

2021 Eco-Audit Of the Mesoamerican Reef Countries March 10, 2020

- 10:00 Welcome and Introductions by HRI Team
With Housekeeping / Agenda /- Marisol Rueda, HRI
- 10:05 VIDEO overview of 2021 Eco-Audit
- 10:15 Introduction and Background of the Eco-Audit -
Melanie McField, HRI
- 10:25 Main Results by theme - HRI Coordinators
- 11:00 New Interactive Eco-Audit Webpage - Marisol
- 11:05 Questions & Comments from Participants
- 11:20 Water Our Right Campaign Announcement -
Alejandra Serrano, ELAW
- 11:25 Sustainable Financing for the Future -
Maria Jose Gonzalez, MARFund
- 11:30 Thanks & Closing - Melanie and the HRI Team





Smithsonian
Institution

OAK
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WORLD
RESOURCES
INSTITUTE

CONSERVATION
INTERNATIONAL



Wildlife
Conservation
Society

Hydroheart

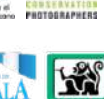


The Nature
Conservancy



blue ventures
beyond conservation

OCEANA



Turneffe Atoll
Sustainability Association

BELP



Fundación
Islas de la Bahía





Taking a closer look at that pace of implementation (rate of increase in score)

EA Year	Score	Rate Change
2011	54%	—
2014	58%	1.3% / yr
2016	62%	2.0% / yr
2021	66%	0.8% / yr

This most recent Eco-Audit assessment period showed a change for the worse, as did our 2020 Report Card – measuring the first decline in reef health in over a decade.

Healthy Reefs Collaborative Conservation

73 partner groups

**Reef Monitoring
& Database**
Standardized
Protocols, trainings,
online database



19 week-long
training courses &
> 250 trained
field biologists and
database users

Report Cards
Evaluate Reef Conditions
Make Recommendations



Eco Audits
Evaluate Implementation
of Recommendations



Media
Wise and frequent use of
media



**Improved
Policies and
Management
=
Healthy Reefs**



Healthy Reefs
for healthy people

16 years of science & collaborative conservation

What is an Eco-Audit?

- Evaluation of Implementation of Report Card Recommendations
- Specific and verifiable criteria
- All Countries are held to the same bar
- All rankings are verified with documentation
- Transparent and inclusive processs

What is the Objective?

- Catalyze faster more effective management to improve reef health
- Evaluate each country's actual implementation of recommendations
- Assess each country's effort with comparable accountability
- All Documets are Available at www.healthyreefs.org



2011 ECO-AUDIT

of the Mesoamerican Reef Countries

Are we protecting our most valuable natural asset?

- Unprecedented in scale and scope
- Four countries
- Over 50 organizations
- Over 100 individuals
- Over 300 supporting documents collected
- Serves as basis for measuring future progress

28 indicators evaluated x 4 countries
112 Result scores for indicators
140 Results with regional averages
175 Results with theme averages
per assessment period
~ 700 Results Overall



WORLD RESOURCES INSTITUTE

Four Eco-Audits Over the Last Decade

2011



2011 Eco-Audit

Description of Indicators

Overview
In collaboration with the World Resources Institute (WRI) and local partners, the Healthy Reefs Initiative (HRI) recently implemented the first-ever Eco-Audit of the Mesoamerican Reef (MAR). The audit evaluates the collective efforts of public, academic, business, and private sectors to protect and sustainably manage the region's coral reefs, mangroves, and fisheries. The audit will provide the foundation for subsequent assessments, which will be implemented every two years. The process has been reviewed by the Mesoamerican Reef Countries (MRC) and is a first step towards a more comprehensive assessment of the reef's health. The audit's primary indicators, and others, are presented in the document. Detailed worksheets of the Eco-Audit and other indicators for each country and publicly available information are available online. A final report, along with a summary of high-level Eco-Audit results, is available online and is posted. These products, along with additional information about the Eco-Audit, are available online at www.healthyreefs.org/mar.

Authors
Mesoamerican Reef Countries (MRC) and Healthy Reefs Initiative (HRI)
February 2012

Citation
McFarland and Kuchler. 2012. Eco-Audit of the Mesoamerican Reef Countries. Description of Indicators. Healthy Reefs Initiative and World Resources Institute.

all available at
www.healthyreefs.org



2016



2021



Example of the Criteria Page for Each of the 28 Indicators

2b. Special regulations for grouper / spawning sites

Justification: The reef food web is highly complex. The removal of just one group of fish from the food web can have widespread effects throughout the reef ecosystem, ultimately weakening and destabilizing it. The reproductive behavior of groupers makes them particularly vulnerable during spawning, and many spawning aggregation sites (SPAGs) have already been overfished and depleted of grouper. This indicator measures efforts to protect these sites and species.

Ranking Criteria

5 – At least 90 percent of known grouper SPAGs are fully protected (year-round in MPAs) with legal regulations and at least 50 percent of these have good enforcement.³

4 – At least 75 percent of known grouper SPAGs are fully protected (inside MPAs) and at least 20 percent have at least moderate enforcement.³

3 – There are closed seasons, size limits, or catch limits specific for grouper

2 – There has been some effort at drafting regulations, research, or a public campaign on the topic

1 – No documentation of actions that meet the criteria to achieve a higher score is available

Means of Verification: list and location of grouper SPAG sites by country, official MPA list, copy or draft of fishery or MPA legislation, copy of consultation reports, number of enforcement actions, MPA original data collection as to the degree of enforcement at each SPAG site, and campaign strategies for conservation.

Calculation: Grouper SPAGs fully protected= $((\text{Total \# of fully protected SPAGs} / \text{Total \# of SPAGs}) \times 100)$; percentage with at least good enforcement= $((\text{Total \# of SPAGs with good enforcement} / \text{Total \# of fully protected SPAGs}) \times 100)$ and percentage with at least moderate enforcement= $((\text{Total \# of SPAGs with good enforcement} + \text{moderate enforcement}) / \text{Total \# of fully protected SPAGs}) \times 100)$.

2021 CRITERIA UPDATE: to Indicators 1b and 1c

The Actual TARGET for fully protected Replenishment Zones was 20% since the first Report Card in 2008

The original 2011 “Description of Indicators” Eco-Audit document says:

1b. Percent of a country’s territorial sea included in fully protected zones

The longer-term target is 20% of territorial sea under full protection/fisheries replenishment zones. Future Eco-Audits will gradually increase the level of protection to meet this target.

PREVIOUS TARGETS OF 5% OF TS IN RZ (1b)
AND 10% OF CORAL REEF AREA IN RZ (1c)
WERE INTERIM TARGETS AS BENCHMARKS

Replenishment Zone Targets for Indicators 1b & 1c

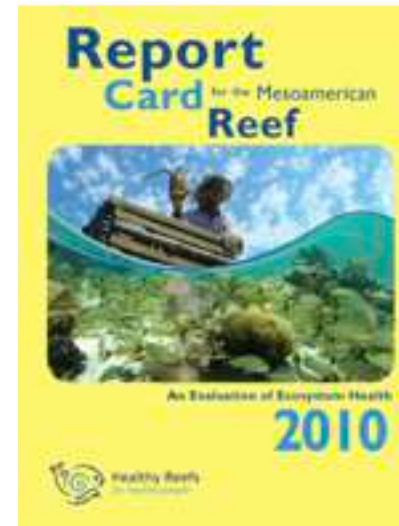
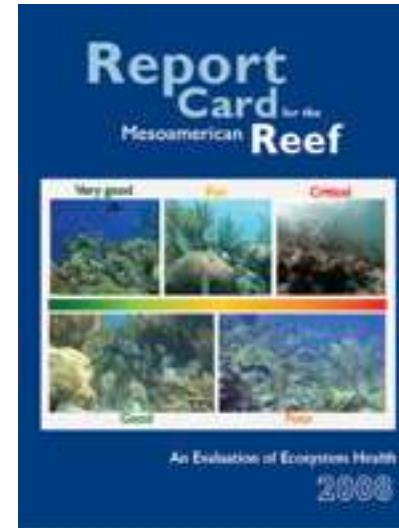
2008 Report Card Recommendations:

“Create and implement coastal zone management plans that include at least 20% of marine and coastal areas under full protection”

2010 Report Card Recommendations:

“Achieve 20% territorial sea under full protection (no-take) within MPAs.

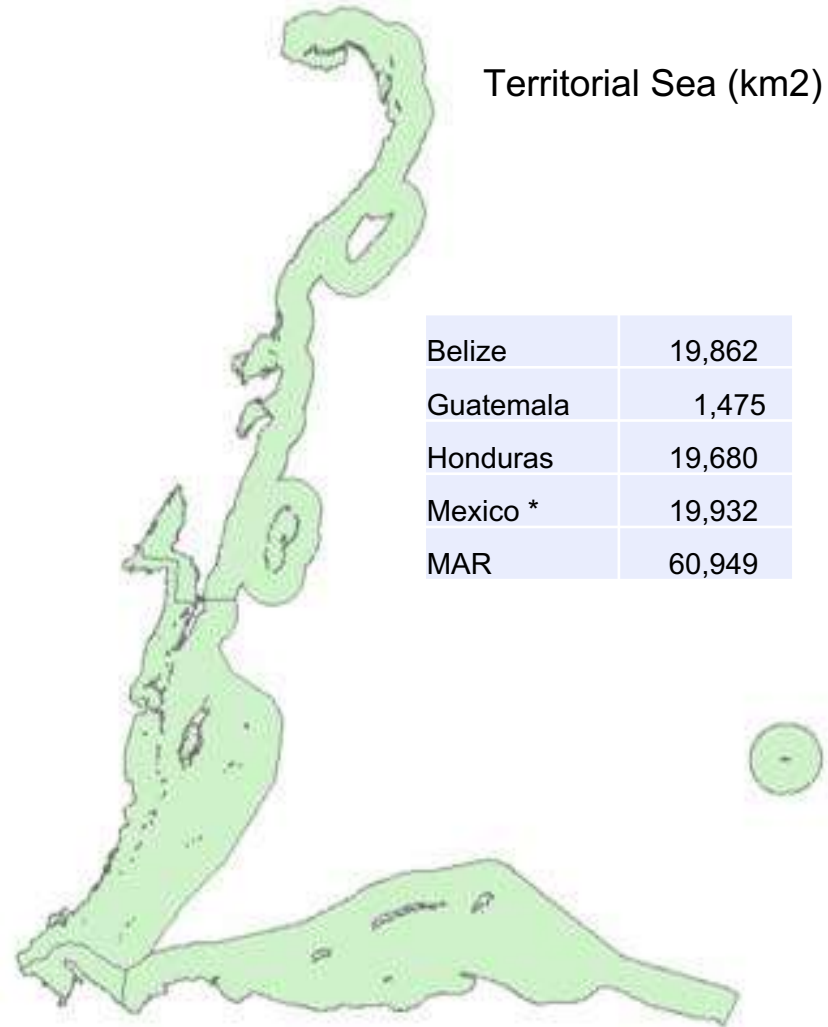
In two years (by 2012) achieve at least 5% on a regional scale”





Territorial Sea (km2)

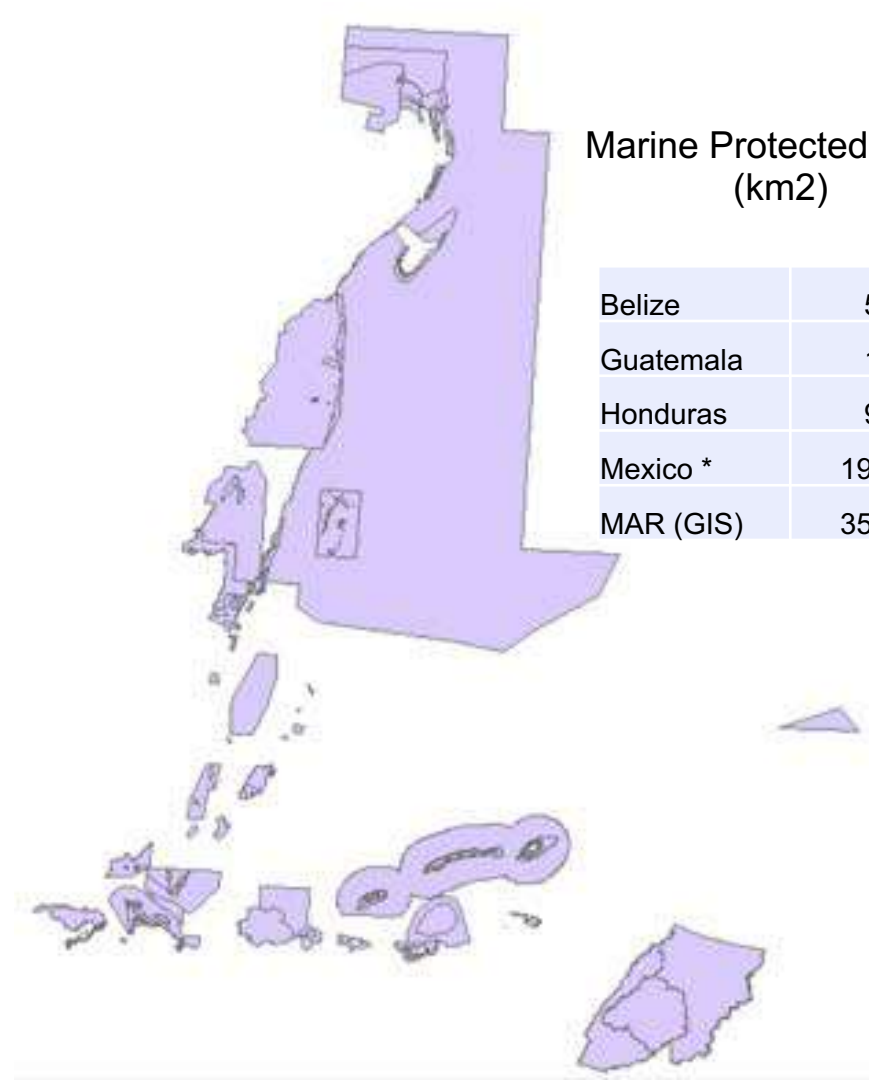
Belize	19,862
Guatemala	1,475
Honduras	19,680
Mexico *	19,932
MAR	60,949





Marine Protected Areas (km²)

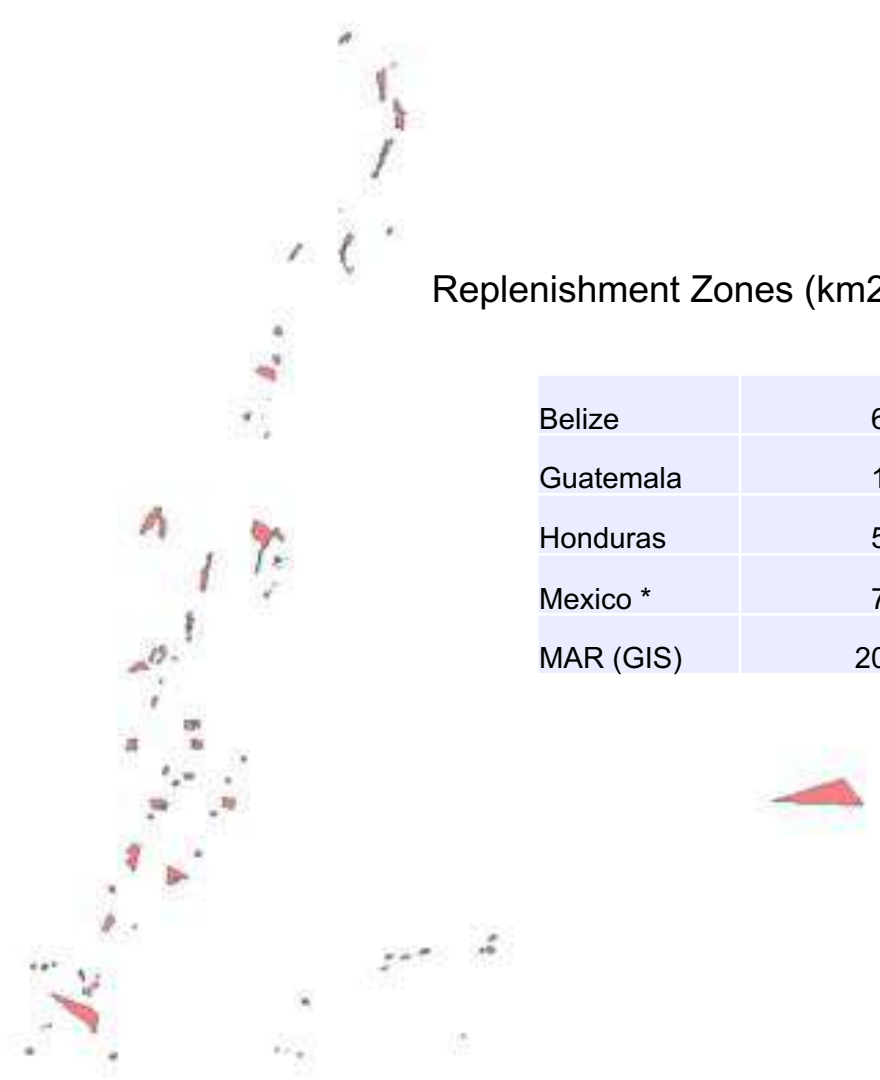
Belize	5,015
Guatemala	1,093
Honduras	9,633
Mexico *	19,505
MAR (GIS)	35,245





Replenishment Zones (km2)

Belize	607
Guatemala	180
Honduras	510
Mexico *	723
MAR (GIS)	2020



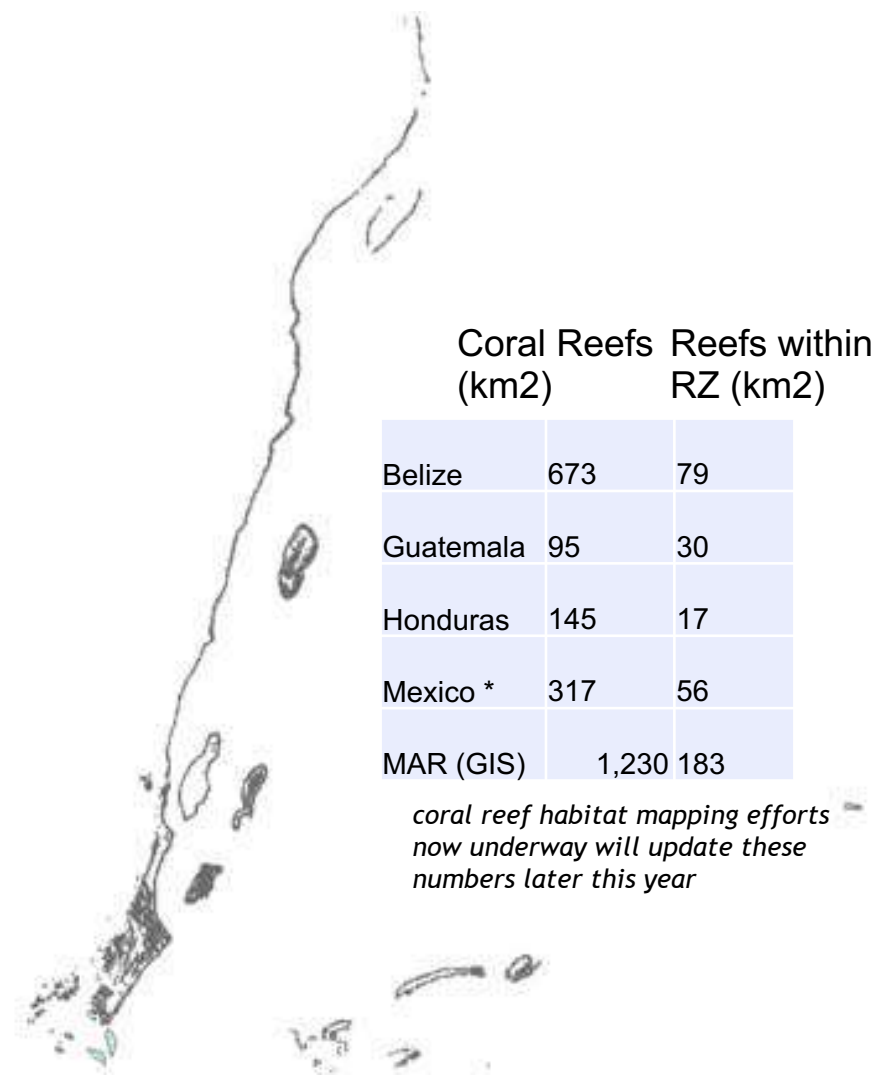


2021 MPA Statistics

% TS in MPA % TS in RZ % Reefs in RZ

Belize	25%	3%	12%
Guatemala	74%	12%	32%
Honduras	49%	3%	12%
Mexico *	98%	4%	18%
MAR	58%	3%	15%

	RZ area (km2)	
	2021	2011
Belize	607	399
Guatemala	180	0
Honduras	510	522
Mexico *	723	261
MAR	2020	1182



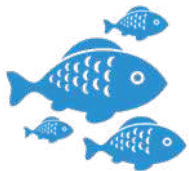
	Coral Reefs (km ²)	Reefs within RZ (km ²)
Belize	673	79
Guatemala	95	30
Honduras	145	17
Mexico *	317	56
MAR (GIS)	1,230	183

*coral reef habitat mapping efforts
now underway will update these
numbers later this year*

2021 Eco-Audit Resources include:

- 2021 Eco-Audit Interactive website
- 10 min video
- Results Summary Table for all Years, Indicators & Themes
- 4 Country-specific Results Workbooks (PDF)
- Country folders with supporting documentation (MOV's)
- Description of Indicators Document (revised in 2021)
- GIS Shape files and Metadata Appendix
- Presentation of Results (PowerPoint)

all available at www.healthyreefs.org - in March 2021



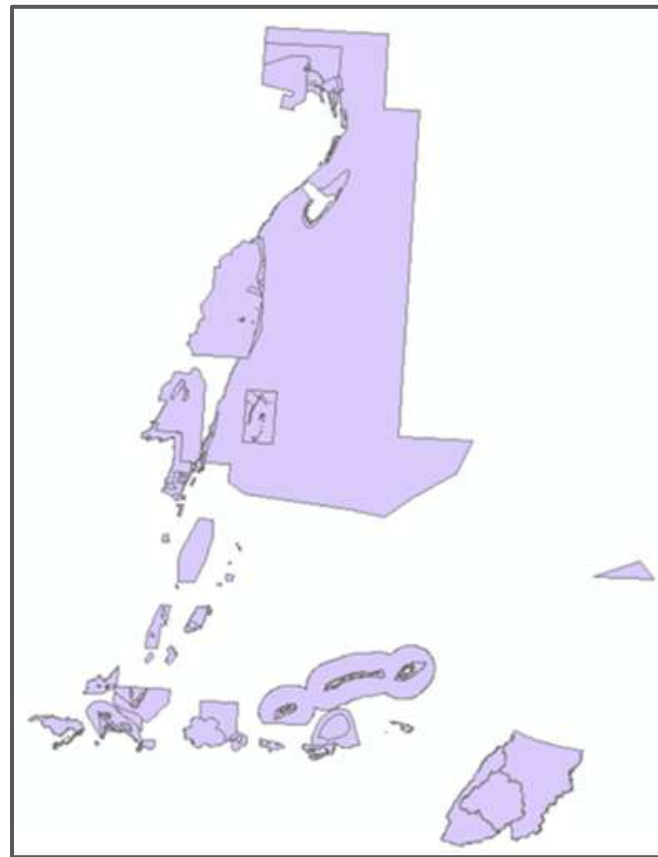
Theme 1

Marine Protected Areas

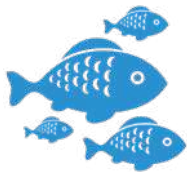
“Any area of intertidal or subtidal terrain, together with its overlying waters and associated flora, fauna, historical and cultural features, which has been reserved by legislation or other effective means to protect part or all of the enclosed environment”.

- IUCN, 2011

- 1a. Percent of a country's territorial sea included in gazetted MPAs
- 1b. Percent of a country's territorial sea included in fully protected zones
- 1c. Percent of mapped coral reef area included in fully protected zones
- 1d. Percent of MPAs with good management
- 1e. Percent of MPAs with good enforcement
- 1f. Generation of alternatives for fishers within the network of MPAs

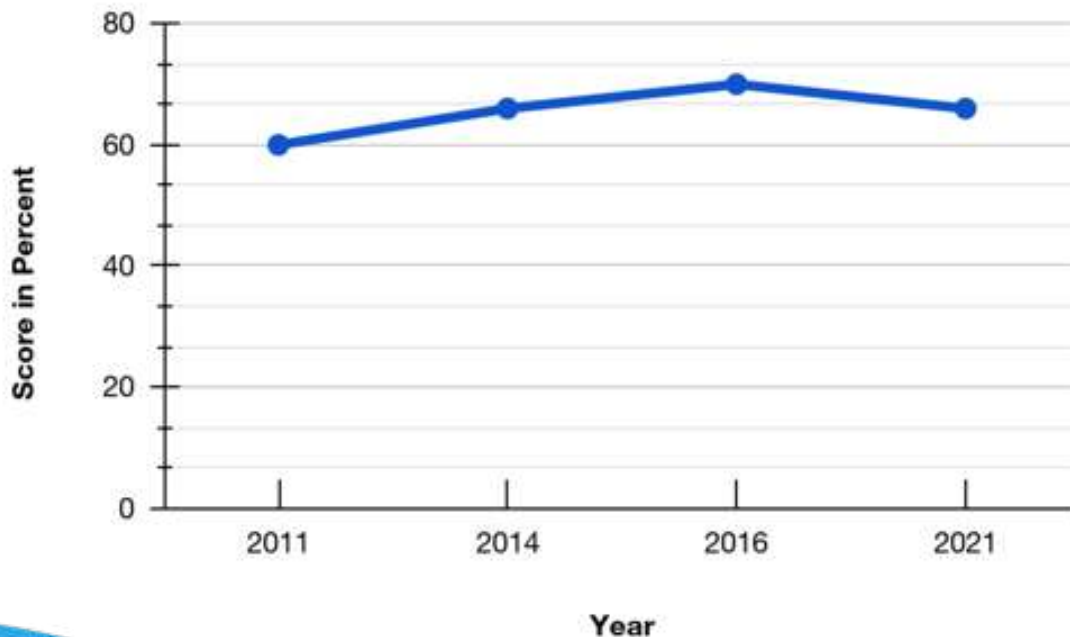


MPAs of the MAR



Theme 1 - Marine Protected Areas

MAR Score Over Time

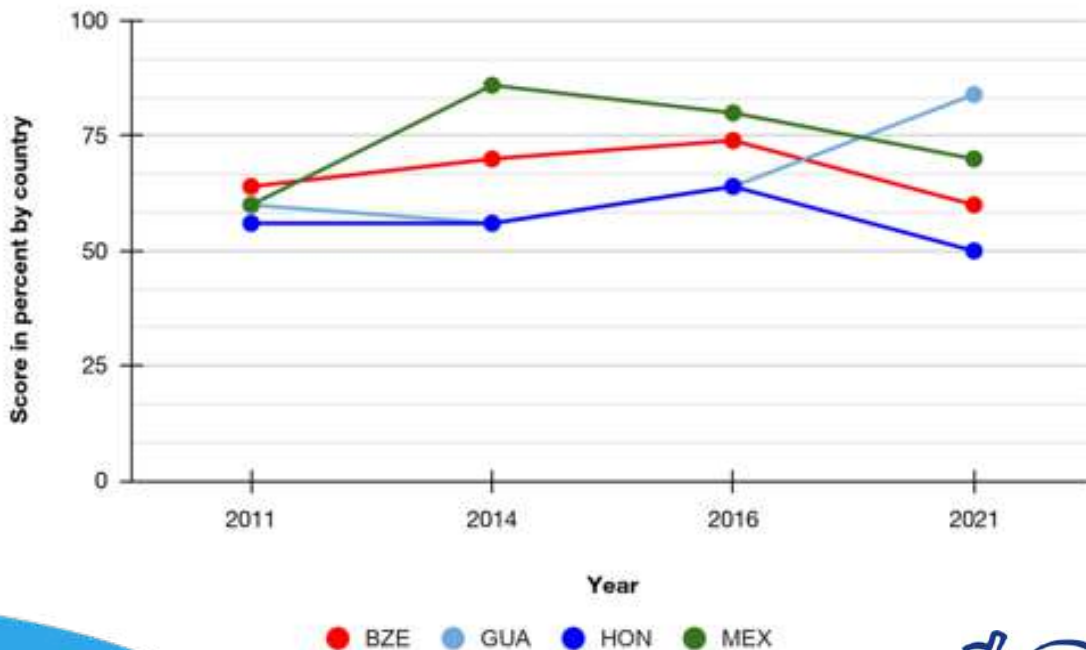


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Theme 1 - Marine Protected Areas

Scores Per Country Over Time



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Theme 1 - Marine Protected Areas

MAR



66%



60%



84%



50%



66%

1a. %TS in MPA	100	100	100	100	100
1b. %TS in Replenishment Zones	30	20	60	20	20
1c. % Coral Reefs in Replenishment Zones	80	60	100	60	80
1d. MPAs w/ Good Management	55	60	100	20	40
1e. MPAs w/ Good Enforcement	55	60	80	20	60
1f. Economic Alternatives within MPAs	75	60	60	80	100

Theme 2 - Ecosystem Based Fisheries Management



Overfishing and destructive fishing are the most widespread threats to coral reefs. More than 80 % of the world's fisheries are overexploited or have collapsed. Recovery of fisheries requires the appropriate management of fishing areas and practices, as well as efforts to identify and address underlying social and economic factors leading to overharvesting.

In this indicator we measure:

- 2a. Harmonizing fisheries regulations among countries
- 2b. Grouper regulations/FSAs
- 2c. Protection of key grazers (parrotfish)
- 2d. Transform all open-access fisheries to rights-based sustainable fisheries (added 2014)

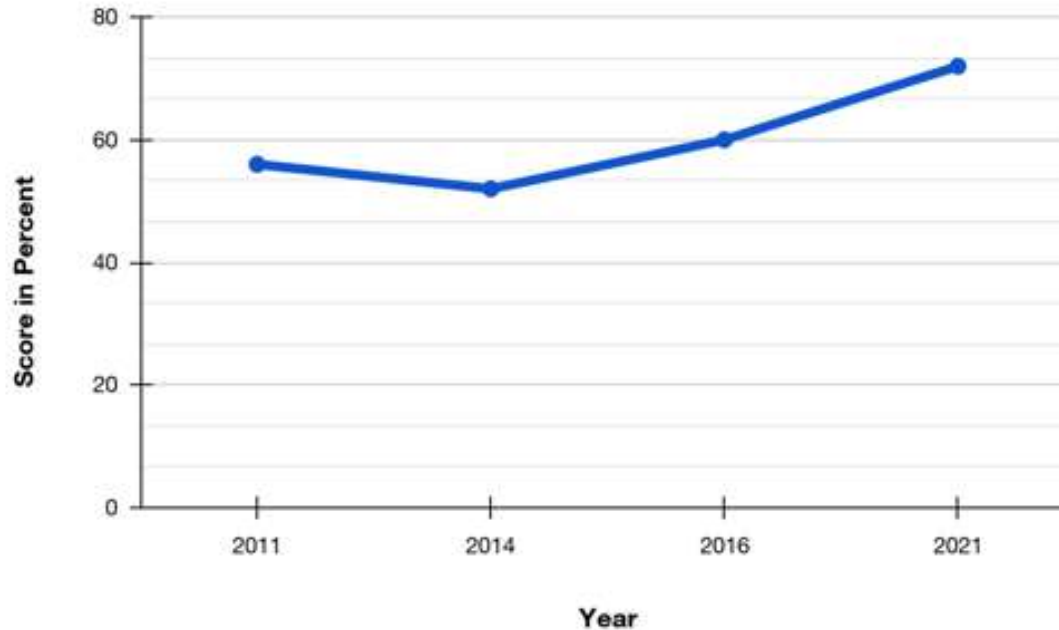


ILCP/Contreras Koob

Theme 2 - Ecosystem Based Fisheries Management



MAR Score Over Time

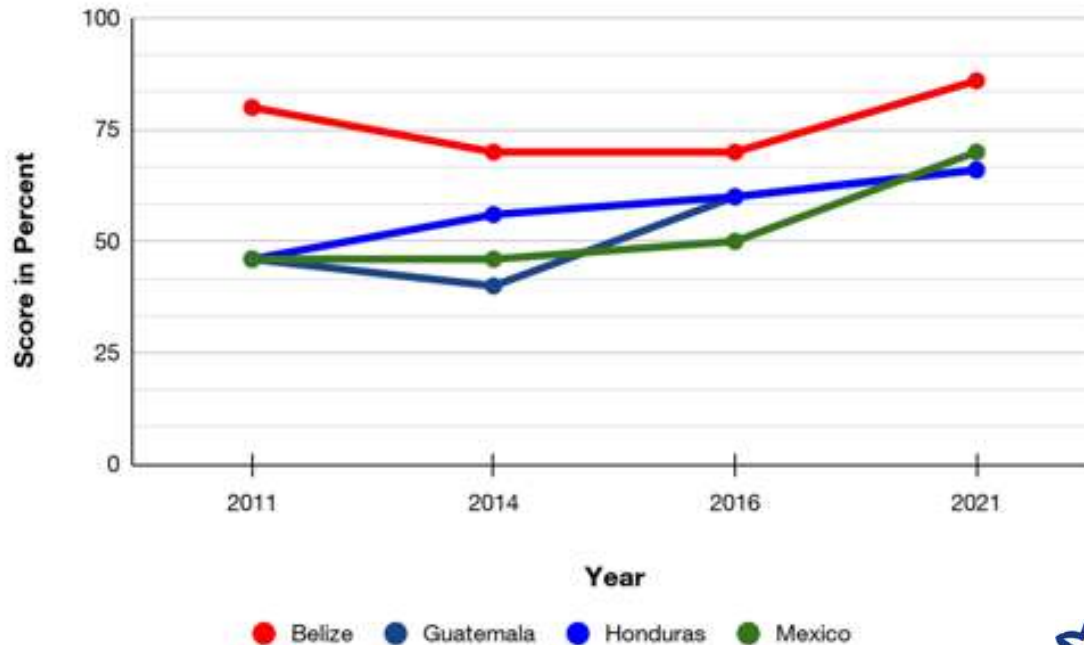


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Theme 2 - Ecosystem Based Fisheries Management



Scores Per Country Over Time



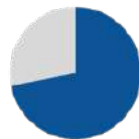
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Theme 2 - Ecosystem Based Fisheries Management

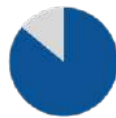


Theme 2 average score

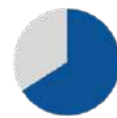
MAR



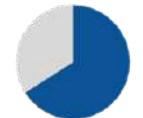
72%



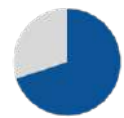
86%



66%



66%



70%

2 a. Harmonizing fisheries regulations among countries	60	60	60	60	60
2 b. Grouper regulations / FSAs	80	80	80	80	80
2 c. Protection of key grazers (parrotfish)	80	100	100	40	80
2 d. Transform all open-access fisheries to rights-based sustainable fisheries	65	100	20	80	60

Belize

Guatemala

Honduras

Mexico

Theme 3 - Coastal Zone Management

Coastal development—including human settlements, industry, aquaculture, or infrastructure—can dramatically alter nearshore ecosystems. Direct physical damage such as dredging or land filling, or indirect damage through increased runoff of sediment, pollution, and sewage, can greatly impact the health of a reef.

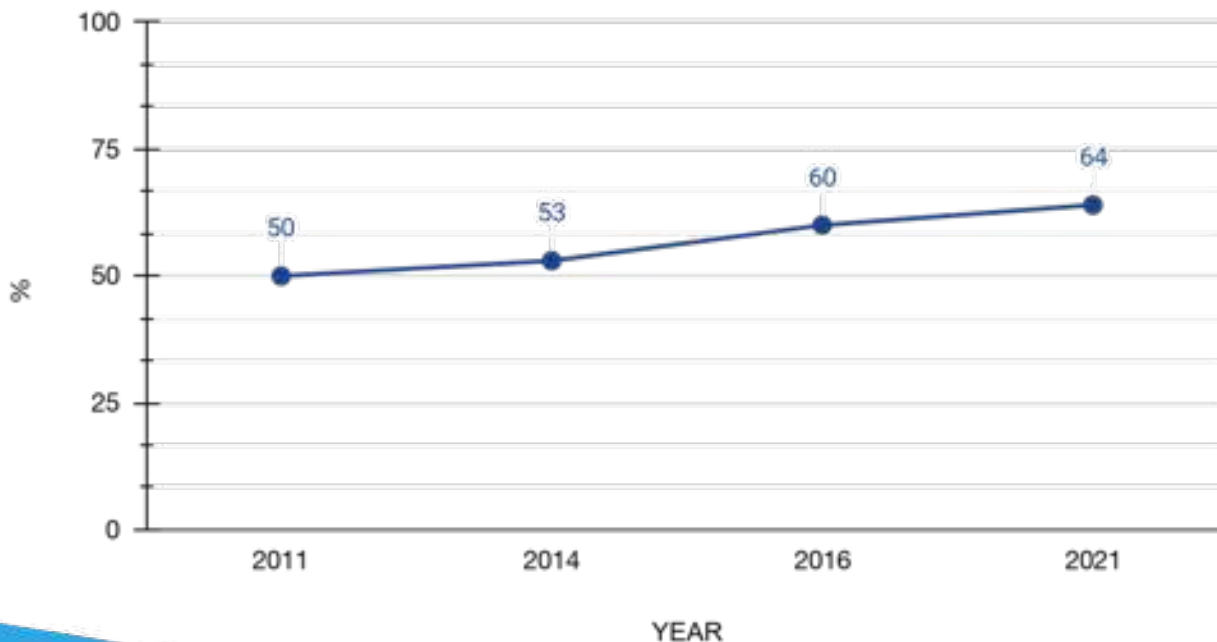
- 3a. Coastal zone planning regulations
- 3b. Watershed management plans related to coastal zone planning (must include water quality monitoring)
- 3c. Mangrove extent as an indicator of the effectiveness of the coastal zone management plan implementation



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Theme 3 - Coastal Zone Management

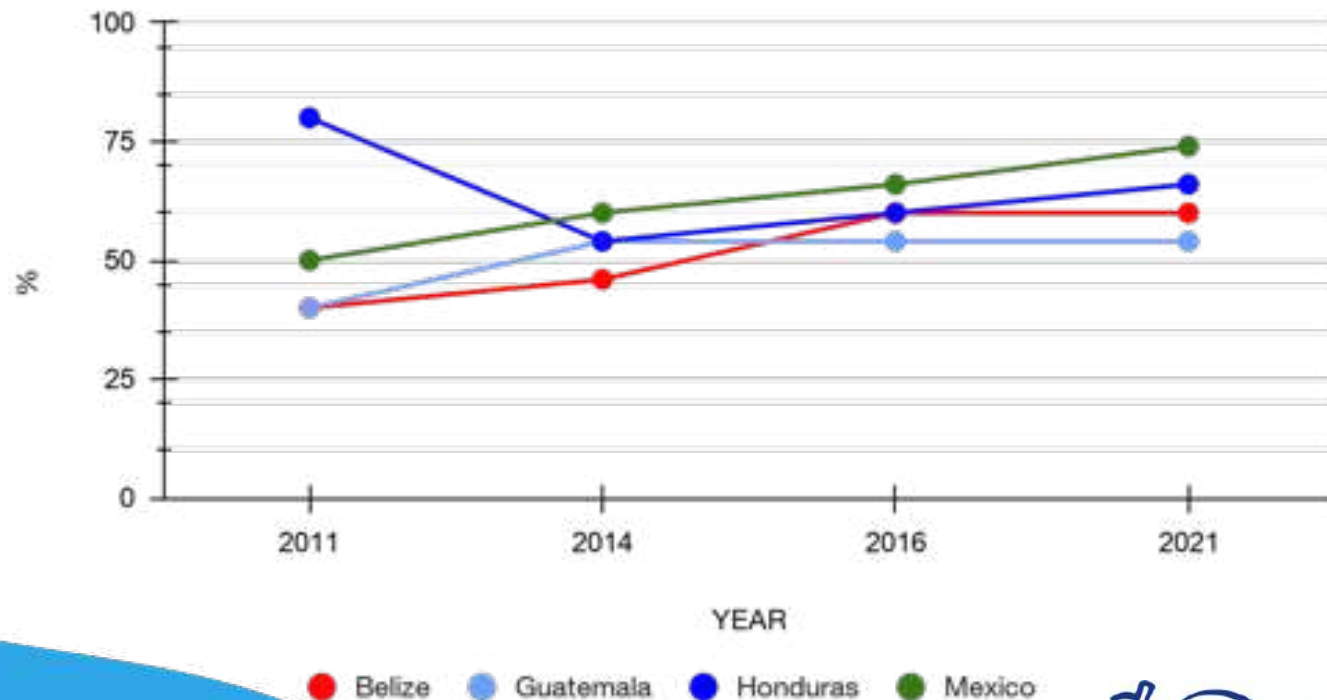
MAR SCORE OVER TIME



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Theme 3 - Coastal Zone Management

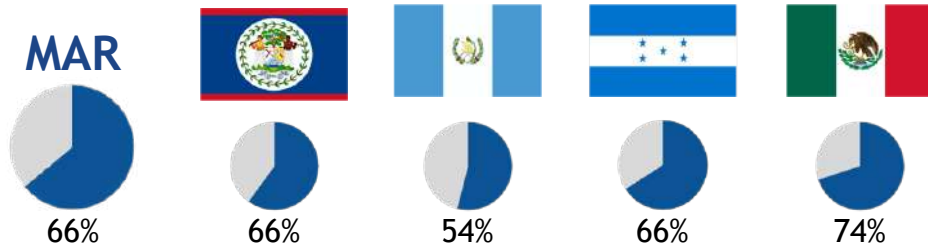
SCORES PER COUNTRY OVER TIME



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Theme 3 - Coastal Zone Management

Theme 3 Average Score



3a. Status of coastal zone plan or zoning regulations and enforcement	75	80	40	80	100
3b. Watershed management plans related to coastal zone planning	65	60	60	60	80
3c. Mangrove extent as an indicator of the effectiveness of the coastal zone management plan implementation.	55	60	60	60	40

Belize

Guatemala

Honduras

Mexico

* Belize score 1a pending review



Theme 4 - Sanitation and Sewage Treatment

The high level of nutrients present in sewage can result in proliferation of algae that compete for space on the reef. Sewage also contains bacteria and viruses known to harm marine life, including corals. Wastewater (including sewage and industrial effluent) must be treated and controlled to reduce the nutrients and toxins that reach coral reefs.

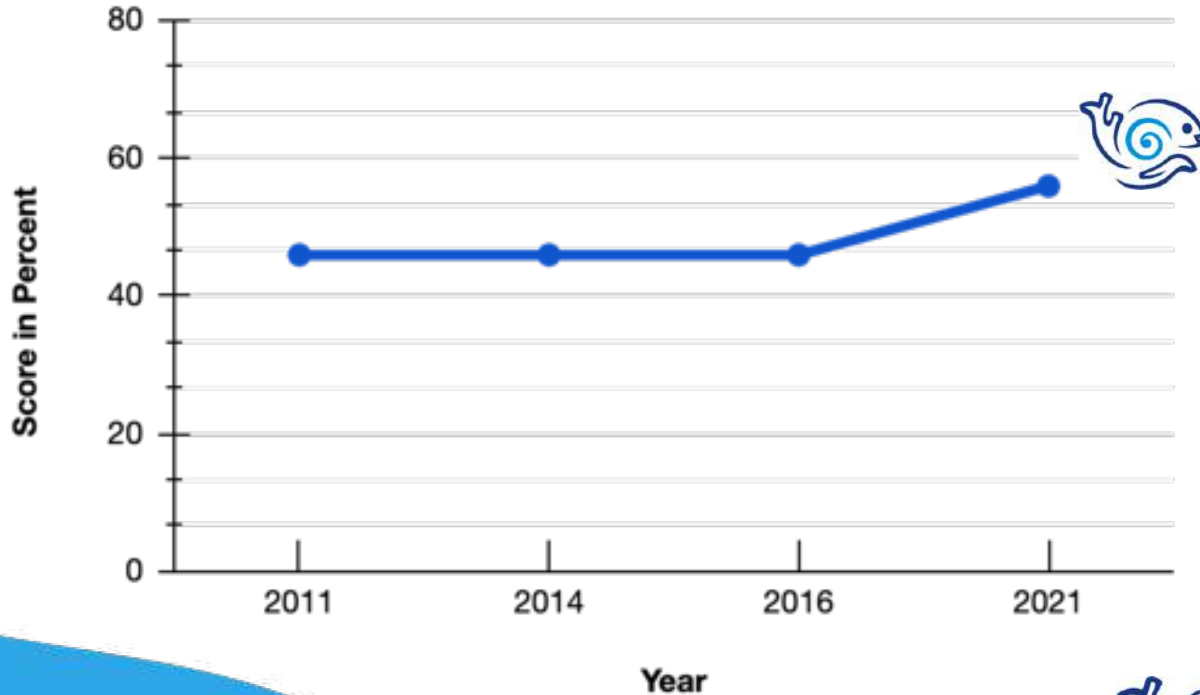
- 4a: LBS protocol ratified and implemented
- 4b: New tertiary wastewater treatment plants
- 4c: Implementation of best practices for pollution sources reduction





Theme 4 - Sanitation and Sewage Treatment

MAR Score Over Time

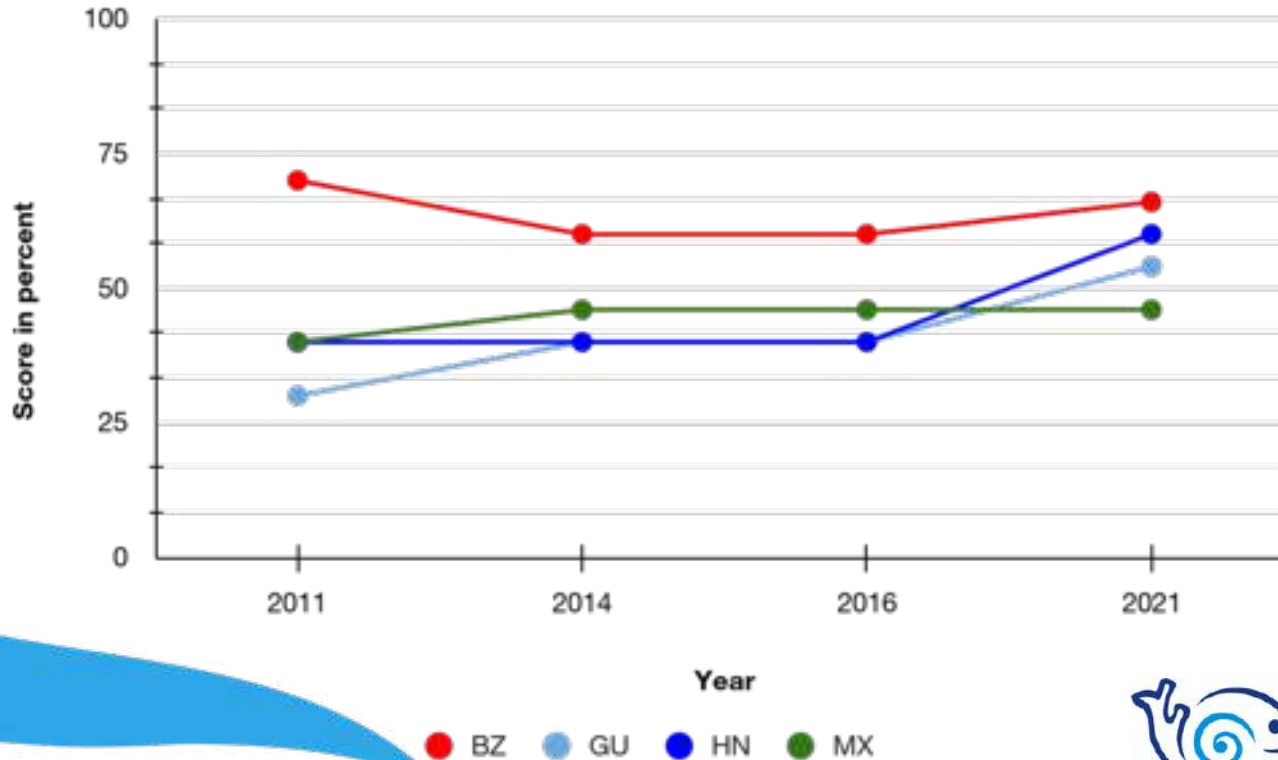


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Theme 4 - Sanitation and Sewage Treatment

Countries Score Over Time



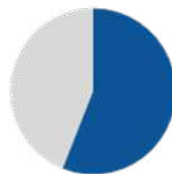
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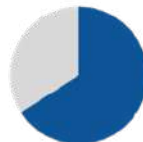
Theme 4 - Sanitation and Sewage Treatment

Theme 4 average score

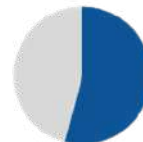
MAR



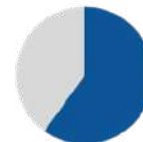
56%



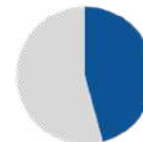
66%



54%



60%



46%

4a. Standards for wastewater management / sewage treatment	60	80	40	80	40
4b. New infrastructure for sewage treatment	55	60	60	60	40
4c. Reduce upstream watershed pollution sources	55	60	60	40	60

Belize

Guatemala

Honduras

Mexico



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Theme 5 - Research, Education and Awareness

Scientific information about the reef ecosystems and creating awareness is important to better recognize problems, address threats, and gain political, financial, and public support for reef management and conservation.

In this indicator we measure:

- 5 a. Effective, standardized, monitoring of coral reef health and management of that information
- 5b. Assessment of coral reef economic values
- 5c. Understandable information on reef condition, threats and values, available to the general public and stakeholders
- 5.d Development of interdisciplinary partnerships that combine social and ecological research

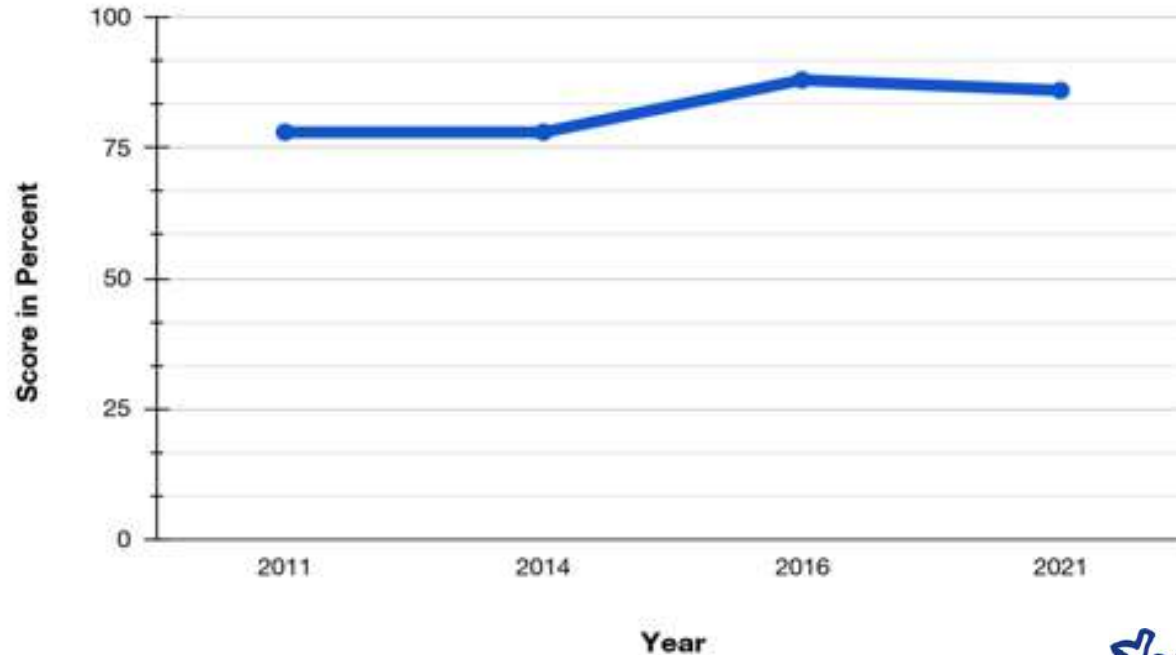


Mario Chow

Theme 5 - Research, Education and Awareness



MAR Score Over Time

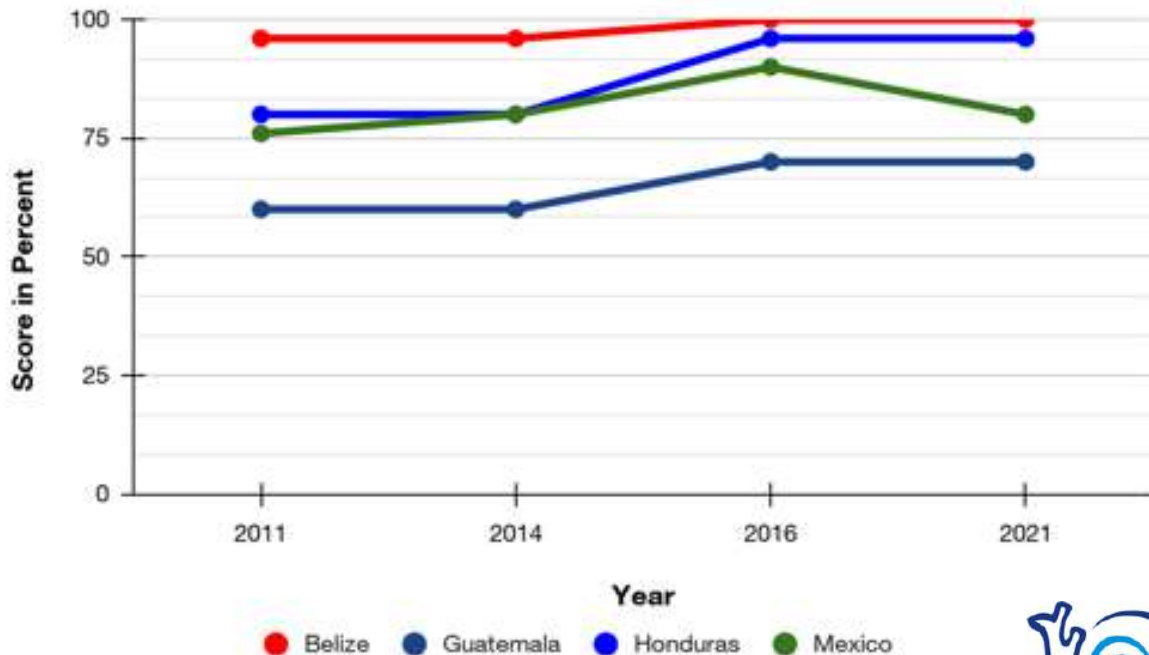


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Theme 5 - Research, Education and Awareness

Scores Per Country Over Time



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Theme 5 - Research, Education and Awareness

Theme 5 average score

MAR



86%



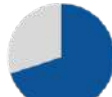
100%



70%



96%



80%

5 a. Effective, standardized, monitoring of coral reef health and management of that information



100



100



100

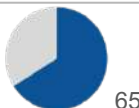


100



100

5 b. Assessment of coral reef economic values



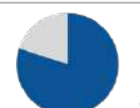
65



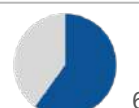
100



20



80



60

5 c. Understandable information on reef condition, threats and values, available to the general public and stakeholders



100



100



100



100



100

5 d. Development of interdisciplinary partnerships that combine social and ecological research



80



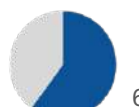
100



60



100



60

Belize

Guatemala

Honduras

Mexico

Theme 6 - Sustainability in the Private Sector

Partnerships between the private sector and governments or NGOs can facilitate information exchange, training in best environmental practices, and collaborative efforts to find solutions to issues of shared concern. Such partnerships can also be beneficial for tourism and marine recreation providers, as well as the seafood industry, by increasing their attractiveness to tourists, operators, restaurants and consumers who prefer environmentally responsible options.

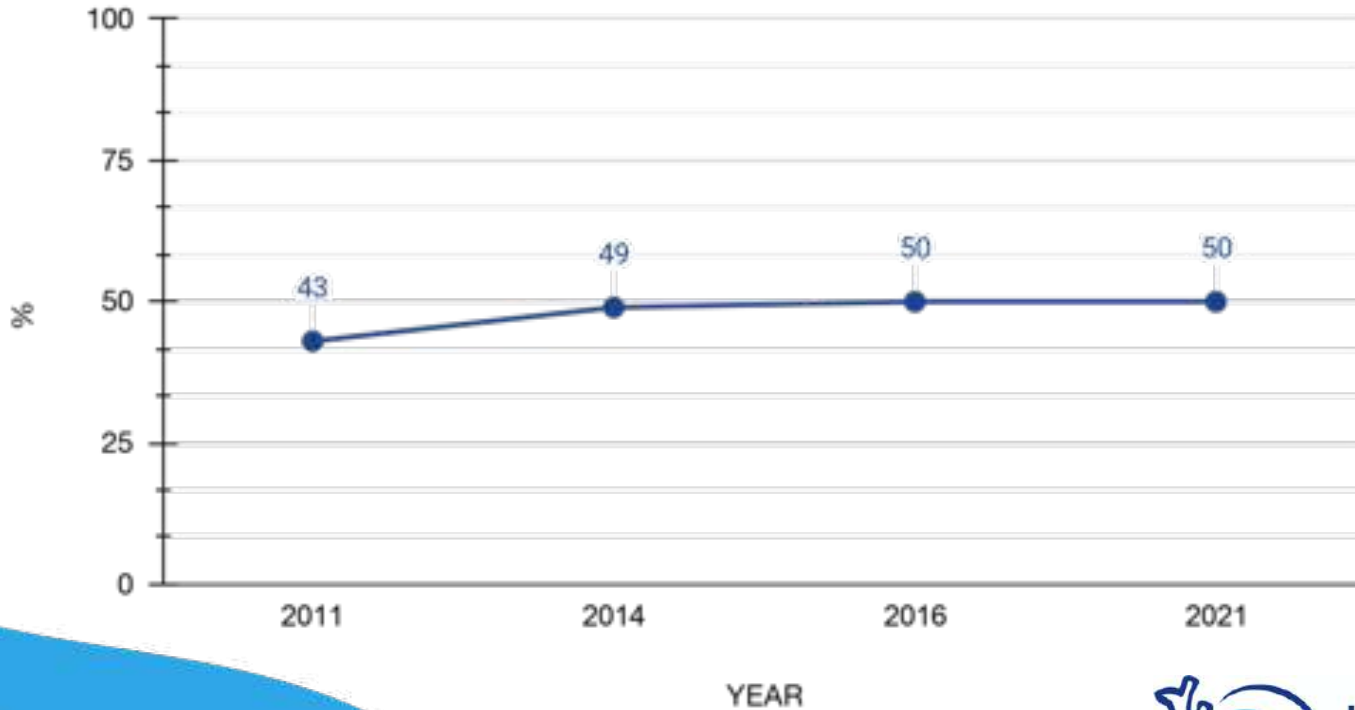
- 6a. Voluntary eco-standards program for marine recreation providers
- 6b. Participation of coastal hotels in eco-certification schemes
- 6c. Adoption of seafood eco-labeling programs
- 6d. Government incentives for conservation and sustainable businesses
- 6e. Private sector assistance to MPAs



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Theme 6 - Sustainability in the Private Sector

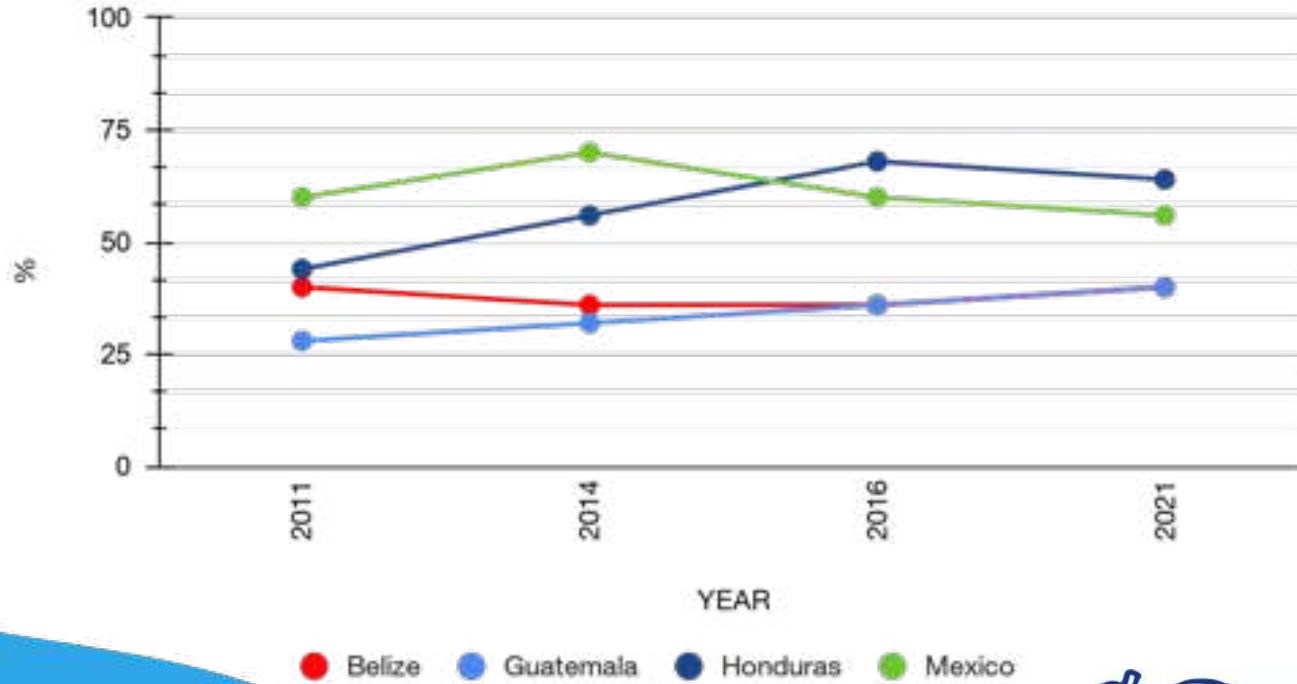
MAR SCORES OVER TIME



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Theme 6 - Sustainability in the Private Sector

SCORES PER COUNTRY OVER TIME



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Theme 6 - Sustainability in the Private Sector

Theme 6 Average Score

MAR



50%



40%



40%



64%



56%

6a. Develop a voluntary eco-standards program for marine recreation providers	45	40	40	60	40
6b. Participation of hotels in eco-certification schemes	45	40	40	60	40
6c. Adoption of seafood eco labeling programs	50	40	20	60	80
6d. Level of incentives the government provides for conservation and sustainable businesses	65	20	60	100	80
6e. Provision of financial, staff or technical assistance to coastal protected areas by the private sector	45	60	40	40	40

Belize

Guatemala

Honduras

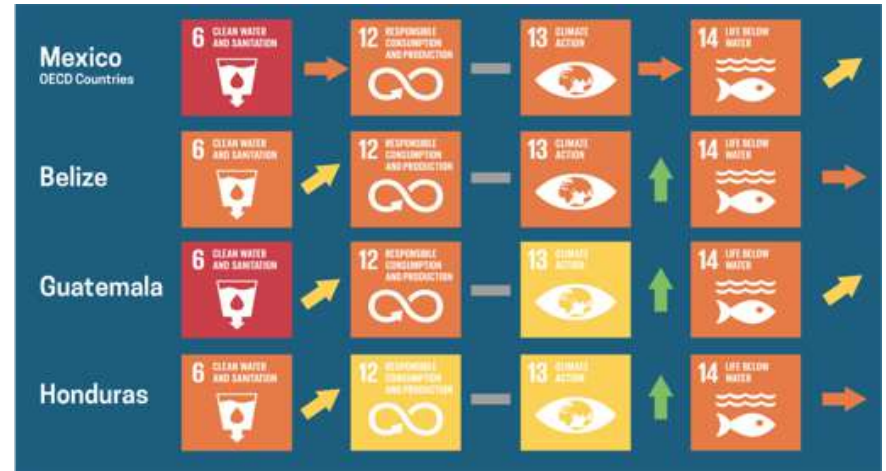
Mexico



Theme 7 - Global Issues

A global approach to protect coral reef ecosystems is essential to achieve meaningful action. We must work internationally, drawing on existing international frameworks and conventions, and also sharing knowledge, experience, and ideas to achieve solutions to global-scale threats such as climate change.

- 7a: Mapping resilient reefs
- 7b: Engagement in international treaties
- 7c: Incentives programs for carbon sequestration

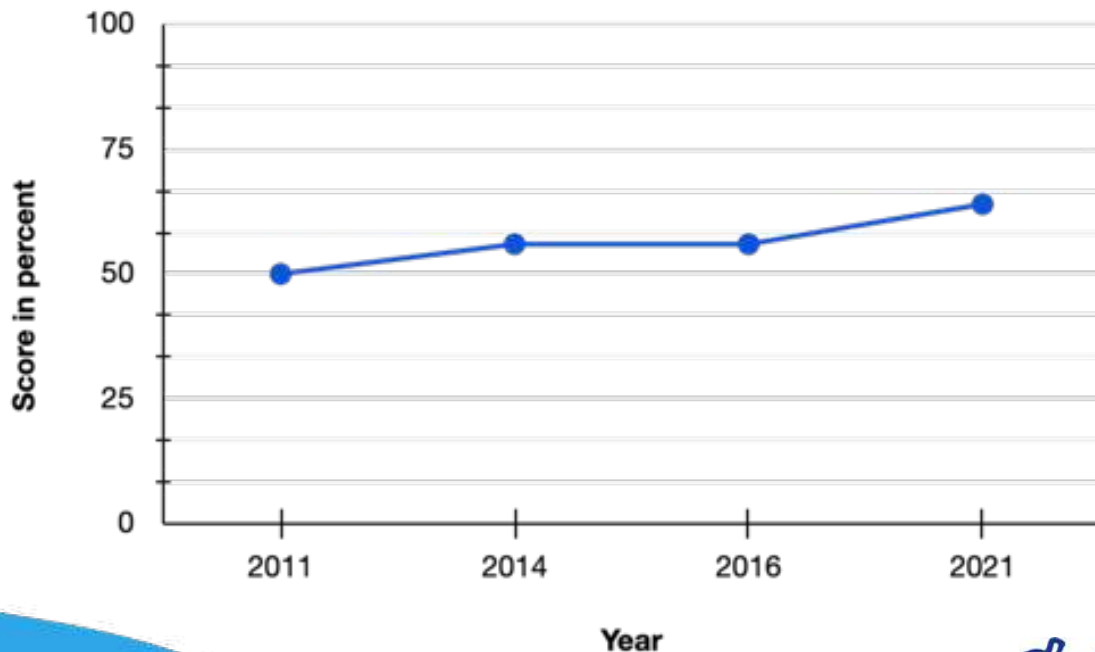


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Theme 7 - Global Issues

MAR Score Over Time

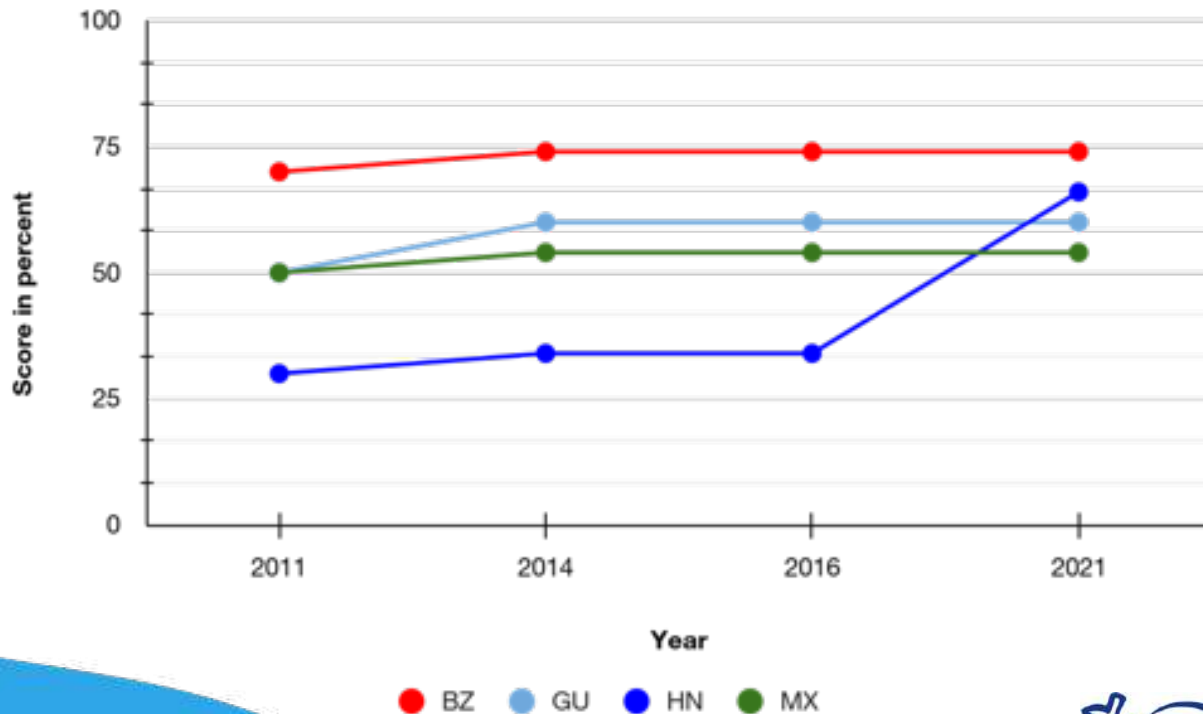


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Theme 7 - Global Issues

Countries Score Over Time



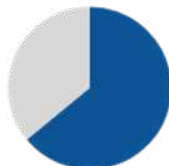
Healthy Reefs
for healthy people



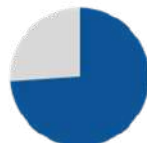
Theme 7 - Global Issues

Theme 7 average score

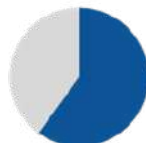
MAR



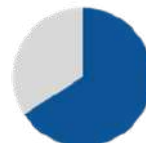
64%



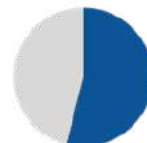
74%



60%



66%



54%

7a. Research to identify and map reefs most likely to be resilient to warming seas / coral bleaching	40	40	40	40	40
7b. Engagement in international/regional treaties that support conservation	80	100	60	100	60
7c. Develop incentives for carbon sequestration programs.	70	80	80	60	60

Belize

Guatemala

Honduras

Mexico

Interactive Eco-Audit 2021

www.healthyreefs.org
www.arrecifessaludables.org



The screenshot displays the Healthy Reefs website interface. At the top left is the logo for "Healthy Reefs for healthy people". To the right is a "Buscar" (Search) button. Below the logo is a navigation bar with links: "Acerca de HRI", "Reportes de Salud", "Informe de Avances", "Indicadores De Arrecifes Saludables", "Data Explorer", "Medio y Publicaciones", "Contacto", and "English". A dropdown menu is open under "Informe de Avances", showing options: "Informe de Avances Interactivo", "México", "Belize", "Guatemala", and "Honduras". The main content area has a dark blue background with the title "Eco-Audit 2021" in white. Below the title is a link: "Descargar toda la información del Eco-Audit 2021". At the bottom, there are four buttons for different countries: "MEXICO" (with the Mexican flag), "Belize" (with the Belize flag), "Guatemala" (with the Guatemalan flag), and "Honduras" (with the Honduran flag). Each button also features the "HAB" logo.

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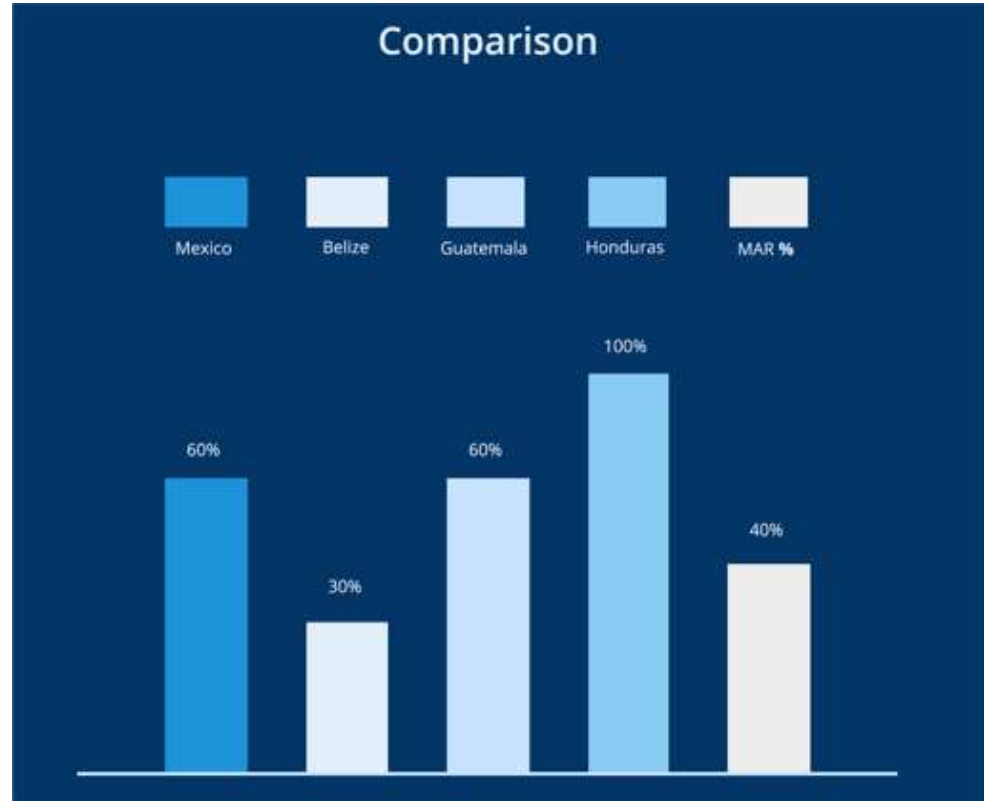
1- Áreas marinas protegidas

1a. Área marítima protegida (porcentaje del mar territorial de un país incluido en las AMP publicadas)

1b. Área marítima totalmente protegida (porcentaje del mar territorial de un país incluido en zonas de reabastecimiento totalmente protegidas)



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HRI Corporate Sponsors as of February 2021



Healthy Reefs
for healthy people



check back at www.healthyreefs.org for updates