



INTERNATIONAL ALLIANCE TO
COMBAT OCEAN ACIDIFICATION

MEMBERS & PARTNERS MEETING



OUR OCEAN

PANAMA - MARCH 2-3, 2023

OUR OCEAN, OUR CONNECTION



PROFESSOR MAXINE BURKETT

Deputy Assistant Secretary for Oceans, Fisheries and Polar
Affairs, Department of State, United States of America

Key questions for today

What's needed to advance ocean acidification leadership internationally?

- UNFCCC Ocean and Climate Dialogue/ Adaptation and Financing Schemes.
- Example solutions/ projects to address mitigation and adaptation needs. (SDG 14)
- Increased financing at regional scales. (*GEF/ GCF/ UNEP/Development Banks/ Private Financing.*)

What's needed to support OA Action Planning and OA preparedness domestically?

- Regional monitoring and coastal information.
- Inventory of relevant policies and management mechanisms.
- Prioritization of highly vulnerable sectors and resources.
- Finance plan for implementation.

Do we need/ want a “high ambition” coalition on OA?

The background is a solid blue color with several thin, white, wavy lines that resemble ocean waves, flowing from the top left towards the right.

**HOW THE DOES OA ALLIANCE
ENGAGE?**

Scales & use of OA info

Scale	Decision Making Relevance	What Information Is Available/ Possible	What It Tells You	Instrumentation or Tools Required	Time Scale Needs	Ready Factor	Policy to Support Implementation
Global	Support messaging of climate-ocean change risks, impacts and mitigation/adaptation needs across international frameworks.						Ocean mitigation and adaptation aspects across: UNFCCC; UN SDG; CBD. Reporting through UN SDG 14.3.1.
Regional	Climate risk assessments . Targeted blue investments or insurance needs. Climate resilient regional fisheries and aquaculture strategies. Coral reef resilience goals and strategies. Food security goals and strategies.						Regional bodies or MOUs that yield increased multi-jurisdictional/ocean basin collaboration and leverage funding

Scales & use of OA info

Scale	Decision Making Relevance	What Information Is Available/ Possible	What It Tells You	Instrumentation or Tools Required	Time Scale Needs	Ready Factor	Policy to Support Implementation
National	<p>Annual predictions for reef conditions and/ or fisheries stock assessments.</p> <p>Carbon sequestration potential (or other co-benefits) of marine veg. and coastal wetlands.</p> <p>Inform targeted regulations, closures, MPAs/ MSP.</p> <p>Inform terrestrial activities & coastal development.</p> <p>Strengthen water quality directives or regulations</p>						<p>National OA Action Plans or OA Legislation</p> <p>Climate mitigation & adaptation policies</p> <p>Ocean and marine management policies</p> <p>Water Quality Directives</p>

Scales & use of OA info

Scale	Decision Making Relevance	What Information Is Available/ Possible	What It Tells You	Instrumentation or Tools Required	Time Scale Needs	Ready Factor	Policy to Support Implementation
Local	<p>Hatchery practices, fisheries management, or alt. grow-out systems of freshwater pond aquaculture.</p> <p>Inform terrestrial activities & coastal development.</p> <p>Strengthen water quality directives or regulations of wastewater, stormwater, ag run-off.</p> <p>Inform community-based adaptation and resilience priorities.</p>						<p>Local OA Action Plans.</p> <p>Climate mitigation and adaptation strategies.</p> <p>Community resilience strategies.</p>

Potential applications of OA information

- Conducting nationwide or regional **vulnerability assessments**.
- Strengthening **early warning systems** and climate **preparedness** strategies.
- Guiding climate-response **fisheries management** plans.
- Targeting areas for marine and coastal **habitat restoration or conservation**.
- Enhancing **coral reef** health.
- Determining effective **aquaculture adaptation** strategies.
- Developing, testing, and deploying **nature-based solutions**.
- Reducing **nutrient run-off** from specific sources.
- Strengthening **water quality** regulations.
- Aggressively and urgently **reducing CO2 emissions**.



INTERNATIONAL LEVEL

Key frameworks

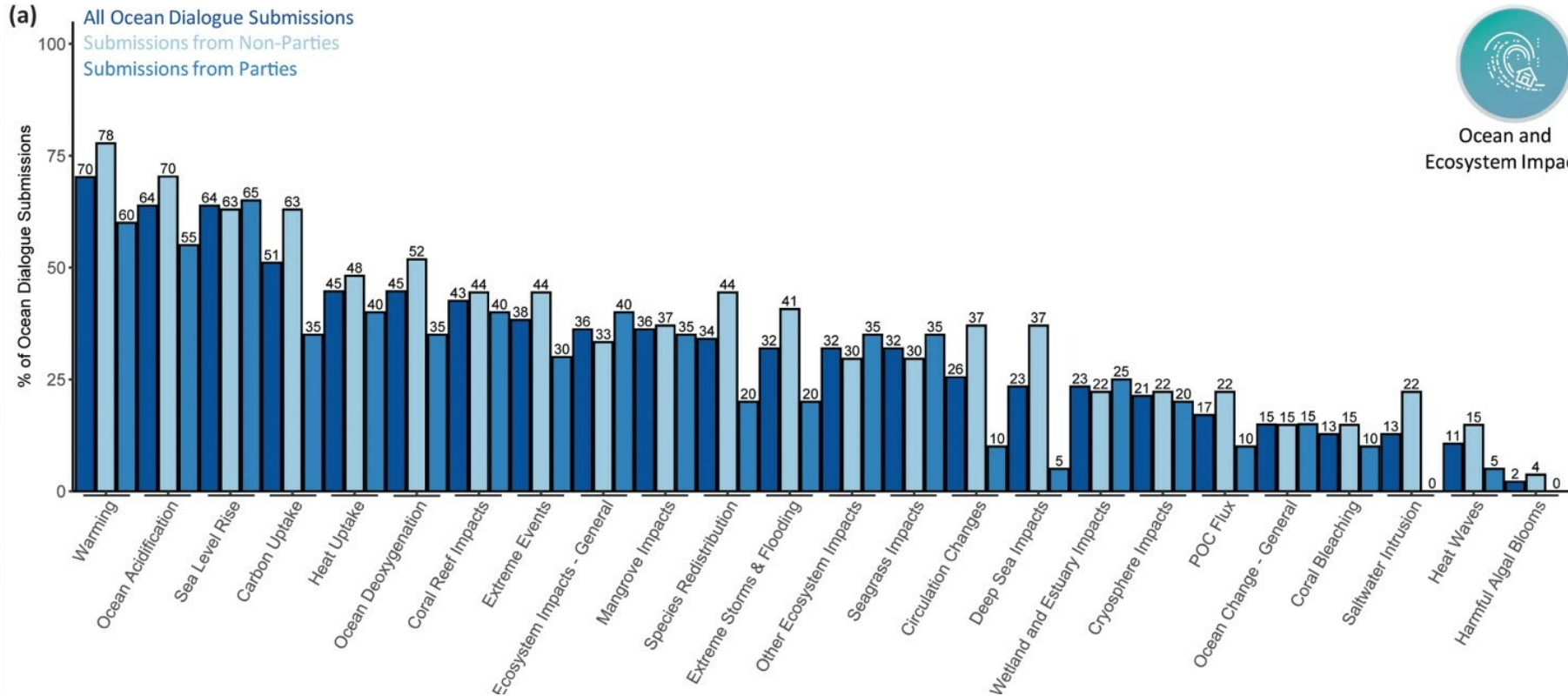
- UNFCCC Ocean and Climate Dialogue
- UN SDG 14.3
- UN Decade of Ocean Science

Themes: Mitigation, Adaptation and Financing

UNFCCC: NDC Analysis



Ocean and Ecosystem Impacts



SUBMISSION

OCEAN ACIDIFICATION IN CONTEXT OF THE UNFCCC

There are multiple impacts of climate change to our ocean including ocean warming, acidification, deoxygenation, sea-level rise, more frequent and intense storms, marine heat waves, loss of marine life and habitat, climate variability, and changing circulation. Together, these impacts are causing harm by displacing people, damaging coastal ecosystems, communities and property, decreasing food security and sovereignty, impacting jobs and livelihoods and threatening cultural practices and traditions. Over the 21st century the ocean is projected to transition to unprecedented conditions, and in some cases incur irreversible losses, driven by increased temperatures, greater upper ocean stratification, further acidification, oxygen decline and altered net primary production (IPCC, 2019).

Ocean acidification (OA) is a direct result of human-caused carbon dioxide (CO₂) emissions and is altering the chemical balance of seawater that marine life depends upon for proper functioning and survival. SBSTA has recognized OA as an emerging issue relevant to the UNFCCC and outlined OA research as a priority need under the Convention. Additionally, OA has been acknowledged as a slow-onset climate event by the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (Ellycia R. Harrould-Kolieb, 2016).

While increasing ambition to meet Convention goals and targets (and specifically, drastically reducing CO₂ emissions) is paramount for mitigating OA, there are actions that Parties and sub-national governments can and should be taking now that will allow for increased adaptation and resilience of vulnerable ecosystems and species, further bolstering the ability of human communities to cope with future change.

Enhancing regional knowledge of ocean and coastal risks and impacts caused by climate change—alongside understanding and engaging with coastal community priorities—will help inform the most meaningful adaptation options.



SUMMARY

Ocean acidification (OA) is a direct result of human-caused carbon dioxide (CO₂) emissions and is altering the chemical balance of seawater that marine life depends upon for proper functioning and survival.

Recent UN climate change conferences (COP23, COP25 and COP26) have called for the integration of ocean issues across the UN Framework Convention on Climate Change (UNFCCC) and other relevant UN frameworks.

Building on this momentum, the OA Alliance has suggested topics for the upcoming UNFCCC Ocean and Climate Dialogue which will address ocean mitigation and adaptation measures across climate frameworks.

Enhancing regional knowledge of ocean and coastal risks and impacts caused by climate change will help inform the most meaningful adaptation options. Guidance on ocean adaptation and increased climate finance are needed across international frameworks.

SPECIFICALLY, WE NEED TO:

- 1. Increase and ease access to climate financing** for ocean and coastal climate monitoring and research, risk assessments and remediation or adaptation measures. This should be explored through the Global Environment Facility, Green Climate Fund, Adaptation Fund, Standing Committee on Finance and other appropriate mechanisms.
- 2. Incorporate OA and other ocean-climate change indicators across a range of universally accepted adaptation strategies** like disaster risk management and recovery, cost-benefit frameworks, early warning systems, climate services and risk spreading.
- 3. Consider and evaluate the role of and Nature-Based Solutions** across freshwater, coastal and ocean ecosystems to mitigate and build resilience to climate change.
- 4. Expand guidance for incorporating ocean mitigation opportunities and adaptation needs across NDCs/ NAPs.**
- 5. Emphasize proper financing and implementation for UN Sustainable Development Goal (SDG) 14.3.1:** to minimize and address the impacts of ocean acidification and to establish a common methodology for reporting measurements.

**TO ADVANCE OCEAN ADAPTATION & RESILIENCE
MEASURES ACROSS THE UNFCCC,
THE SBSTA & OCEAN AND CLIMATE DIALOGUE
SHOULD CONSIDER:**

1. In partnership with UN Decade of Ocean Science for Sustainability relevant programmes—establish a framework to outline regional priority gaps in data and information, alongside an inventory of technological and institutional capacity needs for measuring coastal impacts of ocean warming, acidification, and deoxygenation.
2. Actively collaborate with the NAP Taskforce of the Adaptation Committee and Nairobi Work Programme Ocean Expert Group, to identify adaptation pilot projects that will incorporate and apply available information or projections related to coastal manifestations of ocean warming, acidification, and deoxygenation.
3. In partnership with the Standing Committee on Finance, explore links between existing climate finance program funds and ocean monitoring, science and adaptation needs outlined through NDCs, NAPs, and national adaptation projects. These could include program funds that emphasize (1) food security; (2) nature-based solutions; (3) coral reef resilience; or (4) early warning and climate information systems.
4. Request the GCF and GEF to reduce barriers for regional funding applications that advance monitoring, science and research capacity related to responding to ocean warming, acidification, and deoxygenation. These pilots should build upon regional partnerships already in place and be designed to enhance capacity for informing and evaluating coastal adaptation projects over the next ten years.
5. Engage other UN bodies, including FAO, and relevant partners in expediting multi-stressor research on the adaptation potential of keystone seafood species. This could include linkages with the Post-2020 Global Biodiversity Framework.



INTERNATIONAL ALLIANCE TO
COMBAT OCEAN ACIDIFICATION

ENHANCING OCEAN ADAPTATION & RESILIENCE



OPPORTUNITIES FOR THE UNFCCC
OCEAN & CLIMATE DIALOGUE

Drafted for discussion on behalf of the OAA Secretariat

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SDG 14.3



- “To Minimize and Address OA”
 - Methodology for monitoring & reporting.
 - Voluntary Commitments to OA policy an investments.
 - National and subnational governments.



UN Decade of Ocean Science



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development

- OA Research for Sustainability Programme—fostering the development of OA science for management and decision-making relevance; including the **impacts on marine life and sustainability of marine ecosystems** in estuarine-coastal-open ocean environments.
- Addresses the **SDG target 14.3** ‘Minimize and address the impacts of Ocean Acidification (OA), including through enhanced scientific cooperation at all levels’.
- **OA Alliance** and the **Norwegian Institute for Water Research (NIVA)** are co-champions of Outcome #2: *“Identify data and evidence needs for OA mitigation and adaptation at different scales.”*



Bringing together science, policy & finance practitioners (UNOC, 2022)



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UNITED NATIONS
OCEAN
CONFERENCE

LISBON
27 JUNE -
1 JULY
2022

OA
ALLIANCE

INTERNATIONAL ALLIANCE TO
COMBAT OCEAN ACIDIFICATION

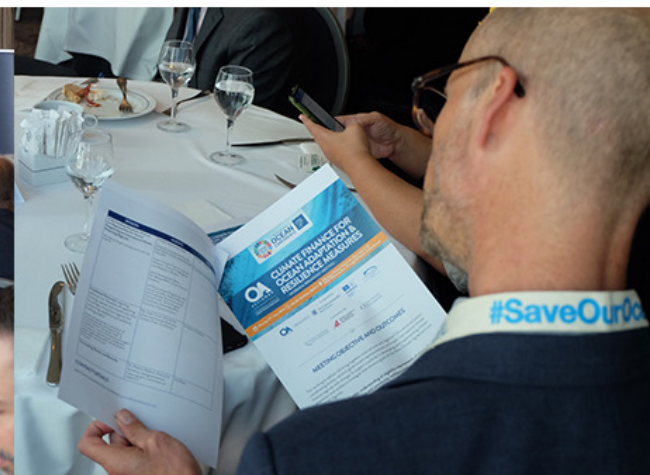
CLIMATE FINANCE FOR OCEAN ADAPTATION & RESILIENCE MEASURES

- WORKING BREAKFAST MEETING -

Monday 27th June 2022 08:00-10:00am GMT+1 Olisippo Oriente Hotel, Av. Dom João II 32,
1900-083m Lisbon, Portugal (2 blocks Altila Arena)

In partnership with:

- UNITED NATIONS FOUNDATION
- FONDATION PRINCE ALBERT II DE MONACO
- unesco
- GOA-ON
- The Commonwealth Blue Charter
- THE OCEAN FOUNDATION



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NATIONAL AND SUBNATIONAL

OA MEMBER:

FIJI



MEMBER TYPE:
GOVERNMENT MEMBER

POINT OF CONTACT:

Izzaar Raj
 izzaar.ali@economy.gov.fj

LOCATION & DEMOGRAPHY:



CONTINENT:
OCEANIA

OCEAN BASIN:
PACIFIC

POPULATION SIZE:
896,400

KILOMETERS OF COASTLINE:

1129 km

REGIONAL SIGNIFICANT
MARINE ECOSYSTEMS:



**CLIMATE-OCEAN
CHANGE
CONCERNS
IN THE AREA:**

- Ocean warming
- Ocean & coastal acidification
- Sea-level rise
- Severe weather events
- Habitat availability
- Species migration

REGIONAL SIGNIFICANT
USES OF RESOURCES:



OA MEMBER:

STATE OF HAWAII

LOCATION:



KILOMETERS OF COASTLINE:

REGIONAL SIGNIFICANT
MARINE ECOSYSTEMS:



THE OA ACTION PLAN
WAS COMMISSIONED THROUGH
TASK FORCE OR
DEDICATED PANEL

OA MEMBER:

PROVINCIAL GOVERNMENT OF BRITISH COLUMBIA

LOCATION:



KILOMETERS OF COASTLINE:

MEMBER TYPE:
GOVERNMENT MEMBER

POINT OF CONTACT:
 Dr. Myron Risk
 myron.risk@gov.bc.ca

CONTINENT:
NORTH AMERICA
OCEAN BASIN:
PACIFIC
POPULATION SIZE:
5,000,000

REGIONAL SIGNIFICANT
MARINE ECOSYSTEMS:



THE OA ACTION PLAN
WAS COMMISSIONED THROUGH
MINISTRY COUNCIL OR PARLIAMENT DECISION
TRIGGERED BY OIA LAUNCH WEARSHIPS

REGIONAL SIGNIFICANT
USES OF RESOURCES:



ADVANCING OA ACTION PLANNING

Main reason why an OA Action Plan was created/decided to work on ocean acidification:

Hawaii's culture, values, local tradition, food supply, and economies are strongly tied to the ocean. From the Hawaiian worldview, as evident in the Kamehameha creation chant, "the ocean is the source of all life." This ancestral relationship is represented in many other old (chants), mele (songs), mo'olelo and hula (stories and legends), and 'āhala ni'aua (proverbs). Hawaii's residents depend on the ocean and coastal environment for connection across communities, to put locally sourced food on the table, and to support livelihoods from tourism and commercial fisheries.

Specific concerns for Hawaii include our coral reef environments and shoreline protection, intertidal shellfish organisms, such as 'āhi or langets that have cultural significance. Hawaii's Halimeda and other subtidal algae, such as crinoid stoneware algae (CCA) are an important settlement environment for larval coral. Additionally, Hawaii provides significant amounts of food for shellfish production.

Body that approved the final set of recommendations:

Hawaii Climate Change Mitigation and Adaptation Commission

OA Action Plan policy context:

The State of Hawaii's OA Action Plan will be an independent plan that is referenced within larger management frameworks. Ocean acidification is mentioned in the Hawaii's Office of Planning Coastal Zone Management 2020 Ocean Resource Management Plan. Components of the OA Action Plan will be detailed within Climate Ready Hawaii's Initiative's Nature based Resilience and Adaptation to Climate Change or Hawaii Working Paper from the Hawaii Climate Change Mitigation and Adaptation Commission. As part of the strategy to assess potential "Blue Carbon" ecosystems, the State of Hawaii's Wetland Program Plan contains multiple activities that incorporate wetland habitats into climate planning efforts.

Partners involved in helping to draft or conceive the OA Action Plan:

- Academic institutions
- Government or municipal departments
- Monitoring and science networks

MEASURES OF SUCCESS, CHALLENGES & LESSONS LEARNED

RECOMMENDATIONS

1. REDUCING ANTHROPOGENIC EMISSIONS OF CO₂ to the number one cause of ocean acidification.

2. REDUCING LAND-BASED POLLUTIONS (e.g., nutrients, pesticides, herbicides, and heavy metals) that can exacerbate coastal conditions.

3. ENHANCING PUBLIC AWARENESS: Engage city leaders, members of the public, and the general public through OA-related events, educational programs, and outreach that may be relevant to their communities.

4. BUILDING SUSTAINED INTERNATIONAL SUPPORT: Encourage the United Nations, World Bank, and other international organizations and other stakeholders to support the ongoing progress of OIA.

Recommendations that are unique to jurisdiction/regional context:

1. Ecosystem types, resources, and people: The Main Hawaiian Islands protection efforts, such as marine management areas, with water quality for climate parameters. Ocean Monitoring Network with partners.

2. Policy assessments with an emphasis on social, cultural, and economic objectives and forecast models.

3. Large Mitigation and Adaptation Commission.

4. Participants will contribute to ocean and marine solutions to Climate Ready Hawaii's Initiative, with a focus on nature-based solutions.

5. Support work on determining the potential of blue carbon ecosystems in Hawaii.

Measures of success, challenges, and lessons learned:

1. The Hawaiian archipelago, which includes the Main Hawaiian Islands, is a prehistoric Marine National Monument, covering the Main Hawaiian Islands, which comprise the majority of the Hawaiian Islands.

2. For coastal change. That's why our OA Action Plan is shared (State, Federal and academic). From there, the Main Hawaiian Islands.

3. It will help inform further actions and priorities for the OA Action Plan.

4. Approved at the state level to support recommendations.

5. This larger Ocean Resource Management Plan, the Climate Change Mitigation and Adaptation Commission.

6. Approved recommendations to-date.

7. Engaging synergies between aquaculture products and other coastal resources.

8. Mandated working group or task force. In order to ensure working group or task force should be formed and incorporating new data and information.

9. In the drafting of the OA Action Plan, continued.

OA Action Plans integrate & include:



ADVANCING SCIENTIFIC UNDERSTANDING:

Improving understanding within the region, including support for monitoring, research and OA observations.



REDUCING ATMOSPHERIC EMISSIONS OF CO₂,
the number one cause of ocean acidification



REDUCING LAND-BASED POLLUTIONS

(e.g. wastewater, stormwater, agriculture runoff, nutrients) that can exacerbate coastal conditions.



BUILDING ADAPTATION AND RESILIENCY:

Actions that assist ocean-dependent communities, industries, and marine ecosystems in adapting to increasing acidity in marine waters.



EXPANDING PUBLIC AWARENESS:

Engaging policy makers, scientists, local communities/villages and the public about the growing threat posed by OA, as well as local actions that may be taken to address OA.



BUILDING SUSTAINED INTERNATIONAL SUPPORT:

Advocating for sustained funding, nationally and regionally, for coordinated research and OA observation systems, to continue to inform governments and others about the increasing impacts of OA.



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Case Studies: Process & Content





INTERNATIONAL ALLIANCE TO
COMBAT OCEAN ACIDIFICATION

WHAT DO POLICY MAKERS NEED TO KNOW ABOUT OCEAN ACIDIFICATION?

ACTION SUPPORTS EXISTING PRIORITIES:	ACTION CAN BE TAKEN NOW TO:	ACTION SUPPORTS HIGH-LEVEL COMMITMENTS:
<ul style="list-style-type: none"> Strong ocean economy Jobs and livelihoods Food security and Sovereignty Ecosystem services Resilient aquaculture and fisheries Ocean and land management Marine protected areas Sustainable tourism Climate mitigation and adaptation 	<ul style="list-style-type: none"> Understand local trends Assess local risks and vulnerabilities Reduce local stressors (nutrient inputs, habitat loss, overfishing, etc.) Explore nature-based solutions Increase adaptive potential Prioritize investments and leverage co-benefits Reduce carbon emissions and explore carbon offset mechanisms 	<ul style="list-style-type: none"> UN Sustainable Development Goals 13 and 14 UNFCCC Mitigation and Adaptation Convention on Biological Diversity Blue Economy Commitments UN Convention on the Law of the Sea Commonwealth Blue Charter Climate Action Plans and Resilience Strategies Regional Collaborations

WHO IS CONSIDERED AN OA POLICY MAKER?

<ul style="list-style-type: none"> Ministers, ambassadors, executives, legislators, Tribal leaders and councils can set priorities and bring attention to key issues. Agency heads, department leads, policy officers and advisors for climate, environment, ocean, marine affairs, finance, energy and agriculture can help identify programs that are most relevant to OA action across government. Managers of fisheries, aquaculture, clean water and air, coral reef or marine ecosystems can help explore mitigation, adaptation and resilience strategies. 	<ul style="list-style-type: none"> Regional governance councils can help monitor and coordinate responses to impacts of ocean change and identify and engage stakeholders. Local government authorities and community leaders can help deploy pilot programs in targeted areas. Financial institutions, private investors, and insurance companies can provide funding for OA projects, invest in natural capital and help protect against risk. 
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BY TAKING ACTIONS NOW, WE CAN IMPROVE MANAGEMENT RESPONSES, MAXIMIZE RESOURCES AND ACHIEVE RESILIENCE

Learn more about national, regional and local OA Action Plans:
www.OAalliance.org | twitter.com/OA_Alliance

GOVERNMENTS DO COASTAL ACIDIFICATION?

Reducing carbon emissions and advancing sequestration initiatives will help limit the main driver of ocean acidification.

Additionally, local actions to reduce stressors can increase the resilience of marine species and ecosystems and yield co-beneficial outcomes.

Local efforts to address climate change traditionally focus on the transportation, building, waste, and energy sectors.

Advancing these efforts and incorporating OA and ocean change as part of existing policies, programs and commitments can produce a more accurate assessment of climate risk and increase strategies that build resilience.

TAKING ACTION

Reduce Emissions:

- Climate Action Plans
- Renewables
- Shore-Side Power at Ports
- Alternative Transportation Strategies

Manage Co-Stressors:

- Wastewater Treatment
- Stormwater Runoff and Rain
- Gardens
- Low Impact Development
- Agricultural Pollution
- Erosion and freshwater surges
- Overfishing

Protect and Increase Habitat:

- Marine Protected Areas
- Improve Water Quality
- Wetland Creation
- Kelp, Coral, Seagrass & Mangrove Restoration
- Oyster Restoration

Invest, Partner and Educate:

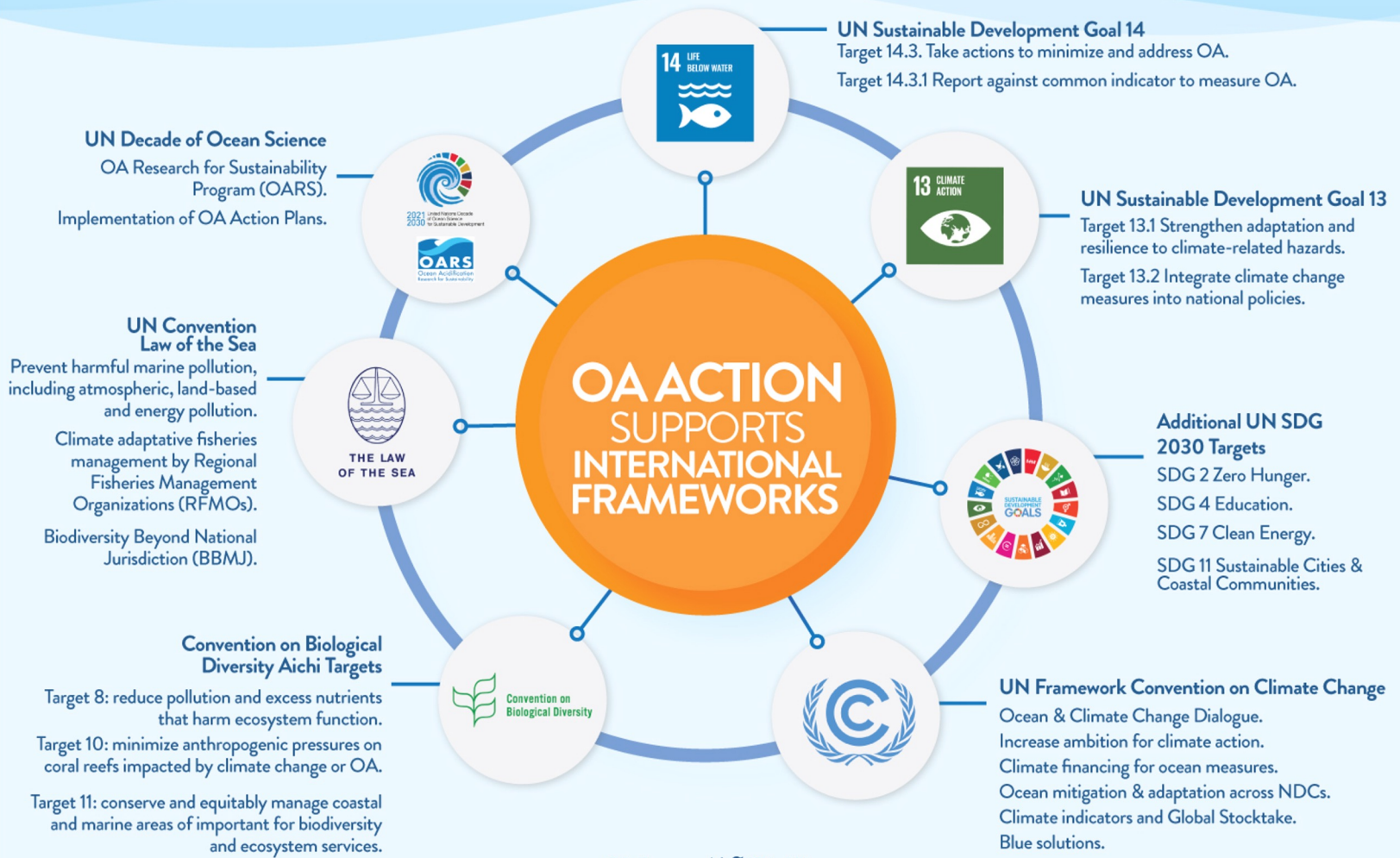
- Form or join monitoring networks
- Partner with other governments
- Partner with local academia and community groups
- Support pilot projects
- Educate public and other departments

Learn more at www.oaalliance.org



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COMBAT OCEAN ACIDIFICATION

Ocean acidification (OA) is a direct result of human-caused carbon dioxide emissions and is altering the chemical balance of seawater that marine life depends upon for survival. At the international level, UN climate and ocean frameworks call for—and benefit from—OA action.



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