elegant data portal to serve standardized, well-curated data.

- ◆ Institute guidelines and policy for data release, sharing, attribution, access, and use that account for different types of data and are informed by a committee representing stakeholders and experts.
- ◆ Design and implement a QA/QC system for data submission and review that involves and supports data originators.
- ◆ Establish a mechanism for soliciting user feedback.

### Objective D

Provide accessible data analysis tools for users to see and understand trends and patterns.

- ◆ Create code, tools, and collaborative workspaces for data manipulation, analysis, and visualization.
- ◆ Explore and identify existing tools in the broader community that can be leveraged to meet MarineGEO needs.
- ◆ Capitalize on innovations in data management and analysis technology and partnerships for technology transfer to advance MarineGEO data products.

# GOAL 5

## Demonstrate organizational excellence

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### Objective A

Advance the MarineGEO governance structure to incorporate high-level guidance from network members and external thought-leaders.

- ◆ Charter Central and local external advisory councils of experts to advise on organizational and scientific directions and connect MarineGEO to organizations, communities, and funding sources.
- ◆ Restructure the Executive Committee to increase its effectiveness as a governing body, representation of the network, and cross-pollination among members.
- ◆ Empower and incentivize productive working groups that capitalize on network expertise and energy to implement MarineGEO objectives collaboratively.
- ◆ Increase awareness, support, and engagement across the Smithsonian and its leadership and within partner organizations.

### Objective B

Develop a sustainable, short- and long-term funding model aligned to strategic goals.

- ◆ Grow diverse funding streams to support research and key advancement priorities.
- ◆ Gain external funding for network research projects through collaboratively developed proposals.
- ◆ Build network capacity for local fundraising through advancement training.
- ◆ Obtain high-level Smithsonian support with an Office of Advancement officer who actively raises external funds for MarineGEO.

### Objective C

Increase transparency and communication of priorities, decisions, and activities.

- ◆ Demonstrate accountability by tracking milestones and timelines across routine operations.
- ◆ Develop a transparent framework for how decisions are made, at Central and other governing levels.
- ◆ Implement a process for increasing communication, collaboration, and input across working groups and the network.
- ◆ Create a shared MarineGEO calendar of events and important dates.

### Objective D

Align Central organizational structure and functions to strategic goals and objectives.

- ◆ Develop a five-year business plan with an integrated budget strategy and revised organizational chart.
- ◆ Streamline the program to essential activities that directly serve MarineGEO goals and objectives and outline a pathway for growth.
- ◆ Strengthen the MarineGEO Central workforce by implementing a workforce plan that addresses short-term tasks, long-term responsibilities, and succession.





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