Despite the fact that the ocean covers approximately 70% of Earth’s surface and plays a critical role in supporting life on our planet, from the air we breathe and the food we eat to weather and climate patterns, our understanding of the ocean remains limited. **A COMPREHENSIVE UNDERSTANDING OF OUR OCEANS IS FUNDAMENTAL** to advancing science, to building ocean-related industries, to informing the decisions that balance ocean use and conservation, and to enhancing our National prosperity and security.

The act of Exploration is the first step in the scientific process. The results of our expeditions produce the essential data necessary for scientific research and discovery in dozens of fields and areas of interest. The rigorous observations and documentation of biological, chemical, physical, geological, and archaeological aspects of the marine environment provided by NOAA Ocean Exploration, and our extensive network of partners, will drive the innovations to unlock cures to diseases, to grow new foods, to discover new medicines, to create new industries, and to more fully understand our planet. The possibilities are endless, if we choose to open the door to them.

Thanks to the profound technological advancements of recent years, we have the potential to see and learn more than ever before. This information can help us understand how we are affecting and being affected by changes in Earth’s environment, including changes in weather and climate. These insights, gained by ocean exploration, will also help us better understand and respond to earthquakes, tsunamis, and other hazards.

This strategic plan defines our goals and objectives for FY 2022 through FY 2027 and describes how we will make progress towards that future. NOAA Ocean Exploration’s people are the cornerstone of its ability to innovate, explore, and discover. Our success is driven by the diverse and forward-thinking workforce we enjoy. It is the collective expertise of our team that allows NOAA Ocean Exploration to observe even the most remote parts of the deep ocean environment, to make that data available to all interested parties, and to transition the necessary research and development in support of NOAA’s mission. **OUR STRATEGY IS CRITICAL TO BETTER UNDERSTANDING THE OCEAN, THE CLIMATE, AND THE WORLD.**

— Genene Fisher
INTRODUCTION

WHO: EXPLORERS OF THE UNKNOWN
We are scientists and engineers. We are educators and administrators. But our true calling is to be explorers. By closing the gaps in our basic understanding of the deep ocean environment we are strengthening the economy, the health, and the security of our nation and the world.

WHY: UNDERSTAND THE OCEAN
The ocean is the defining feature of our planet. We depend on it to regulate our weather and our climate, to provide our food and our energy, and to support our economy and our national defense. America’s future is dependent on understanding the ocean and our relationship with it.

• MISSION: Explore the ocean for national benefit.
• VISION: Ocean exploration, rigorous scientific discovery, advancements in undersea technologies, and investments in STEM education inform and support decision makers to strengthen the economy, the health, and the security of the United States.

HOW: EXPLORE TO DISCOVER, DISCOVER TO UNDERSTAND, AND UNDERSTAND TO INFORM
NOAA Ocean Exploration plans, coordinates, and conducts expeditions around the globe that feed the essential research and scientific inquiry that is necessary to understand the features and phenomena of the ocean to support informed resource management decisions.

WHAT: EMPLOY OUR CORE PRINCIPLES TO MEET OUR GOALS
• TREAT DATA AS A STRATEGIC ASSET: NOAA Ocean Exploration’s most valuable asset is the data it acquires, through ocean exploration and observation, and the value of that data only increases as it is used by stakeholders to inform scientific research agendas, policy decisions, or classroom instruction.
• UPHOLD SCIENTIFIC INTEGRITY: NOAA Ocean Exploration maintains an unwavering commitment to providing valid, clear, easily accessible, and reproducible data and science to the public.
• DEMONSTRATE OUR COMMITMENT TO DIVERSITY: NOAA Ocean Exploration takes the broadest possible view of diversity, including seen and unseen qualities to foster a culture that exemplifies teamwork, embraces innovation, and values equity and inclusion to achieve mission excellence.
• ENGAGE FROM LOCAL TO GLOBAL: NOAA Ocean Exploration actively cultivates relationships with a broad and diverse portfolio of partners, both nationally and internationally, to integrate their expertise and capabilities into our exploration mission and enhance our ability to inform, educate, and inspire the public.
EXPAND NOAA OCEAN EXPLORATION’S CAPACITY FOR GLOBAL EXPEDITIONS TO ENABLE SCIENTIFIC DISCOVERY

As the only federal organization with a legislative mandate to explore the ocean, NOAA Ocean Exploration has a unique opportunity to plan, coordinate, and conduct ambitious expeditions around the world. NOAA Ocean Exploration will expand its capacity to conduct these expeditions by employing an approach of Systematic Exploration that will focus on expanding the exploration footprint within smaller regional campaigns. This approach allows expeditions to build upon each other over time and contribute to more fully understanding a specific region. NOAA Ocean Exploration will support systematic exploration by actively diversifying the suite of vessels, platforms, systems, and partnerships that are available and deploying the most appropriate operating modality for planned mission objectives.

• **OBJECTIVE 1.1:** Employ an approach to expedition and campaign planning that builds upon the foundation of Systematic Exploration.

• **OBJECTIVE 1.2:** Diversify the range of platforms, vehicles, and mechanisms used to accomplish NOAA Ocean Exploration’s mission to ensure a consistent level of data collection and operational capacity is available, accessible, and reliable.

• **OBJECTIVE 1.3:** Migrate routine operations to shore-based centers to free up ship-based exploration resources, capitalize on bandwidth expanding capabilities of low earth orbit (LEO) satellites, and increase the accessibility of exploration activities through the use of telepresence.

• **OBJECTIVE 1.4:** Understand the full scope of the operational capabilities, technical specifications, and exploration requirements necessary to inform the design and buildout of NOAA’s next generation of ocean exploration vessels.

**INDICATORS OF SUCCESS:**

• Campaigns and expeditions are planned with the goal of expanding the exploration footprint, within a region, in a systematic manner.

• NOAA Ocean Exploration maintains a cumulative number of 365 at-sea exploration operation days, per year, across its entire portfolio of available platforms, vehicles, and mechanisms.

• Remote watchstanding and data processing, by key personnel working onshore, is a routine practice.

• NOAA Ocean Exploration maintains its current expedition and exploration tempo beyond the end-of-life for the NOAA Ship *Okeanos Explorer*. 

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GOAL 2

STRENGTHEN NOAA OCEAN EXPLORATION’S NETWORK OF PARTNERS TO BETTER UNDERSTAND THE MARINE ENVIRONMENT

Fully exploring, mapping, and characterizing the ocean requires collective effort from not only Federal agencies but from State governments, private industry, academia, and non-governmental organizations. It also requires a level of community consensus about shared priorities that guide and inform expedition planning, technology investments, and stakeholder outreach efforts. In addressing this challenge NOAA Ocean Exploration is committed to a course of coordinated action and collaborative planning that incorporates scientific inquiry, entrepreneurial enterprise, philanthropic endeavor and public and private investment.

• **OBJECTIVE 2.1:** Expand NOAA Ocean Exploration’s partnerships through the use of formal agreements (e.g. cooperative agreements, federal financial assistance, reimbursable agreements, contracts) to expand collaborations with industry, academic, philanthropic, and the not-for-profit communities.

• **OBJECTIVE 2.2:** Encourage the development of consensus standards and protocols for ocean exploration, mapping, and characterization through participation on the National Strategy for Ocean Mapping, Exploring, and Characterizing Council (NOMEC).

• **OBJECTIVE 2.3:** Plan, coordinate and execute multi-agency and multi-sector expeditions and campaigns to map 100% of the Deepwater United States Exclusive Economic Zone (EEZ) by 2030.

• **OBJECTIVE 2.4:** Prioritize partnerships with Tribal Nations and Indigenous Communities to better understand their culture, their requirements, their capabilities and to identify opportunities to support their ocean exploration interests and priorities.

**INDICATORS OF SUCCESS:**

• Organizations conducting expeditions within the US EEZ use consistent operational, technological, and data collection standards.

• The international ocean exploration community has a shared vision that informs its approach to mapping and exploration of the ocean.

• NOAA Ocean Exploration maintains a robust portfolio of agreements (i.e contracts, grants, Memorandums of Understanding, Cooperative Research and Development Agreements, etc.) with actors from industry, academia, the non-profit, and the philanthropic sectors.

• NOAA Ocean Exploration routinely engages with a broad cross-section of Tribal Nations and Indigenous Communities to plan and conduct relevant ocean exploration operations.
GOAL 3

DEVELOP AND MATURE THE EMERGING SCIENCE AND TECHNOLOGIES NECESSARY TO EXPLORE THE DEEP OCEAN

The rapid pace of advancement in ocean science, data collection and dissemination, and technology refresh provide unprecedented opportunities to explore, map, and characterize the ocean environment. These leaps in capability directly inform new discoveries that have improved our understanding of fundamental ocean phenomena. By investing in new technologies, new partnerships, and new processes, NOAA Ocean Exploration will improve its ability to provide the high quality observations, the valid intelligence, and reliable data that are essential for scientific research, commercial applications, and resource management purposes. NOAA Ocean Exploration will use its funding and agreement mechanisms, with a special emphasis on its grant making authorities, to garner consensus about scientific and technological priorities across the ocean exploration community.

• OBJECTIVE 3.1: Build a robust pipeline of research and development projects, focused on the demonstration phase of the readiness continuum, to accelerate the development and transition of emerging marine observing technologies and applications into deep ocean exploration operations.

• OBJECTIVE 3.2: Identify gaps in NOAA Ocean Exploration’s current scientific, technology, and operational portfolio to highlight priorities and guide future investments.

• OBJECTIVE 3.3: Improve NOAA Ocean Exploration’s understanding of the state of science and technology, within the ocean exploration community.

• OBJECTIVE 3.4: Use NOAA Ocean Exploration’s contract, grant, and agreement authorities to invest in specific science and technology priorities and to identify new lines of inquiry within the ocean exploration community.

INDICATORS OF SUCCESS:

• Input, from the ocean exploration community, about scientific and technological priorities informs the pace and direction of investments within NOAA Ocean Exploration.

• A science and technology gap analysis is conducted on a routine basis and the results are made available to the ocean exploration community to inform investment decisions.

• NOAA Ocean Exploration maintains an extensive and thorough awareness and understanding of the technologies used to conduct ocean exploration and scientific activities.

• NOAA Ocean Exploration is recognized as a trusted partner within the ocean exploration community and is regularly consulted as a resource regarding investments in emerging technologies, innovative tools, and operational procedures.
INVEST IN DIVERSITY AND INCLUSION TO UNLOCK INNOVATION AND OPERATIONAL EXCELLENCE

NOAA Ocean Exploration embraces the values of Diversity, Equitability, and Inclusion and understand them to be the foundation upon which an enriching work culture is built. All employees have the right and the responsibility to contribute to the evolving face of this organization. Across the entire ocean exploration community, our interdisciplinary team of scientists, explorers, administrators, students, and partners have the opportunity to apply their unique talents, skills, and perspectives to exploring and understanding the marine environment. Our intent is to highlight and promote the values of diversity, equitability, and inclusion across the entire life-cycle of NOAA Ocean Exploration’s mission and operations to ensure everyone feels respected, valued, and engaged.

• **OBJECTIVE 4.1:** Use NOAA Ocean Exploration’s contract and agreement authorities to make intentional investments in the development of a diverse, inclusive, and equitable ocean exploration community, with a special emphasis on supporting opportunities from underrepresented communities.

• **OBJECTIVE 4.2:** Improve NOAA Ocean Exploration’s business processes to promote coordination, transparency, decision-making, and to link strategy to execution.

• **OBJECTIVE 4.3:** Champion a diverse workforce that values an array of talents and backgrounds, that seeks a true diversity of perspective, that ensures equity in all spaces, and that supports NOAA’s overall Diversity and Inclusion (D&I) vision.

• **OBJECTIVE 4.4:** Provide our workforce with the cutting-edge technology, facilities, and mission support services that promotes their creativity, productivity, and collaboration.

• **OBJECTIVE 4.5:** Foster an office culture that promotes mindfulness, meaningful self-care, effective productivity, and a healthy work-life balance for all members of the workforce.

**INDICATORS OF SUCCESS:**

• The values of diversity, equitability, inclusion, and accessibility are promoted and incorporated as core elements throughout the entire life-cycle of NOAA Ocean Exploration’s mission and operations.

• NOAA Ocean Exploration staff have the work related resources and support systems necessary to maximize their effectiveness and to achieve their goals.

• The composition of NOAA Ocean Exploration’s workforce, partnerships, and collaborations more closely reflect the demographics of the Nation as a whole.

• NOAA Ocean Exploration’s business processes promote coordination, transparency, decision-making, and to link strategy to execution.
GOAL 5

EDUCATE, INSPIRE, AND PROMOTE THE VALUE OF THE DEEP OCEAN

The ocean impacts everyone, yet it is not often recognized for the resources it provides or its role in making our planet hospitable. Reaching “everyone” and inspiring them to care about the ocean, and more specifically the deep ocean, is a herculean task. By identifying specific audiences, NOAA Ocean Exploration can invest in the tools and resources needed to deliver the data and educational materials those audiences need and do it in a way that is impactful, accessible, and useful. NOAA Ocean Exploration will develop innovative and accessible content, powerful messaging, and strong partnership opportunities to engage and inform audiences about the value, importance, and excitement of deep-ocean exploration.

• **OBJECTIVE 5.1:** Build awareness for NOAA Ocean Exploration’s mission and publicly available data to improve the contributions of those activities to national objectives; to support the needs of the ocean exploration community; and to promote the value of ocean exploration.

• **OBJECTIVE 5.2:** Increase the use of visual storytelling by combining images, videos, graphics, and data displays with engaging text delivered through a range of traditional and emerging media platforms to craft a compelling narrative about the value and importance of ocean exploration.

• **OBJECTIVE 5.3:** Strengthen the scientific literacy and the baseline understanding of key ocean phenomena, with non-scientific audiences.

• **OBJECTIVE 5.4:** Invest in education and outreach programs and grants that encourage the advancement and participation of underrepresented groups in ocean science and technology fields.

• **OBJECTIVE 5.5:** Expand opportunities for undergraduate students, graduate students, and early career professionals to participate in NOAA Ocean Exploration-sponsored activities and programs, with a special emphasis on supporting opportunities for individuals from underrepresented communities.

**INDICATORS OF SUCCESS:**

• Ocean exploration data and information are used to inform decision making by Government and Industry leaders, Non-Profit organizations, and academic institutions.

• The ability to provide high-quality ocean exploration and science educational content is not limited by the location of an educator, a student, or a member of the public.

• The audiences participating in NOAA Ocean Exploration outreach and education activities and programs reflect the broad spectrum of regions, communities, beliefs, and backgrounds of the Nation as a whole.
GOAL 6

ENABLE DISCOVERY THROUGH GOOD DATA MANAGEMENT

OER's vision is for a community with a clear understanding of its collective data assets, shared agreements regarding data collection and standardization, and a commitment to investing in the software, tools, and expertise needed to manage such extensive integrated datasets. A central challenge for the ocean exploration community is to effectively connect data from a variety of locations and collection points into interoperable and accessible datasets that can be used by scientists, researchers, educators, and policy makers to inform and support their work. NOAA Ocean Exploration will enable discovery and innovation by managing data as a strategic asset and ensuring those data are Findable, Accessible, Interoperable, and Reusable (FAIR) by the public and all interested parties.

- **OBJECTIVE 6.1:** Ensure metadata and data, collected via NOAA Ocean Exploration mechanisms, are easy to find for both humans and computers with a focus on interoperability, replicability, and accessibility.

- **OBJECTIVE 6.2:** Use NOAA Ocean Exploration agreement authorities (i.e. grants, contracts, memorandums of understanding, etc...) and its position of leadership to inform consensus standards for data collection, transmission, and accessibility across the ocean exploration community.

- **OBJECTIVE 6.3:** Invest in analytical tools and data products that can be used by non-NOAA Ocean Exploration users to visualize the data.

INDICATORS OF SUCCESS:

- NOAA's National Center for Environmental Information (NCEI) is the primary, centralized repository for ocean exploration data obtained through publicly funded ocean exploration activities.

- All data and metadata, collected through NOAA Ocean Exploration mechanisms, are assigned a globally unique and persistent identifier and are discoverable and retrievable by that identifier using a standardized communications protocol.

- Consistent data visualization standards, for GIS platforms, are commonly used, across the ocean exploration community.

- Collected data processing, QA/QC, and development are optimized using innovative technologies like Machine Learning, AI, cloud computing technology and services, or other emerging capabilities.