

18th SESSION IOCARIBE



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Intergovernmental
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Sub-Commission for the Caribbean
and Adjacent Regions

Subcomisión para el Caribe y
Regiones Adyacentes

TWO WARMING OCEANS: GUATEMALA'S COASTAL AND MARINE CLIMATE CHANGE CHALLENGES

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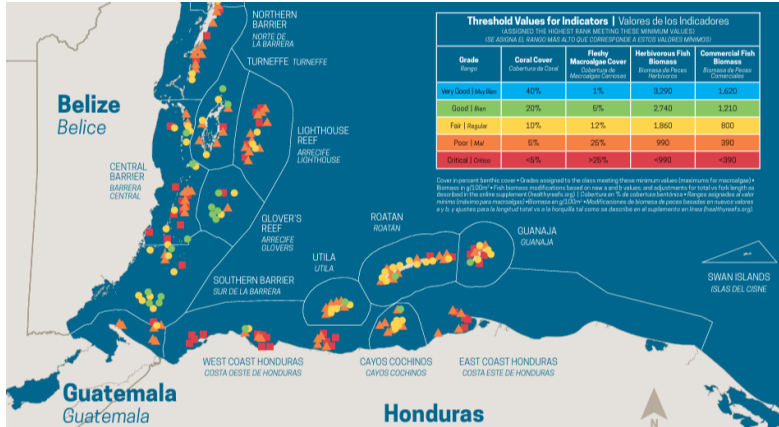
Brasilia, Brazil
April 23–25, 2025

GUATEMALA



- 120,229 km²
- 53% of the country's total area
- 254 km Pacific coastline
- 148 km Caribbean
- Ecosystems: mangroves, seagrasses, coral reefs, and coastal wetlands ².

Climate Change Impacts



- **Temperature Rise:** leading to coral bleaching events, notably in 2015, 2016, and 2017³.

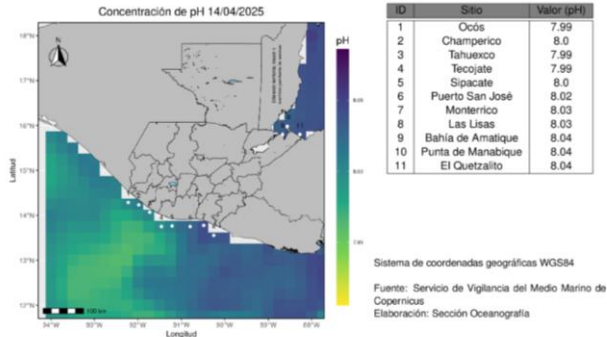




Climate Change Impacts

Acidez del océano (pH)

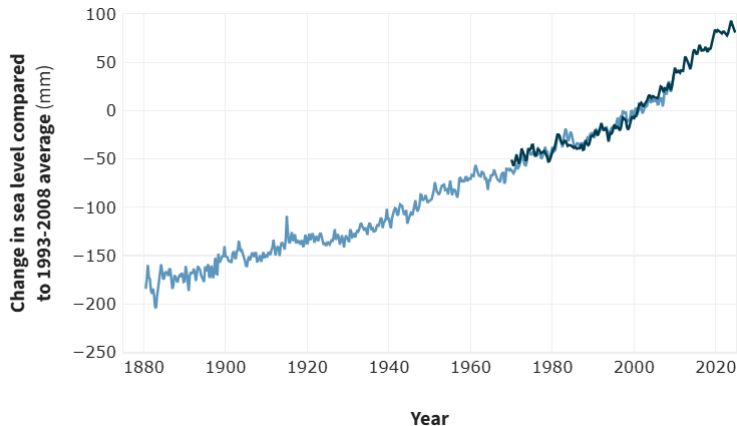
Sección de Oceanografía



- **Ocean Acidification:** Higher CO₂ levels are decreasing ocean pH, affecting calcifying organisms like corals and mollusks³.



Climate Change Impacts



NOAA, 2023

- **Sea-Level Rise:** Projected to cause a loss of 1–2% of mangrove areas annually³.

Climate Change Impacts



- **Biodiversity Loss:** Declines in fish and invertebrate populations have been observed over the past five years³.

Socioeconomic Implications



- **Economic Value:** contribute between USD 344 and USD 454 million annually through fisheries, tourism, and other services⁶.



Socioeconomic Implications



- **Community Impact:** increased vulnerability due to ecosystem degradation and climate-related hazards³.



Additional Stressors



- **Pollution:** Runoff containing pesticides and nutrients
- **Overfishing:** depleting key species
- **Invasive Species:** disrupting local marine ecosystems

Adaptation and Management Strategies

- **Monitoring:** monitoring systems for key conservation targets^{1,8,10}.
- **Protected Areas:** network of marine-coastal protected areas^{3,7,8}.



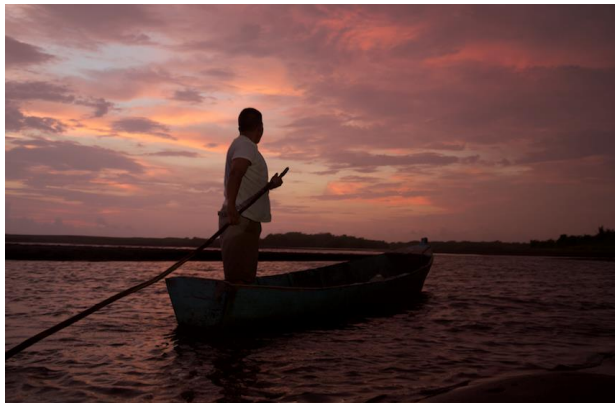


Adaptation and Management Strategies



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- **Community Engagement:**
Involve in conservation efforts
and sustainable resource use⁵.
- **Policy Development:**
Integrating scientific research
into public policies ³.



Ministerio de
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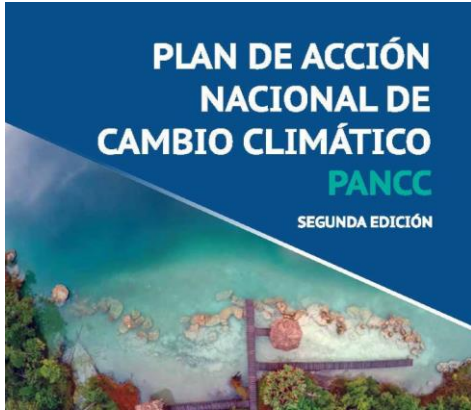


Adaptation and Management Strategies

- **Role of the Private Sector**
- **Institute for Climate Change Research (ICC)⁶:**
 - Hydrogeological studies - groundwater dynamics.
 - Researches blue carbon potential of mangroves.
 - Collaboration with agricultural sectors for sustainable water use and watershed management.



Government Initiatives



Ministry of Environment and Natural Resources (MARN):

- **National Climate Change Action Plan (PANCC):** adaptation in coastal and marine zones, for national development strategies^{9,11}.
- **Departmental Adaptation Plans:** 22 plans addressing local vulnerabilities, including coastal erosion and watershed management



Government Initiatives

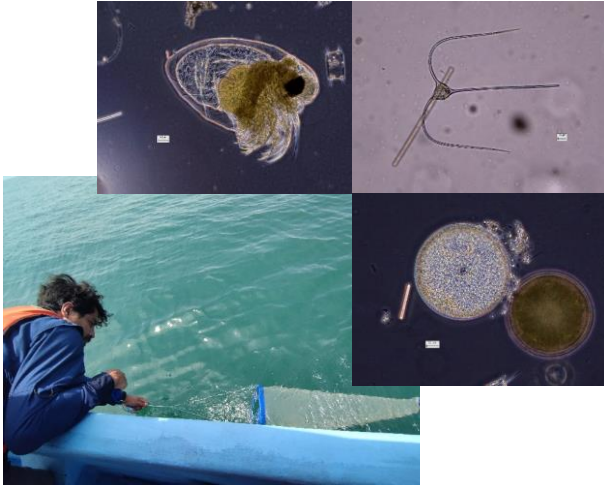
- Development of **Monitoring, Evaluation, and Reporting (MER) systems** for marine-coastal zones to track adaptation progress^{10,12}.
- **The National Climate Change Fund (FONCC)** projects that protect vulnerable coastal areas⁹.



Funding:

- Strength local capacities in monitoring⁹.
- Climate-resilient infrastructure (nurseries, retention structures)⁹.

Government Initiatives



- **INSIVUMEH:** Monitoring coastal and marine biological diversity (along with MINDEF), researching ecological impacts through bioindicators and physicochemical factors¹.



Government Initiatives

Ministry of Defense (MINDEF)

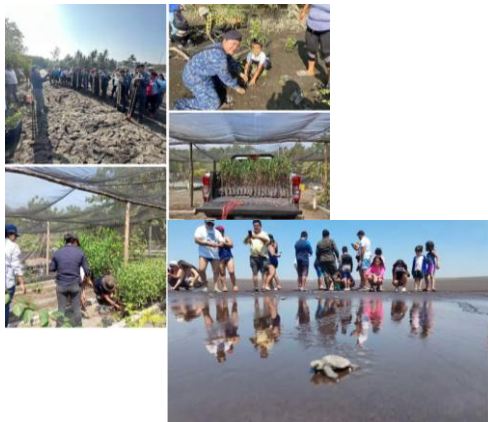
- Part of the London Convention and MARPOL Annex VI - greenhouse gases (GHGs).
- Part of International Convention on Civil Liability for Oil Pollution Damage (CLC 1969).
- Biodiversity Beyond National Jurisdiction (BBNJ) agreement - awaiting confirmation on formal participation.



Government Initiatives

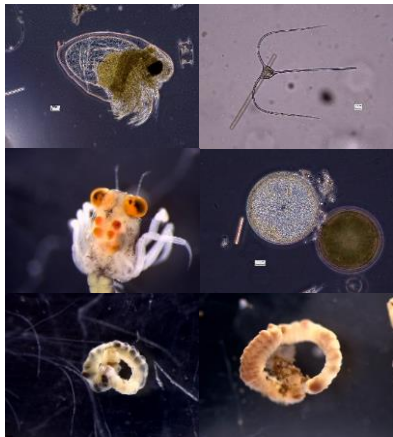
Ministry of Defense (MINDEF)

- Part in matters related to the International Seabed Authority (ISA).
- Mangrove reforestation along communities.
- Sea turtle conservation (*Lepidochelys olivacea*).
- Part of the chondrichthyan working group, the red tide committee, and the coastal-marine working group.





Ocean Science Needs



- Investment in marine research institutions and training of local scientists.
- Creation of regional data-sharing platforms and marine policy integration.
- Development of early warning systems for harmful algal blooms.
- Studies on ocean acidification and its effects on fisheries and coral reefs; coastal erosion.
- Equipment like: CTD probes (Conductivity, Temperature, Depth), water sampling probes, oceanographic buoys and material for phytoplankton monitoring.



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**THANK YOU
MUCHAS GRACIAS
MERCI BEAUCOUP**

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