



# NATIONAL STRATEGY FOR A SUSTAINABLE OCEAN ECONOMY

A REPORT BY THE  
OCEAN POLICY COMMITTEE

JUNE 2024



THE WHITE HOUSE  
WASHINGTON



# Executive Summary

Since day one, President Biden and Vice President Harris have been clear that the ocean is central to life on Earth. As the President said in his 2024 National Ocean Month proclamation, the ocean “is a rejuvenating source of inspiration, exploration, and recreation.” The Nation's ocean, coasts, and Great Lakes support strong local economies and are a source of good-paying jobs, healthy food, recreation, culture and heritage, transportation, and trade. However, the ocean is vulnerable to the cumulative impacts of human activity, which diminish the wealth it provides to humanity. To stem the threats of climate change, pollution, overfishing, and habitat and biodiversity loss, the United States must lead through policies and actions that advance healthy ecosystems, strong communities, and thriving economies. That’s why the Biden-Harris Administration developed this National Strategy for a Sustainable Ocean Economy (Strategy) to position the United States to achieve economic, social, and environmental benefits for all.

The Strategy focuses on opportunities for direct Federal action in areas of U.S. national jurisdiction and envisions the United States leading by example on the global scale. By building on existing sustainable ocean management practices and highlighting key opportunities for action that integrate science, technology, knowledge, and policy, the Strategy works towards three interconnected goals:

1. Conserve, protect, restore, and maintain healthy ocean and coastal ecosystems;
2. Support resilient people and communities; and
3. Advance sustainable and just economic development.

Cross-cutting practices inform implementation of the three goals, and include commitments to increase and manage knowledge and information, advance Federal sustainable management priorities that are informed by priorities at all levels of government, and to engage internationally to build transparent and equitable policy.

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This Strategy further advances U.S. interests and leadership by fulfilling its commitment as a member country of the High Level Panel for a Sustainable Ocean Economy (Ocean Panel) to develop a sustainable ocean plan for marine areas under its national jurisdiction. The Ocean Panel collectively represents about 50% of the exclusive economic zones, 25% of the fishing, and over 20% of the shipping of the world.<sup>1</sup> The Ocean Panel advances the prosperity, health, and security of participating countries through the sustainable management of their marine areas.

The Strategy presents a whole-of-government vision for the policies and actions needed to support resilient, prosperous, and secure ecosystems, people, and communities in a dynamic and rapidly changing ocean environment. It will be implemented through ongoing efforts across the

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<sup>1</sup> High Level Panel for a Sustainable Ocean Economy. <https://oceanpanel.org/members/>. Last accessed May 2024.



Federal government, and actions that involve high-level interagency coordination will be addressed by the interagency Ocean Policy Committee.



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## About the Ocean Policy Committee

The Ocean Policy Committee (OPC) was codified by the National Defense Authorization Act for Fiscal Year 2021 to coordinate Federal actions on ocean-related matters.<sup>2</sup> The OPC traces its roots to the National Ocean Council created by Executive Order (EO) 13547<sup>3</sup> and the Ocean Policy Committee established by EO 13840.<sup>4</sup> The OPC is co-chaired by the Director of the Office of Science and Technology Policy (OSTP) and the Chair of the Council on Environmental Quality (CEQ) and is directed to engage and collaborate with the ocean community on ocean-related matters, facilitate coordination and integration of Federal activities in ocean and coastal waters to inform ocean policy, identify priority ocean science and technology needs, and to leverage resources and expertise to maximize the effectiveness of Federal investments in ocean research. For more information, please see <https://www.noaa.gov/interagency-ocean-policy>.

## About the Office of Science and Technology Policy

The White House Office of Science and Technology Policy (OSTP) was established by the National Science and Technology Policy, Organization, and Priorities Act of 1976 to provide the President and others within the Executive Office of the President with advice on the scientific, engineering, and technological aspects of the economy, national security, homeland security, health, foreign relations, the environment, and the technological recovery and use of resources, among other topics.<sup>5</sup> As a Cabinet-level office in the Biden-Harris Administration, OSTP leads interagency science and technology policy coordination efforts, assists the Office of Management and Budget with an annual review and analysis of Federal research and development in budgets, and serves as a source of scientific and technological analysis and judgment for the President with respect to major policies, plans, and programs of the Federal government. For more information, please see <http://www.whitehouse.gov/ostp>.

## About the Council on Environmental Quality

The White House Council on Environmental Quality (CEQ) was established within the Executive Office of the President by the National Environmental Policy Act of 1969 (NEPA).<sup>6</sup> CEQ advises the President and develops policies on climate change, environmental justice, Federal sustainability, public lands, the ocean, and wildlife conservation, among other areas. As the agency responsible for implementing NEPA, CEQ also works to ensure that environmental reviews for infrastructure projects and Federal actions are thorough, efficient, and reflect the

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<sup>2</sup> William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, Pub. L. No. 116-283, § 1055(b), 134 Stat. 3388, 3851 (2021) (codified at 10 U.S.C. § 8932).

<sup>3</sup> Exec. Order 13547, *Stewardship of the Ocean, Our Coasts, and the Great Lakes*, <https://www.federalregister.gov/documents/2010/07/22/2010-18169/stewardship-of-the-ocean-our-coasts-and-the-great-lakes>, 75 Fed. Reg. 43023 (July 22, 2010).

<sup>4</sup> Exec. Order 13840, *Ocean Policy To Advance the Economic, Security, and Environmental Interests of the United States*, <https://www.federalregister.gov/documents/2018/06/22/2018-13640/ocean-policy-to-advance-the-economic-security-and-environmental-interests-of-the-united-states>, 83 Fed. Reg. 29431 (June 22, 2018).

<sup>5</sup> National Science and Technology Policy, Organization, and Priorities Act of 1976, Pub. L. No. 94-282, § 202, 90 Stat. 459, 463 (1976).

<sup>6</sup> 42 U.S.C. § 4321 et seq.



input of the public and local communities. For more information, please see <https://www.whitehouse.gov/ceq>.

## About this Document

This document was developed by the National Strategy for a Sustainable Ocean Economy Workgroup of the Ocean Policy Committee. This document presents a whole-of-government vision for the policies and actions needed to support resilient, prosperous, and secure ecosystems, people, and communities in a dynamic, rapidly changing ocean environment.

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## Acknowledgements

On behalf of the OPC Co-Chairs and the National Strategy for a Sustainable Ocean Economy Workgroup, we are grateful for the time and expertise of everyone who contributed to this document. The Strategy would not have been possible without engagement, input, and feedback from people from every part of the United States. The OPC Co-Chairs thank the Tribal Nations that participated in the formal consultation process, and the Territorial governments, people of the U.S. Territories, and Native Hawaiian Organizations for rich and deep roundtable discussions. We also deeply appreciate the community advocates, non-profit organizations, academic institutions, industry partners, and members of the public who shared their views and expertise. Federal scientists, subject matter experts, outreach and engagement specialists, fellows, and interns also made valuable contributions to the content and process of this document.



## List of Acronyms and Abbreviations

<b>Army–Civil Works</b>	Civil Works Program, U.S. Army Corps of Engineers
<b>BBNJ Agreement</b>	Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction
<b>BIL</b>	Bipartisan Infrastructure Law
<b>BOEM</b>	Bureau of Ocean Energy Management, U.S. Department of the Interior
<b>BSEE</b>	Bureau of Safety and Environmental Enforcement, U.S. Department of the Interior
<b>CBP</b>	U.S. Customs and Border Protection, U.S. Department of Homeland Security
<b>CEQ</b>	Council on Environmental Quality
<b>CISA</b>	Cybersecurity and Infrastructure Security Agency, U.S. Department of Homeland Security
<b>CMTS</b>	U.S. Committee on the Marine Transportation System
<b>DHS</b>	U.S. Department of Homeland Security
<b>DNI</b>	Office of the Director of National Intelligence
<b>DOC</b>	U.S. Department of Commerce
<b>DOD</b>	U.S. Department of Defense
<b>DOE</b>	U.S. Department of Energy
<b>DOI</b>	U.S. Department of the Interior
<b>DOJ</b>	U.S. Department of Justice
<b>DOT</b>	U.S. Department of Transportation
<b>ECS</b>	Extended Continental Shelf
<b>eDNA</b>	Environmental DNA
<b>EEZ</b>	Exclusive Economic Zone
<b>EO</b>	Executive Order
<b>EPA</b>	Environmental Protection Agency
<b>FAO</b>	Food and Agriculture Organization
<b>FEMA</b>	Federal Emergency Management Agency, U.S. Department of Homeland Security
<b>FWS</b>	U.S. Fish and Wildlife Service, U.S. Department of the Interior
<b>G20</b>	Group of Twenty





<b>G7</b>	Group of Seven
<b>GW</b>	Gigawatts
<b>HAB</b>	Harmful Algal Bloom
<b>IMO</b>	International Maritime Organization
<b>IOOS</b>	Integrated Ocean Observing System
<b>IRA</b>	Inflation Reduction Act
<b>IUU</b>	Illegal, Unreported, and Unregulated
<b>JCS</b>	Joint Chiefs of Staff
<b>MARAD</b>	Maritime Administration, U.S. Department of Transportation
<b>Marine CDR</b>	Marine Carbon Dioxide Removal
<b>MPA</b>	Marine Protected Area
<b>NASA</b>	National Aeronautics and Space Administration
<b>NEPA</b>	National Environmental Policy Act of 1969
<b>NOAA</b>	National Oceanic and Atmospheric Administration, U.S. Department of Commerce
<b>NPS</b>	National Park Service, U.S. Department of the Interior
<b>NSF</b>	U.S. National Science Foundation
<b>OCAP</b>	Ocean Climate Action Plan
<b>Ocean Panel</b>	High Level Panel for a Sustainable Ocean Economy
<b>OES</b>	Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Department of State
<b>OMB</b>	Office of Management and Budget
<b>OPC</b>	Ocean Policy Committee
<b>OSTP</b>	Office of Science and Technology Policy
<b>OVP</b>	Office of the Vice President
<b>SPEC</b>	Office of the Special Presidential Envoy for Climate
<b>State</b>	U.S. Department of State
<b>Strategy</b>	National Strategy for a Sustainable Ocean Economy
<b>UN</b>	United Nations
<b>USCG</b>	U.S. Coast Guard, U.S. Department of Homeland Security
<b>USDA</b>	U.S. Department of Agriculture
<b>USGS</b>	U.S. Geological Survey



# A Vision for a Sustainable United States Ocean Economy

From Guam to Georgia, Alaska to the U.S. Caribbean, the Great Lakes to the Gulf Coast, individuals and communities rely on the ocean, coasts, and Great Lakes (referred to here as simply the “ocean”)<sup>7</sup> for identity, culture, jobs, recreation, food, medicine, and trade. U.S. ocean waters cover more area than the land mass of the entire country (See Figure 1). Central to the Nation’s heritage, and to its future, the ocean is a source of knowledge, discovery, climate regulation, nutrient cycling, solace, opportunity, natural protection from the impacts of extreme weather, and more. These benefits are not inexhaustible. The ocean is vulnerable to the cumulative impacts of human activity, which diminish the wealth it provides to humanity.

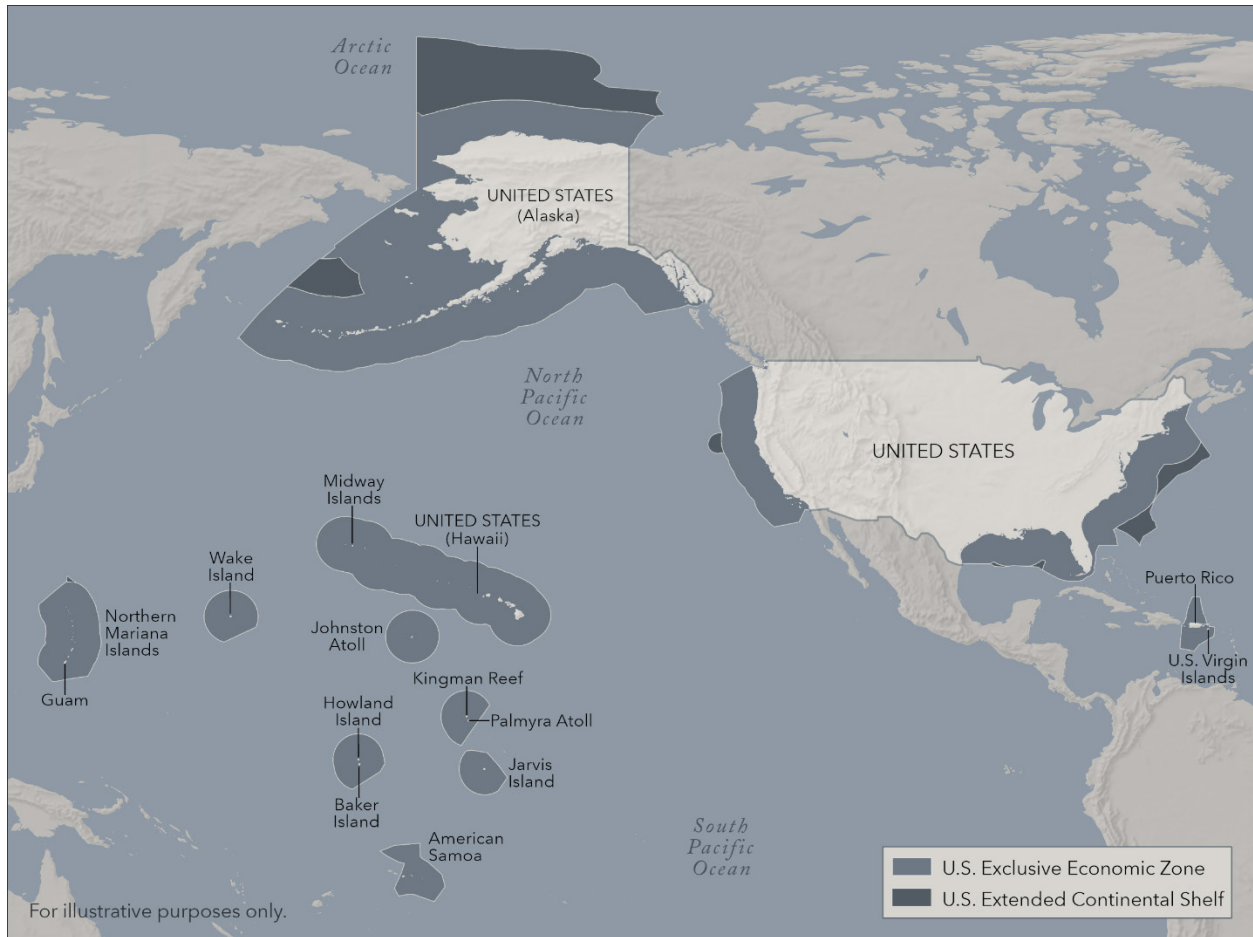
Climate change is causing rapid, dramatic, and dynamic shifts in ocean systems that compound the many other threats to the ocean’s ecological health and ability to support economic activity. To stem the threats of climate change, pollution, overfishing, and habitat and biodiversity loss, the United States must lead policies and actions that advance healthy ecosystems, strong communities, and thriving economies. This moment demands a clear vision for a sustainable ocean future and the integration of goals across ocean sectors. Solutions will require an integrated whole-of-society effort, with critical roles for the Federal government, Tribal Nations, Indigenous Peoples,<sup>8</sup> States, Territories, local governments, communities, the private sector, academia, non-governmental organizations, and the public. Global actors also view the ocean as a source of economic prosperity and of security. The United States must prioritize ocean stewardship and management to advance a sustainable ocean economy. The U.S. effort must progress on the global stage in alignment with international legal frameworks and obligations and in coordination with international partners.

Accordingly, the U.S. vision for a sustainable ocean economy supports healthy, resilient, prosperous, and secure ecosystems, people, and communities in a dynamic, rapidly changing environment. This National Strategy for a Sustainable Ocean Economy (Strategy) positions the United States to achieve economic, social, and environmental benefits for all. The Strategy focuses on opportunities for direct Federal action in areas of U.S. national jurisdiction and enables the United States to lead by example on the global scale.

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<sup>7</sup> For the purposes of this document, collectively, the “ocean,” except where specifically described otherwise, includes the open ocean, coasts, estuaries, the U.S. Arctic Ocean, the Great Lakes, and the ocean and coasts surrounding U.S. Territories.

<sup>8</sup> Indigenous Peoples includes Native Americans, Alaska Natives, Native Hawaiians, and Indigenous Peoples of the U.S. Territories and other regions.



*Figure 1. Map of the U.S. Exclusive Economic Zone and Extended Continental Shelf. Exclusive economic zone areas depicted include the U.S. Territorial Sea and internal waters*

The Biden-Harris Administration is committed to advancing integrated approaches to ocean ecosystem health, equity, knowledge, prosperity, and investment. In doing so, the United States will be guided by the following values:

- **Sustainability:** Ocean policies and management should strive to ensure that interconnected natural ecosystems and the resources, benefits, and value they provide to humanity are maintained and enhanced over time;
- **Inclusivity:** Every person should have access to the benefits of the ocean, and all people, including those who have been historically excluded, should have a voice in decisions that affect their lives; and
- **Prosperity:** A thriving ocean economy should support sustainable and equitable economic growth, improve livelihoods, and foster vibrant community and workforce development while also advancing American economic competitiveness globally.

President Biden has underscored the importance of sustainable ocean management by issuing policies that help tackle domestic and global challenges and deliver substantial economic, environmental, and social value across America. These include setting goals to:



- Conserve at least 30% of U.S. lands and waters by 2030;<sup>9</sup>
- Provide 40% of the overall benefits of certain Federal investments including climate change investments, to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution;<sup>10</sup>
- Deploy 30 gigawatts (GW) of offshore wind capacity by 2030 while conserving biodiversity and promoting ocean co-use;<sup>11</sup>
- Deploy 15 GW of energy from floating offshore wind platforms by 2035;<sup>12</sup>
- Scale up nature-based solutions to address climate change, strengthen communities, and support local economies;<sup>13</sup>
- Address illegal, unreported, and unregulated (IUU) fishing and associated labor abuses using the full range of existing conservation, labor, trade, economic, diplomatic, law enforcement, and national security authorities;<sup>14</sup>
- Achieve net-zero greenhouse gas emissions from international shipping by 2050 by working with countries in the International Maritime Organization (IMO);<sup>15</sup> and
- Actively participate as a member in the High Level Panel for a Sustainable Ocean Economy (Ocean Panel), a multi-national initiative to harness the power of the ocean to reduce greenhouse gas emissions, provide jobs and food security, and sustainably manage biological diversity.<sup>16</sup>

Additionally, President Biden has made unprecedented investments to address the climate crisis and advance these commitments through his Investing in America agenda. He has signed historic legislation, including the Bipartisan Infrastructure Law (BIL),<sup>17</sup> the CHIPS and Science Act,<sup>18</sup> and the Inflation Reduction Act (IRA).<sup>19</sup> These laws have accelerated ocean climate action

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<sup>9</sup> Exec. Order 14008, *Tackling the Climate Crisis at Home and Abroad*, <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>, 86 Fed. Reg. 7619 (February 1, 2021).

<sup>10</sup> Ibid.

<sup>11</sup> The White House, *FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs* (March 29, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-biden-administration-jumpstarts-offshore-wind-energy-projects-to-create-jobs/>.

<sup>12</sup> The White House, *FACT SHEET: Biden-Harris Administration Announces New Actions to Expand U.S. Offshore Wind Energy* (September 15, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/15/fact-sheet-biden-harris-administration-announces-new-actions-to-expand-u-s-offshore-wind-energy/>.

<sup>13</sup> The White House, *FACT SHEET: Biden-Harris Administration Announces Roadmap for Nature-Based Solutions to Fight Climate Change, Strengthen Communities, and Support Local Economies* (November 8, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/11/08/fact-sheet-biden-%e2%81%a0harris-administration-announces-roadmap-for-nature-based-solutions-to-fight-climate-change-strengthen-communities-and-support-local-economies/>.

<sup>14</sup> The White House, *National Security Memorandum on Combating Illegal, Unreported, and Unregulated Fishing and Associated Labor Abuses* (June 27, 2022), <https://www.whitehouse.gov/briefing-room/presidential-actions/2022/06/27/memorandum-on-combating-illegal-unreported-and-unregulated-fishing-and-associated-labor-abuses/>.

<sup>15</sup> The White House, *FACT SHEET: President Biden's Leaders Summit on Climate* (April 23, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/23/fact-sheet-president-bidens-leaders-summit-on-climate/>.

<sup>16</sup> U.S. Department of State, *FACT SHEET: Joining the High-Level Panel for a Sustainable Ocean Economy* (November 2, 2021), <https://www.state.gov/joining-the-high-level-panel-for-a-sustainable-ocean-economy/>.

<sup>17</sup> Infrastructure Investment and Jobs Act, Pub. L. No. 117-58 (2021). <https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf>.

<sup>18</sup> CHIPS and Science Act, Pub. L. No. 117-167 (2022). <https://www.congress.gov/117/plaws/publ167/PLAW-117publ167.pdf>.

<sup>19</sup> Inflation Reduction Act of 2022, Pub. L. No. 117-169 (2022). <https://www.congress.gov/117/plaws/publ169/PLAW-117publ169.pdf>.



through generational investments in domestic clean energy development, ecosystem conservation and restoration, job creation, and climate resilience.

Recent assessments, policy frameworks, and other efforts that guide these investments and build on the President’s commitments include:

- The Fifth National Climate Assessment,<sup>20</sup> which assesses the national and regional impacts of climate change;
- The National Nature Assessment,<sup>21</sup> which will take stock of U.S. lands, waters, wildlife and their benefits to the U.S. economy, health, climate, environmental justice, and national security;
- The Ocean Climate Action Plan (OCAP),<sup>22</sup> a groundbreaking roadmap to harness the power and capacity of the ocean to address the climate crisis;
- The National Strategy for the Arctic Region,<sup>23</sup> which sets an affirmative U.S. agenda for the Arctic over the next ten years;
- The Task Force on the Northern Bering Sea Climate Resilience Area,<sup>24</sup> which aims to enhance the resilience of the Northern Bering Sea region;
- The National Strategy to Develop Statistics for Environmental-Economic Decisions,<sup>25</sup> which charts a course to measure natural capital<sup>26</sup> in official U.S. economic statistics;
- Guidance for Assessing Changes in Environmental and Ecosystem Services in Benefit-Cost Analysis<sup>27</sup> and Office of Management and Budget Circulars A-4<sup>28</sup> and A-94,<sup>29</sup> which recommend best practices for ecosystem service and regulatory analyses;

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<sup>20</sup> U.S. Global Change Research Program. (2023). Fifth National Climate Assessment. <https://nca2023.globalchange.gov/>.

<sup>21</sup> U.S. Global Change Research Program. National Nature Assessment. <https://globalchange.gov/our-work/national-nature-assessment>. Last accessed May 2024.

<sup>22</sup> Ocean Policy Committee. (2023). Ocean Climate Action Plan. [https://www.whitehouse.gov/wp-content/uploads/2023/03/Ocean-Climate-Action-Plan\\_Final.pdf](https://www.whitehouse.gov/wp-content/uploads/2023/03/Ocean-Climate-Action-Plan_Final.pdf).

<sup>23</sup> The White House. (2022). National Strategy for the Arctic Region. <https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Strategy-for-the-Arctic-Region.pdf>.

<sup>24</sup> The White House. Northern Bering Sea Climate Resilience Area Task Force. <https://www.whitehouse.gov/ostps/ostps-teams/climate-and-environment/arctic-executive-steering-committee-aesc/northern-bering-sea-climate-resilience-area/>. Last accessed May 2024.

<sup>25</sup> Office of Science and Technology Policy, Office of Management and Budget, and Department of Commerce. (2023). National Strategy to Develop Statistics for Environmental-Economic Decisions. <https://www.whitehouse.gov/wp-content/uploads/2023/01/Natural-Capital-Accounting-Strategy-final.pdf>.

<sup>26</sup> Natural capital consists of elements of nature that persist through time and contribute to current of future economic production, human enjoyment, or other services people value.

<sup>27</sup> Office of Information and Regulatory Affairs and Office of Management and Budget. (2024). Guidance for Assessing Changes in Environmental and Ecosystem Services in Benefit-Cost Analysis. <https://www.whitehouse.gov/wp-content/uploads/2024/02/ESGuidance.pdf>.

<sup>28</sup> Office of Management and Budget. (2023). Circular No. A-4. <https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-4.pdf>.

<sup>29</sup> Office of Management and Budget. (2023). Circular No. A-94. <https://www.whitehouse.gov/wp-content/uploads/2023/11/CircularA-94.pdf>.



- Guidance for Federal Departments and Agencies on Indigenous Knowledge,<sup>30</sup> which advances the recognition and inclusion of Indigenous Knowledge in Federal decision-making;
- The Nature-Based Solutions Roadmap,<sup>31</sup> which outlines a strategy to address climate change, nature loss, and inequity through nature-based solutions, including blue carbon ecosystems<sup>32</sup> and living shorelines;
- The National Climate Resilience Framework,<sup>33</sup> which provides a vision for a climate resilient Nation;
- The Ocean Justice Strategy,<sup>34</sup> which outlines how the Federal government will integrate principles of equity and environmental justice into Federal ocean activities;
- The National Strategy to Advance an Integrated U.S. Greenhouse Gas Measurement, Monitoring, and Information System,<sup>35</sup> which is intended to enhance coordination of greenhouse gas measurement efforts to accelerate improvements in greenhouse gas data;
- The Climate Mapping for Resilience and Adaptation portal,<sup>36</sup> which provides communities with location-based information on climate impacts;
- Strategic Priorities for Ocean Exploration and Characterization of the United States Exclusive Economic Zone,<sup>37</sup> which identifies thematic and geographic priorities for ocean exploration;
- The Ocean Acidification Action Plan,<sup>38</sup> which highlights national goals on mitigation, research, and adaptation;
- The Green Shipping Challenge,<sup>39</sup> to help place the shipping sector on a pathway to align with the goal to limit global temperature rise to 1.5°C;

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<sup>30</sup> Office of Science and Technology Policy and Council on Environmental Quality, *Guidance for Federal Departments and Agencies on Indigenous Knowledge* (November 30, 2022), <https://www.whitehouse.gov/wp-content/uploads/2022/12/OSTP-CEQ-IK-Guidance.pdf>.

<sup>31</sup> Council on Environmental Quality, Office of Domestic Climate Policy, and Office of Science and Technology Policy. (2022). Opportunities to Accelerate Nature-Based Solutions: A Roadmap for Climate Progress, Thriving Nature, Equity, and Prosperity. <https://www.whitehouse.gov/wp-content/uploads/2022/11/Nature-Based-Solutions-Roadmap.pdf>.

<sup>32</sup> For the purposes of this document, blue carbon is coastal and marine habitats that naturally store carbon.

<sup>33</sup> The White House. (2023). National Climate Resilience Framework. <https://www.whitehouse.gov/wp-content/uploads/2023/09/National-Climate-Resilience-Framework-FINAL.pdf>.

<sup>34</sup> Ocean Policy Committee. (2023). Ocean Justice Strategy. <https://www.whitehouse.gov/wp-content/uploads/2023/12/Ocean-Justice-Strategy.pdf>.

<sup>35</sup> Greenhouse Gas Monitoring and Measurement Interagency Working Group. (2023). National Strategy to Advance an Integrated U.S. Greenhouse Gas Measurement, Monitoring, And Information System. <https://www.whitehouse.gov/wp-content/uploads/2023/11/NationalGHGMMISStrategy-2023.pdf>.

<sup>36</sup> Climate Mapping for Resilience and Adaptation. <https://resilience.climate.gov/>. Last accessed May 2024.

<sup>37</sup> Interagency Working Group on Ocean Exploration and Characterization. (2022). Strategic Priorities for Ocean Exploration and Characterization of the United States Exclusive Economic Zone. <https://www.whitehouse.gov/wp-content/uploads/2022/10/NOMECEOCPrioritiesReport.pdf>.

<sup>38</sup> NOAA and Department of State. (2022). The United States Ocean Acidification Action Plan. <https://www.state.gov/wp-content/uploads/2023/12/Ocean-Acidification-Action-Plan.pdf>.

<sup>39</sup> Green Shipping Challenge. <https://greenshippingchallenge.org/>. Last accessed May 2024.





- The Release of the U.S. Extended Continental Shelf (ECS) Outer Limits,<sup>40</sup> which has defined the outer limits of the U.S. ECS, within which the United States has rights under international law to conserve and manage resources and vital habitats;
- The Conserving and Restoring America the Beautiful Report,<sup>41</sup> which outlines a vision for the America the Beautiful initiative, a locally led and voluntary nationwide effort to restore and conserve U.S. lands, waters, and wildlife; and
- Guidance for Federal Departments and Agencies on Ecological Connectivity and Wildlife Corridors,<sup>42</sup> which highlights how connectivity and corridors could be considered in the areas of agency planning and decision-making, science and data, and collaboration and coordination.

Together, these efforts form the basis of many of the implementation actions presented within this Strategy.

Many of the environmental and economic issues impacting ocean health are global issues that require both a national and international approach. The Strategy will inform and complement U.S. engagement through a variety of international fora. For example, this Strategy advances the United Nations (UN) Sustainable Development Goals<sup>43</sup> and is consistent with the vision of the UN Decade of Ocean Science for Sustainable Development.<sup>44</sup>

The Strategy also addresses the commitment of the United States as a member country of the Ocean Panel, in which all member countries have committed to developing a sustainable ocean plan for marine areas under their national jurisdiction. The Ocean Panel is composed of countries that collectively represent about 50% of the exclusive economic zones (EEZs), 25% of the fishing, and over 20% of the shipping of the world.<sup>45</sup> This initiative aims to advance the prosperity, health, and security of participating countries through the sustainable management of their marine areas and to provide a range of examples that can be considered as potential models by other countries.

The United States will track implementation of the Strategy and communicate how it advances the Nation's commitment to sustainably manage its ocean areas as a member of the Ocean Panel<sup>46</sup> through engagement with the interagency Ocean Policy Committee (OPC) and its subcommittees.<sup>47</sup> These committees are well-suited to convene and advance interagency priorities as outlined in this Strategy and will include high-level actions in future work plans. The opportunities for action described in this Strategy are not an exhaustive list, but collectively,

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<sup>40</sup> U.S. Extended Continental Shelf Project, <https://www.state.gov/shelf>. Last accessed May 2024.

<sup>41</sup> National Climate Task Force. (2021). Conserving and Restoring America the Beautiful. <https://www.doi.gov/sites/doi.gov/files/report-conserving-and-restoring-america-the-beautiful-2021.pdf>.

<sup>42</sup> Council on Environmental Quality. (2023). Guidance for Federal Departments and Agencies on Ecological Connectivity and Wildlife Corridors. <https://www.whitehouse.gov/wp-content/uploads/2023/05/Memorandum-for-Heads-of-Federal-Departments-and-Agencies.pdf>.

<sup>43</sup> United Nations Development Program. Sustainable Development Goals. <https://www.undp.org/sustainable-development-goals>. Last accessed May 2024.

<sup>44</sup> UNESCO. United Nations Decade of Ocean Science for Sustainable Development (2021-2030). <https://www.unesco.org/en/decades/ocean-decade>. Last accessed May 2024.

<sup>45</sup> High Level Panel for a Sustainable Ocean Economy. <https://oceanpanel.org/members/>. Last accessed May 2024.

<sup>46</sup> Ibid.

<sup>47</sup> NOAA. Ocean Policy Committee. <https://www.noaa.gov/interagency-ocean-policy-committee>. Last accessed May 2024.



advancing these key activities will support ambition and action in achieving a sustainable ocean economy in the United States.

## The Approach: Strategic Goals and Cross-Cutting Practices

This U.S. vision of a sustainable ocean economy is guided by three goals that advance sustainable economic, environmental, and societal outcomes. Each goal is focused on one key aspect of a sustainable ocean economy: ocean ecosystems, communities that rely on the ocean, and the continued development of the ocean economy. Together, these goals will guide the U.S. ocean agenda for the next five years.

- **Goal 1 — Conserve, protect, restore, and maintain healthy ecosystems:** Conserve, protect, and restore abundant wildlife, resilient marine ecosystems, and thriving biodiversity; reduce threats from impacts of climate change, ocean acidification, overfishing, habitat loss, and pollution; embrace effective nature-based solutions to climate change and other hazards; and responsibly advance ocean-based climate tools and technologies.
- **Goal 2 — Support resilient people and communities:** Enhance resilience of coastal communities to sea level rise, climate change, ocean acidification, and extreme weather; integrate environmental justice objectives into ocean-related activities, reduce past and ongoing disparities, and protect human health; recognize and acknowledge places and peoples; and enhance community economic resilience through the creation of new, good-paying, safe jobs and secure employment.
- **Goal 3 — Advance sustainable and just economic development:** Develop sustainable industries and infrastructure; advance sustainable seafood production and combat illegal, unreported, and unregulated fishing; and build the marine industrial base, a skilled and diverse workforce, and a vibrant knowledge and research enterprise.

Cross-cutting practices inform implementation of the three goals, and include commitments to:

- **Increase and manage knowledge and information:** Recognize, consider, and apply local and Indigenous Knowledge in ocean management in consultation and collaboration with Tribal Nations and Indigenous People; conduct basic and applied research to gain knowledge and inform critical patterns, processes, solutions, and issues in the ocean; create new data management, artificial intelligence, machine learning, and research infrastructure as needed; monitor status and trends in ocean patterns and processes; and build ocean literacy. Coordinate diverse knowledge-building processes to improve transparency and equity for responsible and sustainable ocean management decisions.
- **Support multi-scale priorities:** Advance Federal sustainable management priorities that are informed by priorities at all levels of government; work with Tribal Nations and Indigenous Peoples, States, Territories, and communities to enhance collaboration for





sustainable management; leverage partnerships across multiple scales and sectors; and identify and collaborate in the production of marine ecosystem knowledge and other data needed to support regional-scale management.

- **Engage internationally:** Build transparent and equitable international policy, legal, and regulatory frameworks that serve as the foundation for a sustainable ocean economy. Advance U.S. priorities with respect to the Agreement under the UN Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ Agreement).<sup>48</sup> Engage actively at the International Seabed Authority<sup>49</sup> for an international regulatory framework that effectively protects the marine environment alongside the U.S. seabed minerals regulatory regime. Advance international ocean-related cooperation and coordination by participating in intergovernmental and international fora, such as the Group of Twenty (G20),<sup>50</sup> Group of Seven (G7), including the G7 Alliance for Nature Positive Economies,<sup>51</sup> UN Environment Program,<sup>52</sup> Convention on Biological Diversity,<sup>53</sup> Ocean and Climate Change Dialogue established at the 25<sup>th</sup> UN Climate Change Conference,<sup>54</sup> UN Food and Agriculture Organization (FAO),<sup>55</sup> Regional Fisheries Management Organizations,<sup>56</sup> regional and global ocean observing initiatives,<sup>57</sup> the IMO,<sup>58</sup> and the Ocean Panel.<sup>59</sup> Create new alliances to energize collaboration on sustainable ocean economies such as the Partnership for Atlantic Cooperation.<sup>60</sup> Participate in international scientific programs and initiatives that support critically important international science data sharing and transparency and sustainable ocean management.

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<sup>48</sup> United Nations. BBNJ. <https://www.un.org/depts/los/bbnj.htm>. Last accessed May 2024.

<sup>49</sup> International Seabed Authority. <https://www.isa.org.jm/>. Last accessed May 2024.

<sup>50</sup> G20. <https://www.g20.org/en/about-the-g20>. Last accessed May 2024.

<sup>51</sup> G7 Alliance on Nature Positive Economies. <https://g7anpe.com/>. Last accessed May 2024.

<sup>52</sup> UN Environment Program. <https://www.unep.org/>. Last accessed May 2024.

<sup>53</sup> Convention on Biological Diversity. <https://www.cbd.int/>. Last accessed May 2024.

<sup>54</sup> United Nations Framework Convention on Climate Change. (2023). Ocean and climate change dialogue 2023. [https://unfccc.int/sites/default/files/resource/Ocean%20dialogue\\_informal%20summary%20report\\_SB58\\_2023%20UNFCCC%20webpage%20publication%20%282%29.pdf](https://unfccc.int/sites/default/files/resource/Ocean%20dialogue_informal%20summary%20report_SB58_2023%20UNFCCC%20webpage%20publication%20%282%29.pdf).

<sup>55</sup> Food and Agricultural Organization of the United Nations. <https://www.fao.org/home/en>. Last accessed May 2024.

<sup>56</sup> U.S. Department of State. International Fisheries Management. <https://www.state.gov/key-topics-office-of-marine-conservation/international-fisheries-management/>. Last accessed May 2024.

<sup>57</sup> Integrated Ocean Observing System. Global Ocean Observing System for Climate. <https://ioos.noaa.gov/community/global/>. Last accessed May 2024.

<sup>58</sup> International Maritime Organization. <https://www.imo.org/>. Last accessed May 2024.

<sup>59</sup> High Level Panel for a Sustainable Ocean Economy. <https://oceanpanel.org/members/>. Last accessed May 2024.

<sup>60</sup> U.S. Department of State. Atlantic Cooperation. <https://www.state.gov/atlantic-cooperation/>. Last accessed May 2024.



# Goal 1 — Conserve, Protect, Restore, and Maintain Healthy Ecosystems

Healthy and resilient ocean ecosystems are cornerstones of a sustainable ocean economy. Conserving, protecting, and restoring these ecosystems is crucial to rebuild and sustain the wide range of benefits they provide to humanity. To achieve these social, environmental, and economic outcomes, the U.S. approach to sustainable ocean management draws on multiple sources of interrelated and interdependent knowledge, tools, and practices.

## Objective 1: Conserve, protect, and restore abundant wildlife, resilient marine ecosystems, and thriving biodiversity

Marine resource extraction, habitat degradation, and anthropogenic stressors threaten marine wildlife, biodiversity, and healthy ocean ecosystems. Addressing these threats requires ecosystem-based and adaptive management practices informed by sound science and guided by social and cultural values. Protection and restoration of key ocean habitats and ecosystems, at both national and international scales, will help conserve biodiversity and promote healthy ocean wildlife. Well-designed and enforced marine protected areas (MPAs) and other conserved areas are examples of successful mechanisms for promoting thriving, biodiverse ocean ecosystems. Reducing barriers to fish passage and restoring riverine spawning habitat for economically and culturally important species is also critical. Quantifying the condition and economic value of natural ocean assets will help inform policy decisions and management strategies and guide sustainable growth and development in the face of climate, environmental, and societal changes.

Key Opportunities for Action:

- **Create, connect, strengthen, and expand ecologically connected MPAs and MPA networks**, in partnership with local communities, as well as onshore and inland conservation areas, that promote climate resilience and account for marine species and habitat range shifts. This will advance the America the Beautiful Initiative to conserve at least 30% of lands and waters by 2030 and support global conservation goals.<sup>61</sup>
- **Promote international action and global ambition** through the Ocean Conservation Pledge,<sup>62</sup> the G7 Alliance for Nature Positive Economies,<sup>63</sup> and the Ocean Panel<sup>64</sup> for countries to commit to conserve or protect at least 30% of ocean waters under their national jurisdiction by 2030, to halt and reverse biodiversity loss by 2030, to promote the use of national sustainable ocean plans, and to support implementation of the BBNJ Agreement.

<sup>61</sup> Conservation.gov. <https://www.conservation.gov/>. Last accessed May 2024.

<sup>62</sup> U.S. Department of State, *Our Ocean 2022: Working Together to Protect Our Ocean's Health* (July 5, 2022), <https://www.state.gov/our-ocean-2022-working-together-to-protect-our-oceans-health/>.

<sup>63</sup> G7 Alliance on Nature Positive Economies. <https://g7anpe.com/>. Last accessed May 2024.

<sup>64</sup> High Level Panel for a Sustainable Ocean Economy. <https://oceanpanel.org/members/>. Last accessed May 2024.



- **Accelerate efforts to collect, coordinate, monitor, and deliver useful and actionable national-, regional-, and local-scale information** for place-based management, environmental and biodiversity assessments, MPA designations, and modeling.
- **Strengthen the knowledge foundation of Federal agencies, and their ability to coordinate with international parties** to align research, monitoring, and investments of cost-effective and successful solutions to protect and sustain biodiversity and living resources. This would support the goals of the BBNJ Agreement.
- **Fully implement the National Ocean Biodiversity Strategy**<sup>65</sup> to better align Federal investments and policy on ocean biodiversity with societal needs for the use and protection of living resources.
- **Complete and build on the National Nature Assessment**<sup>66</sup> to prioritize, safeguard, and sustainably use ocean biodiversity and ecosystems that provide the highest benefits and value to the U.S. ocean economy.
- **Integrate invasive species management** into climate action planning, funding, and implementation, and integrate the use of native species in hazard mitigation projects to restore biodiversity and promote resilient ecosystems consistent with the strategic direction of the National Invasive Species Council.<sup>67</sup>
- **Fully implement the U.S. National Strategy to Develop Statistics for Environmental-Economic Decisions**<sup>68</sup> (i.e., Natural Capital Accounting National Strategy) to create a system to measure natural capital, including ocean natural capital, in official U.S. economic statistics.
- **Improve the scientific understanding of deep-sea ecosystems, and continue to consider policies and regulations appropriate to the potential seabed mineral resource development sector** that will promote strong scientific, environmental, labor, Tribal consultation, and Indigenous and impacted community engagement standards in support of a precautionary approach towards use of the marine environment.
- **Continue to strive toward integrated, ecosystem-based approaches for sectoral uses of the ocean**, such as continued sustainable management of all Federally-managed fisheries<sup>69</sup> and ecologically connected State-managed fisheries, reduction of bycatch, and regulation of offshore wind energy, sustainable aquaculture, green shipping, and subsea cables.

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<sup>65</sup> Request for Information: National Ocean Biodiversity Strategy, 88 Fed. Reg. 77369 (November 9, 2023), <https://www.federalregister.gov/documents/2023/11/09/2023-24839/request-for-information-national-ocean-biodiversity-strategy>.

<sup>66</sup> U.S. Global Change Research Program. National Nature Assessment. <https://www.globalchange.gov/our-work/national-nature-assessment>. Last accessed May 2024.

<sup>67</sup> U.S. Department of the Interior. National Invasive Species Council. <https://www.doi.gov/invasivespecies>. Last accessed May 2024.

<sup>68</sup> Office of Science and Technology Policy, Office of Management and Budget, and Department of Commerce. (2023). National Strategy to Develop Statistics for Environmental-Economic Decisions. <https://www.whitehouse.gov/wp-content/uploads/2023/01/Natural-Capital-Accounting-Strategy-final.pdf>.

<sup>69</sup> NOAA Fisheries. Status of the Stocks Reports. <https://www.fisheries.noaa.gov/national/sustainable-fisheries/status-stocks-reports>. Last accessed May 2024.



## Objective 2: Reduce threats from impacts of climate change, ocean acidification, overfishing, habitat loss, and pollution

Climate change, ocean acidification, and pollution such as marine debris and toxic pollution have far-reaching and interconnected impacts on ocean ecosystems. Rising sea levels and warming waters, compounded by the effects of nutrient run-off, plastic pollution, and other stressors, threaten marine habitats and the economies they support. Investments in research, monitoring, observation, and international cooperation will facilitate science-based decision-making to address the individual and synergistic effects of threats such as hypoxia, marine debris, harmful algal blooms (HABs), and underwater noise pollution.

Key Opportunities for Action:

- **Track and model shifting habitat and species compositions** to plan for future conditions and inform sustainable management of vulnerable ecosystems and fisheries. Resources such as the National Oceanic and Atmospheric Administration’s (NOAA) Climate, Ecosystems, and Fisheries Initiative<sup>70</sup> can provide decision makers with climate-informed advice and improve predictive capacity relative to regional climate trends.
- **Advance understanding of ocean acidification** through research and monitoring, as outlined in the U.S. Ocean Acidification Action Plan<sup>71</sup> developed by the United States as a member of the International Alliance to Combat Ocean Acidification.<sup>72</sup>
- **Detect, monitor, assess, and mitigate the development of HABs** and their toxins through a combination of field observations, models, and satellite technology to provide early warnings and forecasts to guide management decisions, such as the Environmental Protection Agency’s (EPA) Cyanobacteria Assessment Network Application<sup>73</sup> and NOAA’s HAB Forecasting and Monitoring System.<sup>74</sup>
- **Leverage existing collaborations across Federal government, Tribal Nations, States, Territories, and relevant sectors to address water quality issues** in vulnerable and economically important coastal areas, improve monitoring and prediction of nearshore water quality, and reduce and mitigate economic risks and ecosystem impacts of pollutants, hypoxia, and HABs.<sup>75</sup>
- **Prevent, reduce, detect, and remove marine debris and plastic pollution** through targeted research funding and other strategies, including through interagency coordination as part of the Interagency Policy Committee on Plastic Pollution and a

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<sup>70</sup> NOAA Fisheries. Climate Change: Climate, Ecosystems, and Fisheries. <https://www.fisheries.noaa.gov/topic/climate-change/climate,-ecosystems,-and-fisheries>. Last accessed May 2024.

<sup>71</sup> NOAA and the Department of State. (2023). The United States Ocean Acidification Action Plan. <https://www.state.gov/wp-content/uploads/2023/12/Ocean-Acidification-Action-Plan.pdf>.

<sup>72</sup> OA Alliance. <https://www.oaalliance.org/about>. Last accessed May 2024.

<sup>73</sup> EPA. Cyanobacteria Assessment Network Application (CyAN app). <https://www.epa.gov/water-research/cyanobacteria-assessment-network-application-cyan-app>. Last accessed May 2024.

<sup>74</sup> NOAA National Centers for Coastal Ocean Science. Harmful Algal Bloom Forecasting. <https://coastalscience.noaa.gov/science-areas/habs/hab-forecasts/>. Last accessed May 2024. *See also*, NOAA National Centers for Coastal Ocean Science. Harmful Algal Bloom Monitoring System. <https://coastalscience.noaa.gov/science-areas/habs/hab-monitoring-system/>. Last accessed May 2024.

<sup>75</sup> EPA. The Harmful Algal Bloom and Hypoxia Research and Control Amendments Act (HABHRCA). <https://www.epa.gov/habs/harmful-algal-bloom-and-hypoxia-research-and-control-amendments-act-habhrca>. Last accessed May 2024. *See also*, EPA. Mississippi River/Gulf of Mexico Hypoxia Task Force. <https://www.epa.gov/ms-htf>. Last accessed May 2024.



Circular Economy,<sup>76</sup> to promote innovation and improve domestic infrastructure for waste management and mitigation.

- **Continue leading U.S. engagement in the negotiations for a global agreement on plastic pollution,**<sup>77</sup> launched by UN Environment Assembly Resolution 5/14 in March 2022, with the ambition of completing text negotiations by the end of 2024. This effort aims to address and reduce pollution and environmental impacts throughout the lifecycle of plastic, including plastic pollution in the marine environment.<sup>78</sup>
- **Mitigate underwater noise associated with shipping, energy development, and other marine industrial activity** through applicable regulatory measures, new technologies, funding to incentivize further innovation, and implementing relevant strategies like NOAA’s Ocean Noise Strategy.<sup>79</sup>

### **Objective 3: Embrace effective nature-based solutions to climate change and other hazards**

Nature-based solutions used in coastal areas often include restoration or conservation of coastal habitats like salt marshes, mangroves, sea meadows, and coral and oyster reefs. These habitats can help provide coastal flood protection by reducing wave action, slowing erosion, and reducing impacts of coastal storms. They can also sequester and store carbon, improve water quality, and enhance local fish and bird populations. These benefits can support local economies and livelihoods, and improve the health and prosperity of people living in coastal communities. Nature-based solutions can also be integrated into infrastructure projects. These applications reduce coastal risks, such as storm surges and flooding, while providing economic, social, and environmental benefits like improved water quality and opportunities for recreation and enjoyment. This Strategy is informed by the Nature-Based Solutions Roadmap,<sup>80</sup> which outlines a series of strategic recommendations to develop and implement nature-based solutions to climate change, nature loss, and inequity.

Key Opportunities for Action:

- **Implement relevant actions from the Nature-Based Solutions Roadmap<sup>81</sup> and Nature-Based Solutions Resource Guide,<sup>82</sup>** such as facilitating and accelerating Federal permitting, creating coordinated or common applications, investigating the feasibility of

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<sup>76</sup> The White House, *FACT SHEET: President Biden Signs Executive Order to Revitalize Our Nation’s Commitment to Environmental Justice for All* (April 21, 2023), <https://www.whitehouse.gov/briefing-room/statements-releases/2023/04/21/fact-sheet-president-biden-signs-executive-order-to-revitalize-our-nations-commitment-to-environmental-justice-for-all/>.

<sup>77</sup> U.S. Department of State, *Negotiating a Global Agreement on Plastic Pollution* (March 19, 2024), <https://www.state.gov/briefings-foreign-press-centers/negotiating-a-global-agreement-on-plastic-pollution>.

<sup>78</sup> U.S. Department of State. Plastic Pollution. <https://www.state.gov/key-topics-office-of-environmental-quality-and-transboundary-issues/plastic-pollution/>. Last accessed May 2024.

<sup>79</sup> NOAA. (2021). Ocean Noise Strategy Roadmap. [https://oceannoise.noaa.gov/sites/default/files/2021-02/ONS\\_Roadmap\\_Final\\_Complete.pdf](https://oceannoise.noaa.gov/sites/default/files/2021-02/ONS_Roadmap_Final_Complete.pdf).

<sup>80</sup> Council on Environmental Quality, Office of Domestic Climate Policy, and Office of Science and Technology Policy. (2022). Opportunities to Accelerate Nature-Based Solutions: A Roadmap for Climate Progress, Thriving Nature, Equity, and Prosperity. <https://www.whitehouse.gov/wp-content/uploads/2022/11/Nature-Based-Solutions-Roadmap.pdf>.

<sup>81</sup> Ibid.

<sup>82</sup> Council on Environmental Quality and Office of Science and Technology Policy. (2023). Nature-Based Solutions Resource Guide 2.0. <https://www.whitehouse.gov/wp-content/uploads/2023/12/Nature-Based-Solutions-Resource-Guide-2.0-FINAL.pdf>.





replacing human-made infrastructure with nature-based solutions where applicable, and creating best-practice guidance for coastal habitats and living shorelines.

- **Provide communities with information, financial opportunities, and technical assistance to advance the adoption of nature-based solutions**, such as beneficial use of dredged material projects<sup>83</sup> and integration of nature-based solutions into community hazard mitigation and agency climate resilience plans.<sup>84</sup>
- **Encourage projects that use nature-based solutions** to reduce the impact of existing and future coastal hazards, utilizing programs such as the Federal Emergency Management Agency’s (FEMA) Hazard Mitigation Assistance Program.<sup>85</sup>
- **Improve and expand monitoring and restoration of natural infrastructure like coral reefs, wetlands, and other ecosystems** to reduce flood and erosion risks and to enhance the economic, environmental, and social benefits they provide. The value of these ecosystems can be identified by tools such as the FEMA Ecosystem Service Value Tool,<sup>86</sup> which creates a framework for applicants who would like to value the ecosystem services associated with their mitigation projects.
- **Integrate equity, green infrastructure, and nonstructural flood risk reduction** in feasibility studies for Federal coastal flood risk management investments, using the International Guidelines on Natural and Nature-Based Features for Flood Risk Management<sup>87</sup> and taking into account the Federal Flood Risk Management Standard.<sup>88</sup>
- **Conserve, protect, enhance, and sustainably manage existing blue carbon habitats** by expanding research, exploration, and mapping.<sup>89</sup> These can inform prioritization and coordination across Tribal Nations, Federal agencies, States, Territories, local counties, and other partners.

#### **Objective 4: Responsibly advance ocean-based climate tools and technologies**

Addressing the climate crisis requires significant and sustained reduction of carbon emissions and removal of existing carbon from the atmosphere. The open ocean and coastal regions host the potential for many powerful climate mitigation tools, including offshore wind, geologic carbon sequestration, and emerging technologies such as marine carbon dioxide removal (marine CDR). Effective, safe, and responsible development of these approaches requires the best-available science, sustained comprehensive ocean observations through direct and satellite measurements, meaningful engagement with frontline communities and affected users to

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<sup>83</sup> U.S. Army Corps of Engineers. USACE Beneficial Use Program. <https://www.usace.army.mil/Missions/Civil-Works/Beneficial-Use-Program/>. Last accessed May 2024.

<sup>84</sup> FEMA. (2021) Building Community Resilience with Nature-Based Solutions: A Guide for Local Communities. [https://www.fema.gov/sites/default/files/documents/fema\\_riskmap-nature-based-solutions-guide\\_2021.pdf](https://www.fema.gov/sites/default/files/documents/fema_riskmap-nature-based-solutions-guide_2021.pdf).

<sup>85</sup> FEMA. Hazard Mitigation Assistance Grants. <https://www.fema.gov/grants/mitigation>. Last accessed May 2024.

<sup>86</sup> FEMA. (2022). FEMA Ecosystem Service Value Updates. [https://www.fema.gov/sites/default/files/documents/fema\\_ecosystem-service-value-updates\\_2022.pdf](https://www.fema.gov/sites/default/files/documents/fema_ecosystem-service-value-updates_2022.pdf).

<sup>87</sup> Bridges, T. S., J. K. King, J. D. Simm, M. W. Beck, G. Collins, Q. Lodder, and R. K. Mohan, eds. 2021. International Guidelines on Natural and Nature-Based Features for Flood Risk Management. Vicksburg, MS: U.S. Army Engineer Research and Development Center. <https://hdl.handle.net/11681/41946>.

<sup>88</sup> FEMA Floodplain Management. Federal Flood Risk Management Standard. <https://www.fema.gov/floodplain-management/intergovernmental/federal-flood-risk-management-standard>. Last accessed May 2024.

<sup>89</sup> National Estuarine Research Reserve System. Collection: Blue Carbon. <https://nerrsciencecollaborative.org/resource/collection-blue-carbon>. Last accessed May 2024.



incorporate the needs and inputs of local communities, and consistent coordination across Federal agencies and non-Federal sectors. This objective is informed by the OCAP, which outlines priority actions needed to achieve a carbon-neutral future.<sup>90</sup>

#### Key Opportunities for Action:

- **Support marine CDR research** by establishing a comprehensive Federal marine CDR research program; clarifying permitting, regulatory, and other standards, and policies; and creating mechanisms to enable public-private partnerships and interagency coordination.<sup>91</sup>
- **Develop responsible regulatory frameworks for emerging tools and technologies** such as offshore carbon sequestration, marine CDR, and green hydrogen.
- **Pursue technologies and designs that reduce carbon emissions while minimizing environmental impacts from ocean-based climate solutions**, emphasizing methods that deliver other co-benefits, such as reducing underwater noise from commercial maritime activities that impact marine life.
- **Sustain and enhance existing *in situ* ocean observing networks**, such as Argo<sup>92</sup> and Biogeochemical Argo,<sup>93</sup> with new sensing technologies (e.g., genomics, environmental DNA, imaging, passive acoustics, automated sampling) and strategies, including remote, renewable power capabilities to ensure relevant, credible, and efficient monitoring and research of wildlife and marine ecosystems. Complement existing ocean observing networks, such as the Integrated Ocean Observing System (IOOS) Regional Associations,<sup>94</sup> with comprehensive modeling to monitor, evaluate, and adapt ocean management in response to tested ocean-climate solutions.
- **Implement the National Strategy on Aquatic Environmental DNA (eDNA)**<sup>95</sup> to harness the power of eDNA to explore, map, monitor, and better understand aquatic life to sustain and restore biological resources into the future.
- **Sustain and enhance *ex situ* monitoring and measurement capabilities** (e.g., airborne and satellite) that can support ocean health tracking and carbon monitoring, such as the National Aeronautics and Space Administration’s (NASA) Surface Water and Ocean Topography,<sup>96</sup> Plankton, Aerosol, Cloud, ocean Ecosystem,<sup>97</sup> and the European Space

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<sup>90</sup> Ocean Policy Committee. (2023). Ocean Climate Action Plan. [https://www.whitehouse.gov/wp-content/uploads/2023/03/Ocean-Climate-Action-Plan\\_Final.pdf](https://www.whitehouse.gov/wp-content/uploads/2023/03/Ocean-Climate-Action-Plan_Final.pdf).

<sup>91</sup> National Science and Technology Council. (2023). Charter of the Marine Carbon Dioxide Removal Fast Track Action Committee of the Subcommittee on Ocean Science and Technology. [https://www.noaa.gov/sites/default/files/2023-10/mCDR\\_FTAC\\_charter\\_2023\\_09\\_19\\_approved.pdf](https://www.noaa.gov/sites/default/files/2023-10/mCDR_FTAC_charter_2023_09_19_approved.pdf).

<sup>92</sup> NOAA’s Atlantic Oceanographic and Meteorological Laboratory. Argo Program. <https://www.aoml.noaa.gov/argo/>. Last accessed May 2024.

<sup>93</sup> NOAA’s Atlantic Oceanographic and Meteorological Laboratory. Biogeochemical-Argo Program. <https://www.aoml.noaa.gov/biogeochemical-argo-program/>. Last accessed May 2024.

<sup>94</sup> Integrated Ocean Observing System. Regional Associations. <https://ioos.noaa.gov/about/regional-associations/>. Last accessed May 2024.

<sup>95</sup> Ocean Science and Technology Biodiversity Interagency Working Group. (2023). Request for Information: National Marine and Great Lakes eDNA Strategy. [https://oceanexplorer.noaa.gov/technology/omics/media/docs/eDNA\\_N0001423RFI0014\\_RFI.pdf](https://oceanexplorer.noaa.gov/technology/omics/media/docs/eDNA_N0001423RFI0014_RFI.pdf).

<sup>96</sup> NASA Jet Propulsion Laboratory. Surface Water and Ocean Topography. <https://swot.jpl.nasa.gov/>. Last accessed May 2024.

<sup>97</sup> NASA. PACE-NASA Science. <https://science.nasa.gov/mission/pace/>. Last accessed May 2024.



Agency/NASA Sentinel 6 Series<sup>98</sup> missions. These monitoring capabilities provide integrated physical and biological observations for ocean applications that directly address both global ocean processes and local resilience needs.

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<sup>98</sup> NASA Jet Propulsion Laboratory. Sentinel-6 Michael Freilich Satellite. <https://www.jpl.nasa.gov/missions/sentinel-6>. Last accessed May 2024.





## Goal 2 — Support Resilient People and Communities

Coastal communities are vulnerable to both natural hazards and anthropogenic threats, which are further exacerbated by a changing climate. While the coasts regularly face and recover from storms, waves, winds, and tides, climate change has increased the severity and frequency of impacts. Communities and governments across the country are engaged in building environmental, economic, and social resilience to these impacts and improving their ability to prepare for, successfully adapt to, and thrive in changing conditions. Communities that experience disproportionate and adverse human health or environmental burdens as a result of inequitable access to clean water, air, and natural places, as well as underinvestment in basic infrastructure and services, are further disadvantaged due to the cumulative impacts of these exposures and other stressors such as climate change.<sup>99</sup> Federal agencies will continue to pursue a whole-of-government approach to advance environmental justice and support resilient communities.

### Objective 1: Enhance resilience of coastal communities to sea level rise, climate change, ocean acidification, and extreme weather

More than 40% of the population of the United States live in coastal counties that are increasingly affected by climate change, extreme weather events, population growth, and other pressures. Individual and community well-being relies on coastal resilience. The Federal government will continue to invest in coastal resilience strategies that are adaptive, equitable, and based on best practices to support people and communities. Communities will benefit from Federal observational, modeling, and analysis capabilities that provide scientific research and decision support for the implementation of nature-based solutions and other adaptation strategies. This will better prepare coastal communities to withstand threats such as ocean acidification, sea level rise, flooding, erosion, and extreme weather on a local scale. BIL<sup>100</sup> and IRA<sup>101</sup> made major investments in coastal resilience, and projects funded through these investments provide valuable models, tools, and services for further action. Collaborative research and community engagement efforts will enable coastal communities to build local capacity to adapt to climate change.

Key Opportunities for Action:

- **Build on existing efforts to strengthen community coastal resilience**, such as FEMA’s Building Resilient Infrastructure and Communities program,<sup>102</sup> U.S. Fish and Wildlife

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<sup>99</sup> Exec. Order 14096, *Revitalizing Our Nation’s Commitment to Environmental Justice for All*, <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/04/21/executive-order-on-revitalizing-our-nations-commitment-to-environmental-justice-for-all/>, 88 Fed. Reg. 25251 (April 26, 2023).

<sup>100</sup> Infrastructure Investment and Jobs Act, Pub. L. No. 117-58 (2021). <https://www.congress.gov/117/plaws/publ58/PLAW-117publ58.pdf>.

<sup>101</sup> Inflation Reduction Act of 2022, Pub. L. No. 117-169 (2022). <https://www.congress.gov/117/plaws/publ169/PLAW-117publ169.pdf>.

<sup>102</sup> FEMA Hazard Mitigation Assistance Grants. Building Resilient Infrastructure and Communities. <https://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities>. Last accessed May 2024.



Service’s Coastal Program<sup>103</sup> and Coastal Barrier Resources System,<sup>104</sup> and the Department of Defense’s Readiness and Environmental Protection Integration program.<sup>105</sup> IRA-funded programs, such as NOAA’s Climate Resilience Regional Challenge,<sup>106</sup> will invest in regional climate resilience and adaptation actions in partnership with Tribal Nations, States, Territories, local governments, and other entities.

- **Expand the development and use of climate products and services in planning**, such as the Interagency Sea Level Rise Scenario Tool,<sup>107</sup> to inform planning and development resilient to future ocean conditions. Data, information, products, and climate tools should be user-friendly and developed at relevant geographic, temporal, and spatial scales to encourage uptake and use.
- **Plan and construct coastal storm risk reduction projects that have benefits for both marine ecosystems and communities** to meet specific user needs through technical assistance and funding from agencies such as the U.S. Army Corps of Engineers, NOAA, and FEMA.<sup>108</sup>
- **Expand the range of coastal resilience and restoration project financing mechanisms** available to frontline communities, with a focus on nature-based solutions, where appropriate, and in partnership with Tribal Nations, States, Territories, local governments, non-governmental organizations, and other relevant parties.
- **Expand climate vulnerability assessments and tools** such as the Federal Flood Standard Support Tool,<sup>109</sup> including through innovative communications and sensing technologies, to better assess flood inundation and improve flood prediction capabilities.
- **Adopt and enforce hazard-resistant building codes** to keep communities safe during natural hazard events. Model building codes are regularly updated to incorporate new information from post-disaster research and contribute to climate adaptation resiliency.
- **Encourage risk transfer methods** and educate property owners. All hazard risk transfer activities, such as the National Flood Insurance Program,<sup>110</sup> play an important role in economic recovery.
- **Advance evaluation and adoption of nature-based solutions** to build resilience against climate-driven coastal hazards through existing programs such as the National Coastal Resilience Fund.<sup>111</sup> Prioritize innovation in coastal mapping and characterization, new

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<sup>103</sup> U.S. Fish & Wildlife Service. Coastal Program. <https://www.fws.gov/program/coastal>. Last accessed May 2024.

<sup>104</sup> U.S. Fish & Wildlife Service. Coastal Barrier Resources Act. <https://www.fws.gov/program/coastal-barrier-resources-act>. Last accessed May 2024.

<sup>105</sup> Department of Defense. Readiness and Environmental Protection Integration. <https://www.repi.mil/>. Last accessed May 2024.

<sup>106</sup> NOAA Office for Coastal Management. Climate Resilience Regional Challenge. <https://coast.noaa.gov/funding/ira/resilience-challenge/>. Last accessed May 2024.

<sup>107</sup> NASA. Interagency Sea Level Rise Scenario Tool. <https://sealevel.nasa.gov/task-force-scenario-tool/>. Last accessed May 2024.

<sup>108</sup> Council on Environmental Quality. (2024). Wetland and Water Protection Resource Guide. <https://www.whitehouse.gov/wp-content/uploads/2024/03/Wetland-and-Water-Protection-Resource-Guide.pdf>.

<sup>109</sup> Federal Flood Standard Support Tool (Beta). <https://floodstandard.climate.gov/>. Last accessed May 2024.

<sup>110</sup> FEMA. The National Flood Insurance Program. <https://www.floodsmart.gov/>. Last accessed May 2024.

<sup>111</sup> NOAA Office for Coastal Management. National Coastal Resilience Fund. <https://coast.noaa.gov/resilience-grant/>. Last accessed May 2024.



engineering technologies and standards, and nature-based solutions in disaster recovery and hazard mitigation programs.

- **Improve coastal and Great Lakes communities' ability to respond to ecosystem threats exacerbated by climate change**, including biodiversity loss, invasive species (e.g., zebra mussels), subsidence, and HABs, by expanding sustained modeling and monitoring efforts; integrating experimental forecasts into operations; developing methods for invasive species detection and monitoring; and investigating ecological impacts of climate change threats.
- **Support developing countries and communities around the world** in their efforts to adapt to and manage the impacts of climate change through the President's Emergency Plan for Adaptation and Resilience.<sup>112</sup>

## **Objective 2: Integrate environmental justice objectives into ocean-related activities, reduce past and ongoing disparities, and protect human health**

The Biden-Harris Administration recognizes that not all communities have had equal access to vital government services and is committed to incorporating equity and environmental justice into future ocean management. The U.S. Ocean Justice Strategy<sup>113</sup> sets overarching goals, principles, and practices that the Federal government can take to better address injustice faced by coastal and ocean-dependent communities. For example, it calls on Federal agencies to embed environmental justice objectives into Federal ocean activities, consider and apply Indigenous Knowledge throughout Federal research and development as appropriate and with consent and respect for confidentiality, and expand the Federal tools used in characterizing social and domestic environmental justice patterns to encompass domestic ocean justice indicators. Increasing capacity and access to climate data, information, and decision support will help all communities, including working waterfronts, communities with environmental justice concerns,<sup>114</sup> disadvantaged communities,<sup>115</sup> and Tribal and Indigenous communities, use these vital resources to effectively prepare for and adapt to the impacts of climate change.

Key Opportunities for Action:

- **Expand the use of actionable social vulnerability and socioeconomic data** and encourage linkages between existing social science databases to identify communities that may need assistance preparing for, responding to, or recovering from extreme weather events.

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<sup>112</sup> The White House. (2021). President's Emergency Plan for Adaptation and Resilience (PREPARE). <https://www.whitehouse.gov/wp-content/uploads/2021/10/Full-PREPARE-Plan.pdf>.

<sup>113</sup> Ocean Policy Committee. (2023). Ocean Justice Strategy. <https://www.whitehouse.gov/wp-content/uploads/2023/12/Ocean-Justice-Strategy.pdf>.

<sup>114</sup> Exec. Order 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, <https://www.whitehouse.gov/briefing-room/presidential-actions/2023/04/21/executive-order-on-revitalizing-our-nations-commitment-to-environmental-justice-for-all/>, 88 Fed. Reg. 25251 (April 26, 2023).

<sup>115</sup> Exec. Order 14008, *Tackling the Climate Crisis at Home and Abroad*, <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>, 86 Fed. Reg. 7619 (February 1, 2021).



- **Expand opportunities for co-stewardship agreements and co-management**,<sup>116</sup> invest in Tribal engagement, and provide training to help Federal employees appropriately consider, include, and apply Indigenous Knowledge in ocean research and management decisions.
- **Align Federal programs and policies to support socially cohesive, voluntary, community-driven relocation**, and, as appropriate, seeking additional funding or authority for, and developing programs to provide information and support to communities interested in relocation due to the risks of coastal flood inundation.<sup>117</sup>
- **Advance the Justice40 Initiative**<sup>118</sup> which sets the goal to provide 40% of the overall benefits of certain Federal investments to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution.<sup>119</sup>
- **Provide technical assistance and encourage partnerships** that can help communities that live near the ocean, depend on marine resources, or are part of the ocean economy to identify available Federal resources and support, in order to build local capacity and provide access to information.

### Objective 3: Recognize and acknowledge places and peoples

The connection between people and places is vital to shaping cultures, identities, and communities. Federal policies and practices have resulted in the separation (both physically and intellectually) of Tribal Nations and other Indigenous Peoples from the places they are connected to, severing relationships with lands, waters, and social systems. Recognizing relationships between peoples and places, and the context of interactions between the Federal government, Tribal Nations, and Indigenous Peoples is an objective of this Strategy. The Biden-Harris Administration recognizes Tribes and Indigenous communities as the original stewards of our natural environment.<sup>120</sup> Existing and emergent ocean uses have the potential to threaten places important to coastal communities, particularly those with environmental justice concerns. To support a broadly inclusive sustainable ocean economy, it is critical to identify and protect important ancestral, cultural, historical, and traditional areas. Federal efforts will recognize the

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<sup>116</sup> Joint Secretarial Order No. 3403, *Joint Secretarial Order on Fulfilling the Trust Responsibility to Indian Tribes in the Stewardship of Federal Lands and Waters*, [https://www.bia.gov/sites/default/files/dup/inline-files/joint-so-3403-a1\\_0.pdf](https://www.bia.gov/sites/default/files/dup/inline-files/joint-so-3403-a1_0.pdf), (November 21, 2022). *See also*, Department of the Interior. (2022). Departmental Manual for Collaborative and Cooperative Stewardship with Tribes and the Native Hawaiian Community. <https://www.doi.gov/sites/doi.gov/files/elips/documents/502-dm-1.pdf>.

<sup>117</sup> U.S. Department of the Interior Indian Affairs. Voluntary Community-Driven Relocation. <https://www.bia.gov/service/community-driven-relocation>. Last accessed May 2024. *See also*, FEMA. FEMA Efforts Advancing Community-Driven Relocation. <https://www.fema.gov/fact-sheet/fema-efforts-advancing-community-driven-relocation>. Last accessed May 2024.

<sup>118</sup> Exec. Order 14008, *Tackling the Climate Crisis at Home and Abroad*, <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>, 86 Fed. Reg. 7619 (February 1, 2021).

<sup>119</sup> The White House. Justice40 Initiative. <https://www.whitehouse.gov/environmentaljustice/justice40/>. Last accessed May 2024. *See also*, Climate and Economic Justice Screening Tool. <https://screeningtool.geoplatform.gov/en/>. Last accessed May 2024.

<sup>120</sup> Office of Science and Technology Policy and Council on Environmental Quality, *Guidance for Federal Departments and Agencies on Indigenous Knowledge* (November 30, 2022), <https://www.whitehouse.gov/wp-content/uploads/2022/12/OSTP-CEQ-IK-Guidance.pdf>. *See also*, Office of Science and Technology Policy and Council on Environmental Quality, *Implementation of Guidance for Federal Departments and Agencies on Indigenous Knowledge* (November 30, 2022), <https://www.whitehouse.gov/wp-content/uploads/2022/12/IK-Guidance-Implementation-Memo.pdf>.



importance of the ocean in the identity, histories, and stories that define cultures and coastal communities across the United States.

Key Opportunities for Action:

- **Continue to identify nationally significant natural and cultural ocean areas for recognition or protection** through such tools as the designation of national marine sanctuaries, national estuary programs, national wildlife refuges, and national marine monuments.
- **Designate and manage MPAs as informed by Indigenous Knowledge, as appropriate.** Examples include the proposed designation of the Chumash Heritage National Marine Sanctuary,<sup>121</sup> as well as the Mai Ka Pō Mai guidance document<sup>122</sup> released by Native Hawaiian community members for the Papahānaumokuākea Marine National Monument (now held in trust and stewarded by co-trustee agencies).
- **Prioritize the consideration of ancestrally, culturally, historically, and traditionally important areas while considering food security** in conservation designations, offshore energy developments, environmental reviews, and other coastal planning decisions, in collaboration with Indigenous Peoples.<sup>123</sup>
- **Support efforts to conserve, protect, manage, and restore ancestrally, culturally, and historically important resources** through projects that restore sustainable Indigenous practices, such as removing fish passage barriers,<sup>124</sup> building clam gardens,<sup>125</sup> and restoring Hawaiian fishponds.<sup>126</sup> This includes supporting locally led and locally designed research projects and conservation efforts that build on existing tools and strategies with an emphasis on flexibility and adaptive approaches.
- **Honor long-standing obligations to Tribal Nations** enshrined in treaties and in the Federal government’s Tribal trust responsibility when taking Federal actions related to the ocean and coast.
- **Identify and address gaps and needs for spatial data and other information,** in collaboration with Tribal Nations and Indigenous Peoples, to support Tribal, Territorial, and regional place-based management. This can be supported through initiatives and

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<sup>121</sup> NOAA, *Biden-Harris Administration proposes new Chumash Heritage National Marine Sanctuary off California Coast* (August 24, 2023), <https://www.noaa.gov/news-release/biden-harris-administration-proposes-new-chumash-heritage-national-marine-sanctuary-off-california>.

<sup>122</sup> Office of Hawaiian Affairs. (2021). *Mai Ka Pō Mai: A Native Hawaiian Guidance Document for Papahānaumokuākea*. [https://www.oha.org/wp-content/uploads/MaiKaPoMai\\_FINAL-web.pdf](https://www.oha.org/wp-content/uploads/MaiKaPoMai_FINAL-web.pdf).

<sup>123</sup> Guidance and Specific Examples: U.S. Department of Interior, *Biden-Harris Administration Takes Steps to Increase Co-Stewardship Opportunities, Incorporate Indigenous Knowledge, Protect Sacred Sites* (December 6, 2023), <https://www.doi.gov/pressreleases/biden-harris-administration-takes-steps-increase-co-stewardship-opportunities>. See also, Inuit Circumpolar Council-Alaska. (2015). *Alaskan Inuit Food Security Conceptual Framework: How to Assess the Arctic From an Inuit Perspective*. <https://iccalaska.org/wp-icc/wp-content/uploads/2016/05/Food-Security-Full-Technical-Report.pdf>.

<sup>124</sup> NOAA Fisheries. Office of Habitat Conservation. <https://www.fisheries.noaa.gov/about/office-habitat-conservation>. Last accessed May 2024. See also, U.S. Fish & Wildlife Service. *National Fish Passage Program*. <https://www.fws.gov/program/national-fish-passage>. Last accessed May 2024.

<sup>125</sup> U.S. Department of the Interior. *The Swinomish Clam Garden Project: Building Climate Resilience Through Sustaining First Foods & Connecting Communities*. <https://www.bia.gov/news/swinomish-clam-garden-project-building-climate-resilience-through-sustaining-first-foods>. Last accessed May 2024.

<sup>126</sup> University of Hawaii Sea Grant College Program. *The Return of Kū`ula, Restoration of Hawaiian Fishponds*. <https://seagrant.soest.hawaii.edu/the-return-of-kuula/>. Last accessed May 2024.





efforts like the Marine Cadastre initiative,<sup>127</sup> regional ocean partnership data portals, and IOOS.<sup>128</sup>

- **Provide opportunities for meaningful community engagement and coordinate across agencies** when soliciting feedback from communities on similar topics, when possible, to reduce the consultation and engagement burden on communities.<sup>129</sup>

## **Objective 4: Enhance community economic resilience through the creation of new, good-paying, safe jobs and secure employment**

Coastal regions, including marine and Great Lakes coastlines, are vital for the global economy, and their resilience is essential to a sustainable future. An estimated 129 million Americans live in coastal communities in the United States alone, with the population steadily increasing. These coastal communities produce more than \$10 trillion in goods and services annually and employ up to 54.6 million people.<sup>130</sup> Coastal industries and communities also support the sustainable ocean economy, with key sectors in fishing, aquaculture, recreation, tourism, shipping, ports, and defense. As these industries respond to changing conditions, and as new industries like marine renewable energy emerge, they create new economic opportunities, the ability to prioritize inclusive economic growth, and promote safe and good-paying jobs.

Key Opportunities for Action:

- **Expand high-quality employment opportunities in sustainable ocean-based industries** through initiatives like NOAA’s Climate-Ready Workforce,<sup>131</sup> which funds programs aimed at attracting and placing people across the country into good jobs that advance climate resilience.
- **Equitably prepare impacted workers for new technologies and practices** through investments in training and hiring. Expand paid internships, scholarships, fellowships, and apprenticeships to provide access and opportunities for a more diverse ocean workforce. Initiatives like the American Climate Corps<sup>132</sup> will mobilize a new, diverse generation of ocean climate leaders.
- **Meet the emerging and existing needs of employers in sectors such as shipping, offshore energy, and ocean observing**, while helping workers find high-quality jobs. Invest in workforce training focused on coastal climate resilience, particularly in communities that have historically received fewer Federal investments.<sup>133</sup>

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<sup>127</sup> MarineCadastre.gov. <https://marinecadastre.gov/>. Last accessed May 2024.

<sup>128</sup> Integrated Ocean Observing System. <https://ioos.noaa.gov/>. Last accessed May 2024.

<sup>129</sup> Ocean Policy Committee. (2023). Ocean Justice Strategy. <https://www.whitehouse.gov/wp-content/uploads/2023/12/Ocean-Justice-Strategy.pdf>.

<sup>130</sup> NOAA Office for Coastal Management. Economics and Demographics. <https://coast.noaa.gov/states/fast-facts/economics-and-demographics.html>. Last accessed May 2024.

<sup>131</sup> NOAA Sea Grant. Climate Ready Workforce. <https://seagrant.noaa.gov/CRW/>. Last accessed May 2024.

<sup>132</sup> The White House, *FACT SHEET: Biden Administration Launches American Climate Corps to Train Young People in Clean Energy, Conservation, and Climate Resilience Skills, Create Good-Paying Jobs and Tackle the Climate Crisis* (September 20, 2023), <https://www.whitehouse.gov/briefing-room/statements-releases/2023/09/20/fact-sheet-biden-harris-administration-launches-american-climate-corps-to-train-young-people-in-clean-energy-conservation-and-climate-resilience-skills-create-good-paying-jobs-and-tackle-the-clima/>.

<sup>133</sup> U.S. Department of Transportation Maritime Administration. Military to Mariner. <https://www.maritime.dot.gov/outreach/military-mariner>. Last accessed May 2024.



- **Combat illegal and inhumane working conditions in international ocean sectors** by advancing transparent recruiting practices, fair wages, and occupational safety and health protection through interagency efforts across multiple departments and agencies, including but not limited to NOAA and the Departments of Homeland Security, Justice, Labor, Interior, and State.
- **Combat sexual harassment and assault on U.S. vessels and at field stations** by identifying, employing, and updating appropriate tools for accountability.<sup>134</sup> This includes through standards such as the Maritime Administration’s (MARAD) Every Mariner Builds a Respectful Culture,<sup>135</sup> which is a set of policies, programs, procedures, and practices to help strengthen a culture of sexual harassment and assault prevention, as well as pilot programs like the U.S. National Science Foundation’s (NSF) Submission of Safe and Inclusive Fieldwork Plans.<sup>136</sup>
- **Reduce barriers and improve access for women-owned and minority-owned businesses in ocean-based industries** through implementation of the U.S. Small Business Administration’s Equity Action Plan.<sup>137</sup>

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<sup>134</sup> NOAA. (2018). NOAA Sexual Assault and Sexual Harassment Prevention and Response Policy. [https://www.noaa.gov/sites/default/files/legacy/document/2020/Mar/202-1106\\_SASH.pdf](https://www.noaa.gov/sites/default/files/legacy/document/2020/Mar/202-1106_SASH.pdf).

<sup>135</sup> Department of Transportation, Maritime Administration, and U.S. Merchant Marine Academy. (2021). Every Mariner Builds a Respectful Culture (EMBARC). [https://www.maritime.dot.gov/sites/marad.dot.gov/files/2021-12/EMBARC\\_Standards.pdf](https://www.maritime.dot.gov/sites/marad.dot.gov/files/2021-12/EMBARC_Standards.pdf).

<sup>136</sup> NSF. Frequently Asked Questions (FAQs) Regarding Preparation and Submission of Safe and Inclusive Fieldwork (SAIF) Plans under the BIO/GEO Pilot. <https://www.nsf.gov/pubs/2023/nsf23071/nsf23071.jsp>. Last accessed May 2024.

<sup>137</sup> U.S. Small Business Administration. (2024). 2023 Equity Action Plan. [https://www.sba.gov/sites/default/files/2024-02/2023%20SBA%20Equity%20Action%20Plan\\_508\\_Jan%202024.pdf](https://www.sba.gov/sites/default/files/2024-02/2023%20SBA%20Equity%20Action%20Plan_508_Jan%202024.pdf).



## Goal 3 — Advance Sustainable and Just Economic Development

Prosperous, sustainable ocean industries provide national economic and environmental benefits. Opportunities to decarbonize green shipping, renewable energy, and sustainable tourism can also propel innovation and economic growth. The development of sustainable and resilient port infrastructure will strengthen and diversify the ocean economy by advancing renewable energy priorities, maritime decarbonization, domestic supply chains, and seafood processing, including the workforce to sustain each of these industries. Federal investments in sustainable and legally harvested seafood will enable enduring economic benefits and allow U.S. fisheries to compete on the global stage. Transformational research, development of new technologies, partnerships across sectors, and a skilled workforce are required to significantly advance ocean sustainability and climate solutions.

### Objective 1: Develop sustainable ocean industries and infrastructure

Sustainable ocean industries address domestic and global challenges and deliver substantial economic, environmental, and social value across America. Well-sited offshore wind, green shipping, and sustainable marine and Great Lakes recreation and tourism offer major opportunities to mitigate the impacts of climate change, while providing societal co-benefits. Support for President Biden’s offshore wind energy goals<sup>138</sup> requires significant investment in port and supply chain infrastructure in coastal communities<sup>139</sup> and a large, skilled workforce, creating thousands of new American jobs. Creation of sustainable transportation opportunities will set the maritime sector on a pathway to decarbonization and will expand associated economic, industry, community, and workforce opportunities. The recreational fishing and boating sectors are key to the coastal economy and foster a culture of stewardship for the millions of Americans who engage in these activities each year.

Key Opportunities for Action:

- **Develop and implement a U.S. Maritime Decarbonization Action Plan** flowing from the U.S. National Blueprint for Transportation Decarbonization,<sup>140</sup> and leverage programs like MARAD’s Port Infrastructure Development Program<sup>141</sup> and EPA’s Clean

<sup>138</sup> The White House, *FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs* (March 29, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-biden-administration-jumpstarts-offshore-wind-energy-projects-to-create-jobs/>. See also, The White House, *FACT SHEET: Biden-Harris Administration Announces New Actions to Expand U.S. Offshore Wind Energy* (September 15, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/15/fact-sheet-biden-harris-administration-announces-new-actions-to-expand-u-s-offshore-wind-energy/>.

<sup>139</sup> The White House, *FACT SHEET: President Biden Announces New Actions to Strengthen America’s Supply Chains, Lower Costs for Families, and Secure Key Sectors* (November 27, 2023), <https://www.whitehouse.gov/briefing-room/statements-releases/2023/11/27/fact-sheet-president-biden-announces-new-actions-to-strengthen-americas-supply-chains-lower-costs-for-families-and-secure-key-sectors/>.

<sup>140</sup> Department of Energy, Department of Transportation, Department of Housing and Urban Development, and EPA. (2023). The U.S. National Blueprint for Transportation Decarbonization: A Joint Strategy to Transform Transportation. <https://www.energy.gov/sites/default/files/2023-01/the-us-national-blueprint-for-transportation-decarbonization.pdf>.

<sup>141</sup> U.S. Department of Transportation Maritime Administration. Port Infrastructure Development Program. <https://www.maritime.dot.gov/PIDPgrants>. Last accessed May 2024.





Ports Program<sup>142</sup> to work across sectors and identify pathways to decarbonize port operations, increase the availability and utilization of zero and near zero fuels, energies, and technologies for vessels, and deepen operational practices to reduce emissions.

- **Continue to identify responsible offshore wind and marine energy areas** to support President Biden’s goal of 30 GW of offshore wind energy by 2030<sup>143</sup> and 15 GW of floating offshore wind energy by 2035,<sup>144</sup> and investigate the potential of offshore wind and marine energy to power applications in and beyond the sustainable ocean economy.
- **Expand establishment of green shipping corridors**<sup>145</sup> to encompass ports and coastal and inland waterways, where applicable, and identify partners for collaboration, including by identifying and advancing opportunities for corridors along existing maritime trade routes, leveraging U.S. investments in zero-emission technologies for maritime applications, and supporting long-term port infrastructure investments.
- **Support safe and modernized waterways and ports** with enhanced cybersecurity capability<sup>146</sup> and modernized navigation infrastructure and services, and enable the transition of the maritime industry while ensuring the safety of sustainable technologies and practices such as low carbon fuel vessels, offshore wind, and emerging technologies.
- **Modernize navigation technology and mariner information systems** to respond to the increasingly complex maritime operating environment and reduce the risk of maritime accidents and disasters. Provide safe access routes for the movement of vessel traffic to and from U.S. ports through products and tools such as NOAA’s Precision Marine Navigation.<sup>147</sup>
- **Improve the resilience of maritime infrastructure and global supply chains against the effects of climate change** by upgrading infrastructure at ports of entry.<sup>148</sup> Collaborate with ports to assess needs and opportunities through planning and implementation of authoritative technical guidance.
- **Implement the 2022 National Travel and Tourism Strategy**<sup>149</sup> to foster resilient and sustainable ocean travel and tourism that protects natural resources, supports the tourism economy, and prioritizes equitable development.

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<sup>142</sup> EPA Ports Initiative. Clean Ports Program. <https://www.epa.gov/ports-initiative/cleanports>. Last accessed May 2024.

<sup>143</sup> The White House, *FACT SHEET: Biden Administration Jumpstarts Offshore Wind Energy Projects to Create Jobs* (March 29, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/29/fact-sheet-biden-administration-jumpstarts-offshore-wind-energy-projects-to-create-jobs/>.

<sup>144</sup> The White House, *FACT SHEET: Biden-Harris Administration Announces New Actions to Expand U.S. Offshore Wind Energy* (September 15, 2022), <https://www.whitehouse.gov/briefing-room/statements-releases/2022/09/15/fact-sheet-biden-harris-administration-announces-new-actions-to-expand-u-s-offshore-wind-energy/>.

<sup>145</sup> Green shipping corridors refer to maritime routes that showcase low- and zero-emission lifecycle fuels and technologies.

<sup>146</sup> Department of Homeland Security, *FACT SHEET: DHS Moves to Improve Supply Chain Resilience and Cybersecurity Within Our Maritime Critical Infrastructure* (February 21, 2024), <https://www.dhs.gov/news/2024/02/21/fact-sheet-dhs-moves-improve-supply-chain-resilience-and-cybersecurity-within-our>.

<sup>147</sup> NOAA National Ocean Service. Precision Marine Navigation. <https://oceanservice.noaa.gov/navigation/precision-navigation/>. Last accessed May 2024.

<sup>148</sup> Department of Homeland Security, *Biden-Harris Administration Announces Supply Chain Resilience Center to Protect U.S. Supply Chain from Evolving Threats* (November 27, 2023), <https://www.dhs.gov/news/2023/11/27/biden-harris-administration-announces-supply-chain-resilience-center-protect-us>.

<sup>149</sup> Department of Commerce. (2022). 2022 National Travel and Tourism Strategy. <https://www.commerce.gov/sites/default/files/2022-06/National-Travel-Tourism-Strategy.pdf>.



## Objective 2: Advance sustainable seafood production and combat illegal, unreported, and unregulated fishing

Wild-caught and aquaculture-grown seafood are vital sources of nutrition, protein, and food security for the world. Many seafood options have lower greenhouse gas emissions than land-based animal protein sources.<sup>150</sup> Sustainably produced foods captured or cultivated in freshwater or marine ecosystems can be a source of climate adaptation solutions, including sustainable development, poverty eradication, and climate-resilient food systems.<sup>151</sup> IUU fishing, unsustainable fishing practices, and wildlife trafficking are among the greatest threats to ocean health. These threats are significant causes of overfishing and undermine fisheries that are critical to the economic growth, food security, and ecosystems of countries around the world. IUU fishing and associated labor abuses undermine U.S. economic competitiveness, national security, fishery sustainability, and the livelihoods and human rights of fishers around the world and will exacerbate the environmental and socioeconomic effects of climate change.

Key Opportunities for Action:

- **Use evolving science and ecosystem-based fishery management** to support sustainable U.S. wild capture production and assist States in achieving sustainable fisheries in their waters. Incorporating ecosystem interactions and uncertainties into precautionary fishery management will protect stocks, reduce overfishing, and build a more resilient fishery in the face of climate impacts.
- **Promote fisheries and seafood, including aquaculture, as a critical element of global food and nutrition security** in initiatives, programs, and national and international dialogues, including through the UN.
- **Prevent overfishing in Federally-managed fisheries, work to reduce bycatch, and develop international partnerships** to minimize overfishing of stocks that migrate across boundaries and between EEZs.
- **Build and sustain Federal climate-ready fisheries** that are prepared for, informed by, and can respond promptly to the impacts of climate change on fisheries-related species, habitats, fishing sectors, communities, and other sectors that may affect fisheries. NOAA's IRA investments in climate-ready fisheries<sup>152</sup> support building a dynamic fisheries management system that incorporates climate and ecosystem environmental data to support management decisions.
- **Support diverse and sustainably managed aquaculture** through an efficient and strategic regulatory approach that considers and mitigates impacts on wild stocks, protected resources, essential fish habitat, and marine ecosystems.<sup>153</sup>

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<sup>150</sup> Koehn, J.Z, Allison, E., Golden, C., Hilborn, R. (2022). The role of seafood in sustainable diets. *Environmental Research Letters*, 17(3): 035003. <https://doi.org/10.1088/1748-9326/ac3954>.

<sup>151</sup> Crona, B., Wassénus, E., Jonell, M., et al. (2023). Four ways blue foods can help achieve food system ambitions across nations. *Nature*, 616(7955): 104-112. <https://doi.org/10.1038/s41586-023-05737-x>.

<sup>152</sup> NOAA. Climate Ready Fisheries. <https://www.noaa.gov/inflation-reduction-act/inflation-reduction-act-climate-ready-coasts-and-communities/climate-ready-fisheries>. Last accessed May 2024.

<sup>153</sup> NOAA. (2022). NOAA Aquaculture Strategic Plan (2023-2028). <https://media.fisheries.noaa.gov/2022-10/Strategic-Plan-102422-web.pdf>.



- **Continue negotiating, developing, and integrating updated Guidelines for Sustainable Aquaculture**<sup>154</sup> into U.S. aquaculture development. The guidelines developed through the UN FAO Committee on Fisheries provide practical guidance for promoting implementation of the Code of Conduct for Responsible Fisheries and engaging and enabling aquaculture to effectively participate in the implementation of the 2030 Agenda for Sustainable Development.<sup>155</sup>
- **Combat IUU fishing** through information-sharing and innovative technologies for monitoring and intelligence support facilitated through whole-of-government mechanisms such as the Maritime Security and Fisheries Enforcement Act Interagency Working Group,<sup>156</sup> agency initiatives, and multilateral coalitions, including by working with regional fisheries management organizations and encouraging other countries to become Parties to the UN FAO Agreement on Port State Measures to Prevent, Deter, and Eliminate IUU Fishing.<sup>157</sup>

### **Objective 3: Build the marine industrial base, a skilled and diverse workforce, and a vibrant knowledge and research enterprise**

A resilient and sustainable ocean economy requires a thriving industrial base, workforce, and knowledge enterprise that is well-equipped to meet the challenges and opportunities presented by climate change and decarbonization. Fostering public-private partnerships is critical to expanding the U.S. industrial capacity in growing sectors such as zero and near-zero greenhouse gas fuels, offshore wind, and ocean observation technology. Investments in U.S. technology, shipbuilding capacity, resilient port infrastructure, and workforce development to increase access to water-based businesses are all required to enable a sustainable ocean economy. Commercial mariners and the maritime workforce are also vital for supporting national and economic security. U.S. policy and goals must focus on building appropriate maritime leadership to drive the investment, research, and adoption of standards to build curriculum and training for the maritime industry. Maritime sector investments will enhance U.S. workforce capabilities as a potent strategic asset and provide the ability to build and operate the next generation of U.S. flag, commercial, and fishing fleets operating on zero and near-zero greenhouse gas fuels and technologies.

Key Opportunities for Action:

- **Support small businesses that are developing sustainable technologies** through mechanisms such as NOAA’s Ocean-Based Climate Resilience Accelerators program,<sup>158</sup> which is investing in development and commercialization of solutions in areas such as ocean renewable energy, ocean carbon sequestration monitoring, and hazard mitigation.

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<sup>154</sup> Food and Agriculture Organization of the United Nations Committee on Fisheries. (2023). Draft Guidelines for Sustainable Aquaculture. <https://www.fao.org/3/cc5729en/cc5729en.pdf>.

<sup>155</sup> United Nations. (2015). Transforming Our World: The 2030 Agenda for Sustainable Development. <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>.

<sup>156</sup> NOAA Fisheries. U.S. Interagency Working Group on IUU Fishing. <https://www.fisheries.noaa.gov/national/international-affairs/us-interagency-working-group-iuu-fishing>. Last accessed May 2024.

<sup>157</sup> Food and Agriculture Organization of the United Nations. (2016). Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing. <https://www.fao.org/3/i5469t/i5469t.pdf>.

<sup>158</sup> NOAA. Ocean-Based Climate Resilience Accelerators. <https://www.noaa.gov/inflation-reduction-act/inflation-reduction-act-climate-ready-coasts-and-communities/ocean-based-climate-resilience-accelerators>. Last accessed May 2024.



- **Revolutionize U.S. shipbuilding and working waterfronts** to modernize and expand capacity for new technologies, fuels, and resilient designs required to meet domestic and international climate goals and adapt to dynamic weather, coastal, and sea conditions, including shifting marine species due to climate change.
- **Strengthen skilled workforce recruitment and training pipelines**, such as optimizing workforce career pathways to apply and expand existing transferable skills in renewable energy and other sectors relevant to the maritime industry, in addition to university-led Centers of Excellence,<sup>159</sup> innovation clusters, and maritime training programs.<sup>160</sup> Continue funding that supports training programs like apprenticeship training for jobs in manufacturing, the building trades, and the maritime industry.<sup>161</sup>
- **Foster public-private partnerships to increase expertise, capacity, and responsiveness** to rapidly evolving ocean-based industries to support workforce development, training, and modernization of equipment and practices to prepare for a surge in advanced, green technologies, offshore wind, and future vessel operations.<sup>162</sup>
- **Facilitate multi-sector collaboration and convene experts across disciplines** to identify ocean challenges and spur innovative solutions, including through efforts like the National Oceanographic Partnership Program,<sup>163</sup> IOOS,<sup>164</sup> and strategically mapping and characterizing the U.S. EEZ, pursuant to the National Strategy for Mapping, Exploring, and Characterizing the U.S. Exclusive Economic Zone.<sup>165</sup>
- **Enable the availability of sufficient skilled workers for national security** by growing and maintaining a cadre of well-trained mariners. Federal agencies will promote programs, like Military to Mariner,<sup>166</sup> that support the long-term availability of mariner jobs and qualified and trained mariners to support the Nation’s economic and national security needs, including through the transformation of the merchant mariner credentialing program by the U.S. Coast Guard.
- **Modernize port and waterway navigation technologies and improve nautical navigation rules** to address evolving threats to infrastructure and secure the flow of goods and vessels along the Marine Transportation System.<sup>167</sup>

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<sup>159</sup> Department of Homeland Security. Centers of Excellence. <https://www.dhs.gov/science-and-technology/centers-excellence>. Last accessed May 2024.

<sup>160</sup> U.S. Department of Transportation Maritime Administration. Maritime Academies. <https://www.maritime.dot.gov/maritime-workforce/maritime-education>. Last accessed May 2024.

<sup>161</sup> Apprenticeship.gov. <https://www.apprenticeship.gov/>. Last accessed May 2024.

<sup>162</sup> U.S. Department of Transportation Maritime Administration. (2024) Navigating a Stronger Future Strategic Plan FY2022-2026. <https://www.maritime.dot.gov/sites/marad.dot.gov/files/2024-03/MARAD%20Strategic%20Plan%20FY22-26%20%283-14%29.pdf>.

<sup>163</sup> National Oceanographic Partnership Program. <https://nopp.org/>. Last accessed May 2024.

<sup>164</sup> Integrated Ocean Observing System. <https://ioos.noaa.gov/>. Last accessed May 2024.

<sup>165</sup> Ocean Science and Technology Subcommittee of the Ocean Policy Committee. (2020). National Strategy for Mapping, Exploring, and Characterizing the United States Exclusive Economic Zone. <https://www.noaa.gov/sites/default/files/2022-07/NOMECSstrategy.pdf>.

<sup>166</sup> U.S. Department of Transportation Maritime Administration. Military to Mariner. <https://www.maritime.dot.gov/outreach/military-mariner>. Last accessed May 2024.

<sup>167</sup> U.S. Department of Transportation Maritime Administration. (2024) Navigating a Stronger Future Strategic Plan FY2022-2026. <https://www.maritime.dot.gov/sites/marad.dot.gov/files/2024-03/MARAD%20Strategic%20Plan%20FY22-26%20%283-14%29.pdf>.



- **Expand the Marine Economy Satellite Account**<sup>168</sup> to include state-level statistics in order to better understand local needs and opportunities for job creation and development.
- **Support the next-generation of ocean research** by funding emerging scholars through Federally-funded research, internship, fellowship, and grant opportunities across the education spectrum, such as NOAA’s José E. Serrano Educational Partnership Program with Minority Serving Institutions,<sup>169</sup> Ernest F. Hollings Undergraduate Scholarship,<sup>170</sup> and Sea Grant Knauss Fellowship;<sup>171</sup> and NSF’s Research Experiences for Undergraduates,<sup>172</sup> Community College Innovation Challenge,<sup>173</sup> and Graduate Research Fellowship Program.<sup>174</sup>

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<sup>168</sup> Bureau of Economic Analysis. Marine Economy. <https://www.bea.gov/data/special-topics/marine-economy>. Last accessed May 2024.

<sup>169</sup> NOAA Office of Education. José E. Serrano Educational Partnership Program with Minority Serving Institutions (EPP/MSI). <https://www.noaa.gov/office-education/epp-msi>. Last accessed May 2024.

<sup>170</sup> NOAA. Ernest F. Hollings Undergraduate Scholarship. <https://www.noaa.gov/office-education/hollings-scholarship>. Last accessed May 2024.

<sup>171</sup> NOAA Sea Grant. Knauss Fellowship. <https://seagrant.noaa.gov/communities/students/graduate-fellows/knauss-fellowship-program/>. Last accessed May 2024.

<sup>172</sup> NSF. Research Experiences for Undergraduates (REU). <https://new.nsf.gov/funding/opportunities/research-experiences-undergraduates-reu>. Last accessed May 2024.

<sup>173</sup> American Association of Community Colleges. Community College Innovation Challenge (CCIC). <https://www.aaccinnovationchallenge.com/>. Last accessed May 2024.

<sup>174</sup> NSF. Graduate Research Fellowship Program. <https://www.nsfgrfp.org/>. Last accessed May 2024.



## Conclusion

As a result of rapid global change, the United States faces significant environmental, social, and economic challenges. In response, this Strategy describes opportunities for advancing a sustainable ocean economy that protects and builds healthy and resilient ecosystems, people, and communities, while advancing the prosperity, health, and security of the Nation.

To achieve these benefits, the United States will continue to raise its ambition and help accelerate the pace and scale of strategic and effective action to maximize success, collaboration, and innovation. While many of the actions in the Strategy build on existing Federal efforts, success depends on a nationwide approach that harnesses the skills, ingenuity, and resources of governments, organizations, businesses, academia, and people from all backgrounds. In implementing the Strategy, Federal agencies should seek opportunities to collaborate broadly, build local and regional capacity, and engage globally.

By implementing this Strategy, the United States can build a sustainable ocean economy that will increase the quality of life for all Americans and ensure marine and coastal ecosystems and economies survive and thrive.