Mesoamerican Reef Health Report Card 2024

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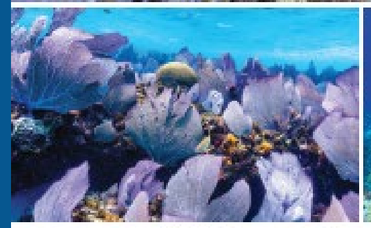
ANA GIRÓ
CLAUDIA GUERRERO
ISRAEL MUÑIZ
MARISOL RUEDA

286 sites
99 surveyors
41 organizations

COP16 COLOMBIA
Paz con la Naturaleza

Healthy Reefs
for healthy people

DECEMBER 2024



MESOAMERICAN REEF REPORT CARD
REPORTE DEL ARRECIFE MESOAMERICANO
EVALUATION OF ECOSYSTEM HEALTH | *EVALUACIÓN DE LA SALUD DEL ECOSISTEMA*

2024

Healthy Reefs
for healthy people
Arrecifes Saludables
para gente saludable

MESOAMERICAN REEF ECOREGION

TRANSBOUNDARY REEF

- Shared by 4 countries with 1000+ km of coastline, including the Belize barrier reef, the largest in the western hemisphere, seagrasses, extensive mangroves and lagoon systems

ECOSYTEM SERVICES

- Hotspot for biodiversity
- High cultural diversity linked to marine resources
- Ecosystem-based climate change mitigation

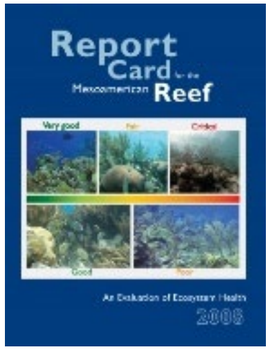
ECONOMIC VALUE

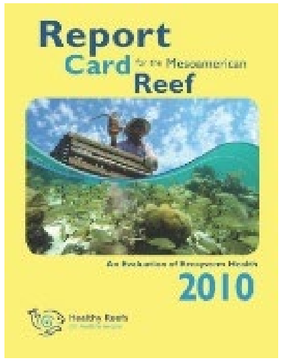
- Us $4.4 to 4.5 billion annually (IDB, 2021)
- $3.1m/year may be lost if health declines
- Or $2.5m/year increase if reef health improves

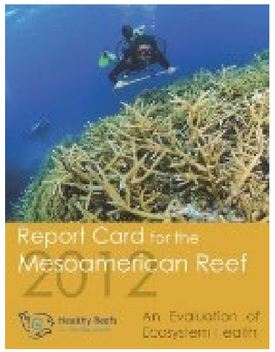
Healthy Reefs
for healthy people

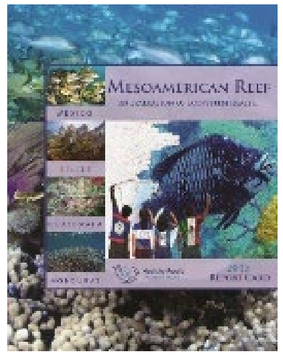
20 YEARS OF REEF HEALTH MONITORING AND REPORTING

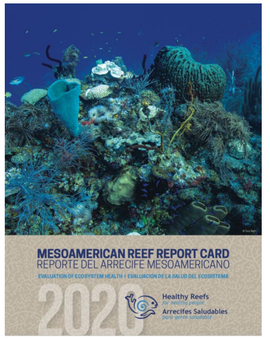
AGRRA











Threshold Values for Indicators | Valores de los Indicadores

(ASSIGNED THE HIGHEST RANK MEETING THESE MINIMUM VALUES)
(SE ASIGNA EL RANGO MÁS ALTO QUE CORRESPONDE A ESTOS VALORES MÍNIMOS)

Grade *Rango*	Coral Cover *Cobertura de Coral*	Fleshy Macroalgae Cover *Cobertura de Macroalgas Carnosas*	Herbivorous Fish Biomass *Biomasa de Peces Herbívoros*	Commercial Fish Biomass *Biomasa de Peces Comerciales*
Very Good | *Muy Bien*	40%	1%	3,290	1,620
Good | *Bien*	20%	5%	2,740	1,210
Fair | *Regular*	10%	12%	1,860	800
Poor | *Mal*	5%	25%	990	390
Critical | *Crítico*	<5%	>25%	<990	<390

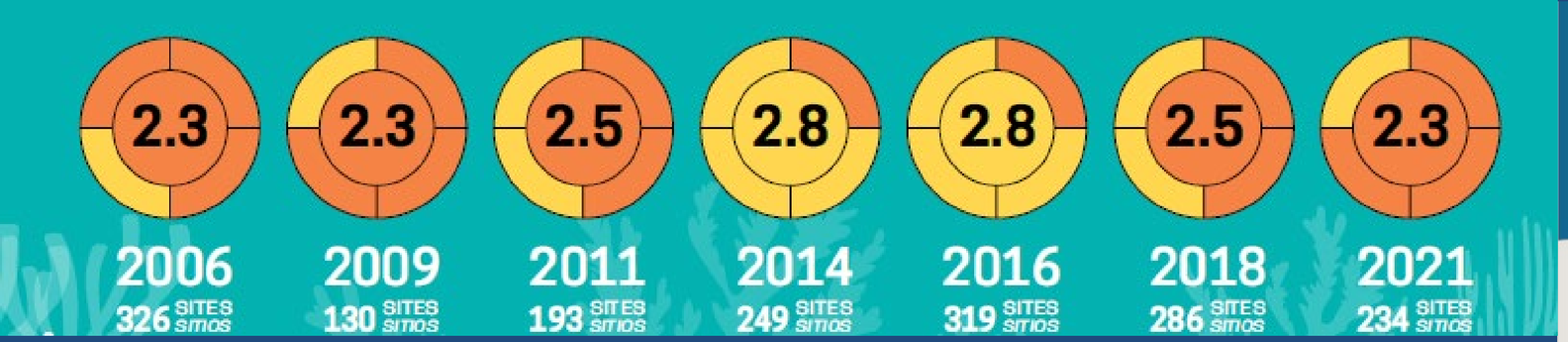
Large-scale, long-term monitoring data is needed for reef conservation and restoration

WHO WE ARE

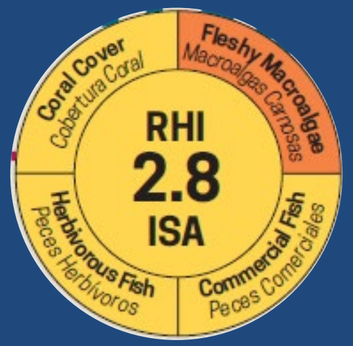
Our Vision is for a thriving and healthy marine ecosystem, where well-informed and influential reef shareholders are actively engaged in safeguarding this valuable natural asset.

March 2024 HRI Partners Meeting in Honduras

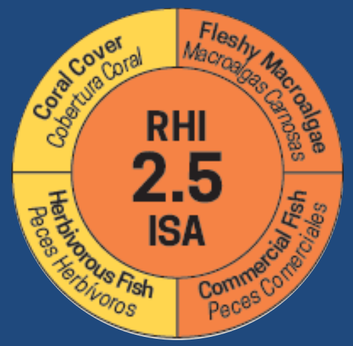

Wildlife Conservation Society
Smithsonian Institution
MAR FUND
The Summit Foundation
rare
FISH FOREVER
AGRRA
Perigee
CONSERVATION INTERNATIONAL
HOL CHAN MARINE RESERVE
Belize Audubon Society
blue ventures
beyond conservation
EDF
The Nature Conservancy
CORAL REEF ALLIANCE
ORE
WWF
marti
LIDERAZGO SAM
Consejo Nacional de Áreas Protegidas
CONAP
Cinvestav
ecomar
OCEANA
University of Belize
UB
ERI
FRAGMENTS of HOPE
AIDA
USAC
Ministerio de Agricultura, Ganadería y Alimentación
Ministerio de Ambiente y Recursos Naturales
Turneffe Atoll Sustainability Association
SEA BELIZE
NEW VENTURES
BNP PARIBAS FOUNDATION
Semillas del Océano
pixan'ja
RAZONATURA
FUNDAECO
TIDE
CSFI
VIWALA
capital de impulso
GLOBAL FUND FOR CORAL REEFS
gvi
PLANET
natoure
ECOSUR
Xcalak
ARIMA
DiBio
ROATAN MARINE PARK
FONDS FRANÇAIS POUR L'ENVIRONNEMENT MONDIAL
COBI
Sustentabilidad Turística
UNAH-CURLA
CORESCAM
mares
CENTER
ARKIPE LAGO
SEMA
Pesca y Acuicultura SAG-DIGEPESCA
FUNDACIÓN CAYOS COCHINOS
TELA MARINE
CEMDA
MEDIO AMBIENTE
CONANP
MAR SUSTENTABLE
Amigos de Isla Contoy
IBANGOOO
Instituto Nacional de Conservación Forestal ICF
BICA
SERNA
ISLAS DE LA BAHÍA
MARALLIANCE
CINDAQ
Centinelas del Agua A.C.
Complejo San Ka'an
PARQUE NACIONAL
FMCN
CORAL HERO
Sureste Sostenible
FUCSA
WSORC
CEM
FUNDACIÓN Islas de la Bahía
OCEANUS A.C.
CORALIUM
ASOCIACIÓN DE HOTELES RIVIERA MAYA
amigos de Sian Ka'an
ACCIONES POR LA NATURALEZA



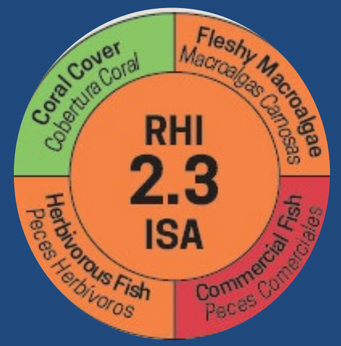
MAR 2023



MÉXICO
2023

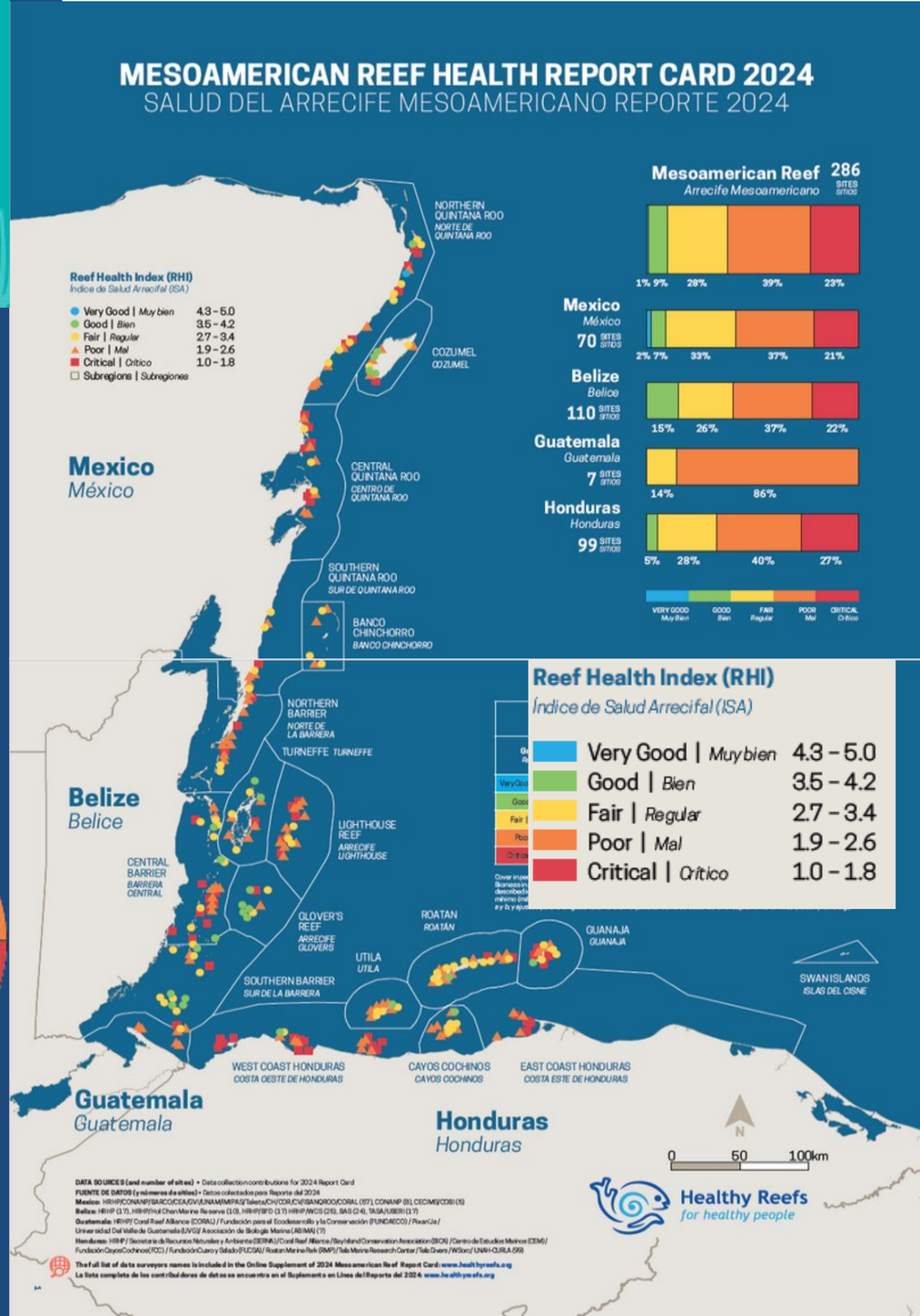


BELIZE
2023



GUATEMALA
2023

HONDURAS
2023



SUBREGION CHANGES

Most subregions are classified as "fair", but none are "good"

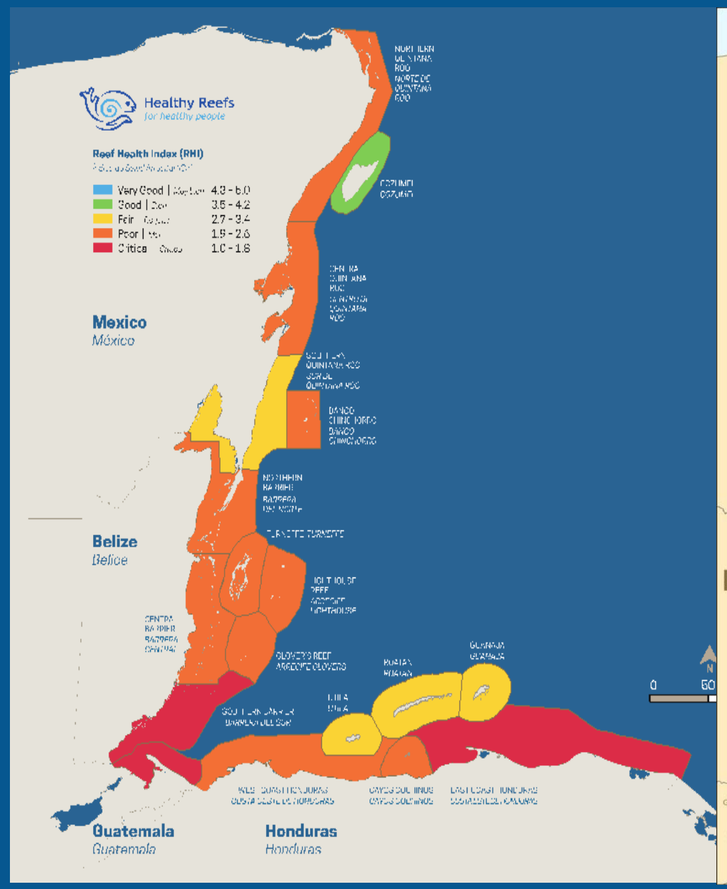
Glovers had the biggest increase , with it's RHI going from 2.0 (poor) to 3.3 (regular)

Cozumel had the largest decrease in RHI, going from 3.8 (good) to 3.0 (fair).

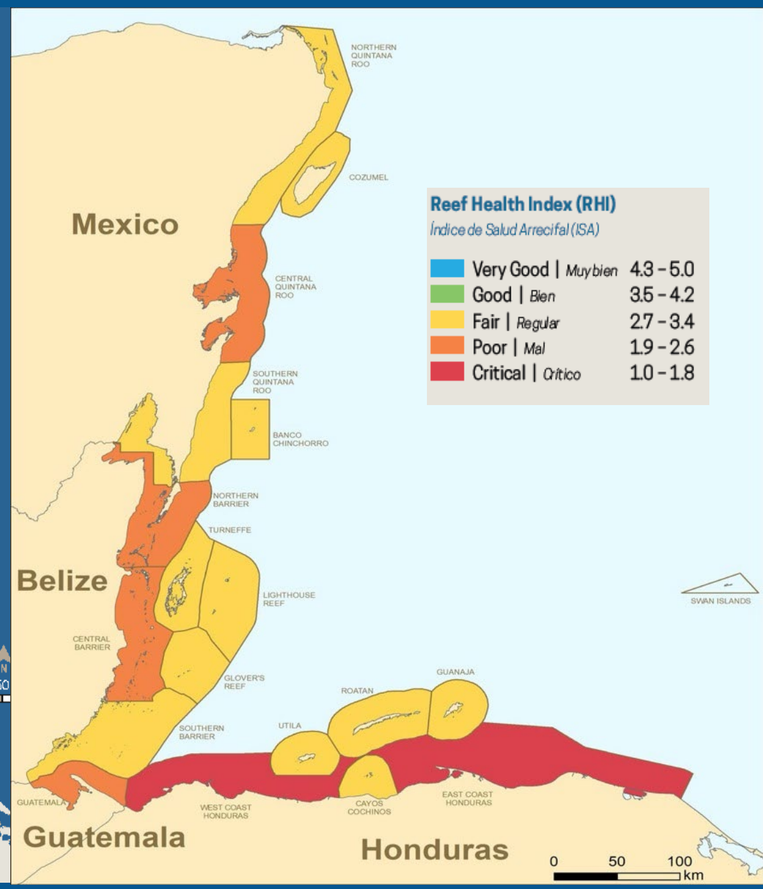
Herbivorous fish were the indicator with the highest ranking, with 4 "very good" and 4 "good" subregions.

Fleshy macroalgae had three subregions classified as "critical", 14 as "poor" and one as "fair"

2021 Data

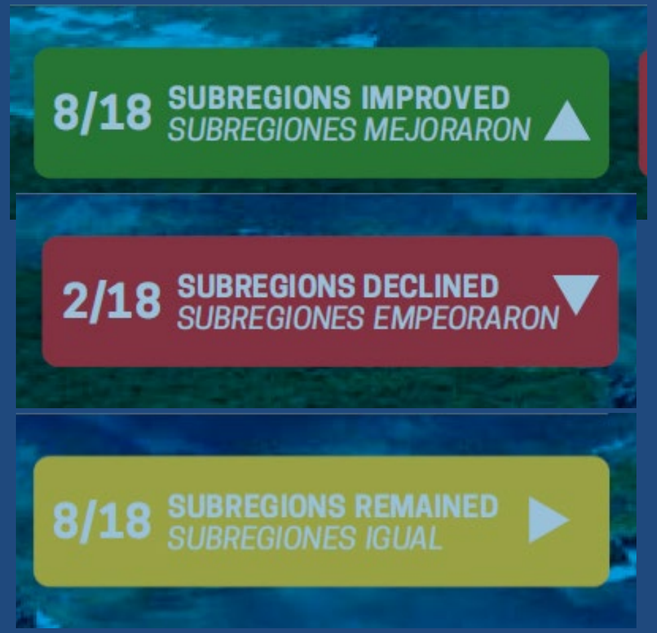


2023 Data



Country / País	RHI Reef Health Index / ISA Índice Salud Arrecifal				2024 Indicator Values / 2024 Valores Indicadores				Reef Area Analysis / Análisis de Área Arrecifal			
Subregion / Nombre de la Subregión	2018 Report Card / Reporte	2020 Report Card / Reporte	2022 Report Card / Reporte	2024 Report Card / Reporte	Live Coral (% cover) / Corales Vivos (% cobertura)	Fleshy Macroalgae (% cover) / Macroalgas Carnosas (% cobertura)	Herbivorous Fish (g/100m²) / Peces Herbívoros (g/100m²)	Commercial Fish (g/100m²) / Peces Comerciales (g/100m²)	% of Reef in Fully Protected Zones / %de Arrecifes en Zonas Totalmente Protegidas	Reef Fully Protected Zones (km²) / Arrecifes en Zonas Totalmente Protegidas (km²)	Reef km² / Arrecife km²	# Sites / Número de Sitios
MEXICO / MEXICO	**2.8**	**2.8**	**2.8**	**2.8**	**13**	**20**	**2656**	**1046**	**15%**	**49**	**332**	**70**
North Quintana Roo / Norte de Quintana Roo	2.5	2.8	2.5	3.3	**11**	**22**	**3759**	**1126**	25%	10	42	25
Cozumel / Cozumel	3.5	3.8	3.8	3.0	**16**	**16**	**2200**	**1277**	35%	9	26	12
Central Quintana Roo / Centro de Quintana Roo	2.3	2.5	2.0	2.3	**12**	**21**	**1576**	**623**	9%	6	71	16
South Quintana Roo / Sur de Quintana Roo	2.3	2.8	2.8	2.8	**12**	**17**	**1893**	**1107**	9%	3	31	11
Banco Chinchorro / Banco Chinchorro	2.8	2.5	2.0	3.0	**18**	**22**	**3073**	**1194**	13%	20	162	6
BELIZE / BELICE	**2.8**	**3.0**	**2.0**	**2.5**	**15**	**17**	**2528**	**791**	**7%**	**56**	**804**	**110**
North Barrier Complex / Norte de la Barrera	2.8	2.3	2.3	2.3	**8**	**28**	**3025**	**504**	22%	8	37	13
Central Barrier Complex / Barrera Central	1.8	3.0	2.5	2.3	**15**	**16**	**1657**	**447**	6%	12	196	29
South Barrier Complex / Sur de la Barrera	3.8	3.3	1.8	3.0	**18**	**13**	**4214**	**710**	5%	16	345	18
Turneffe / Turneffe	2.5	2.5	2.5	3.0	**17**	**10**	**1948**	**946**	7%	5	70	17
Lighthouse Reef / Arrecife Lighthouse	3.3	3.0	2.0	2.8	**11**	**21**	**1604**	**1352**	14%	12	82	24
Glover's Reef / Arrecife Glovers	2.3	2.8	2.0	3.3	**25**	**18**	**4802**	**687**	4%	3	75	9
GUATEMALA / GUATEMALA	**2.0**	**2.0**	**1.8**	**2.3**	**25**	**16**	**1481**	**154**	**13%**	**3**	**20**	**7**
HONDURAS / HONDURAS	**3.0**	**2.5**	**2.3**	**2.5**	**21**	**24**	**2135**	**386**	**16%**	**38**	**233**	**99**
West Coast Honduras / Costa Oeste de Honduras	2.6	2.0	2.3	1.8	**25**	**26**	**772**	**161**	21%	11	50	26
Cayos Cochinos / Cayos Cochinos	2.8	2.0	2.3	3.3	**22**	**21**	**3336**	**434**	0%	0	14	13
Utila / Utila	3.5	2.0	2.8	2.8	**18**	**16**	**2996**	**396**	5%	1	19	12
Roatan / Roatán	3.3	2.8	3.0	2.8	**22**	**19**	**2742**	**374**	3%	1	31	25
East Coast Honduras / Costa Este de Honduras	2.0	—	1.8	1.8	**13**	**45**	**1688**	**80**	6%	3	15	8
Guanaja / Guanaja	2.8	2.5	2.8	3.0	**21**	**24**	**1997**	**908**	0%	0	81	15
Swan Islands / Islas del Cisne	—	—	—	—	—	—	—	—	100%	23	23	—
Mesoamerican Reef / Arrecife Mesoamericano	**2.8**	**2.5**	**2.3**	**2.5**	**17**	**20**	**2397**	**696**	**11%**	**146**	**1389**	**286**

More Subregions Improved versus Declined



Errata !!

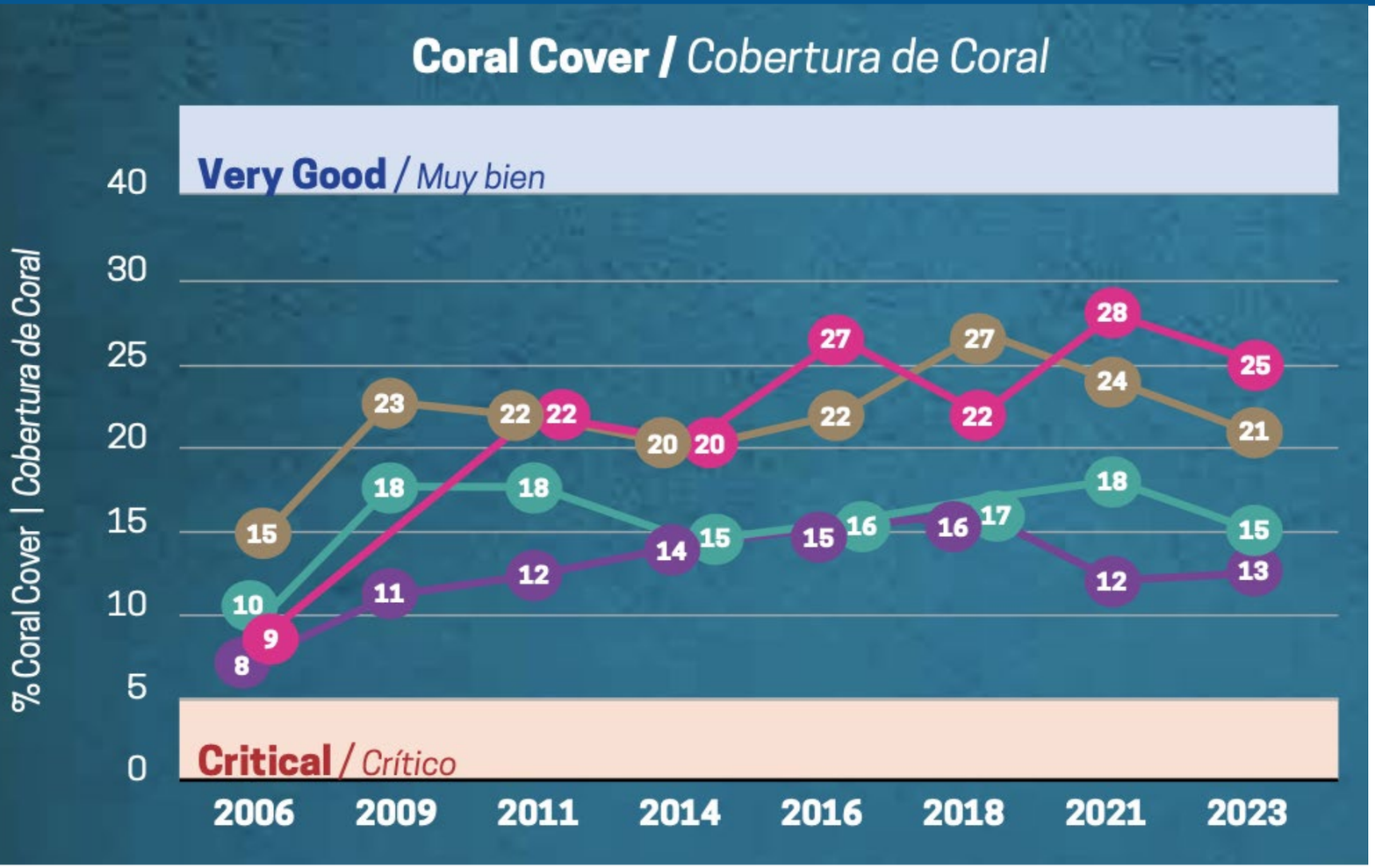
and more in the Online Supplement

Download here:

Online PDF is Corrected

RESULTS BY INDICATOR

CORAL COVER

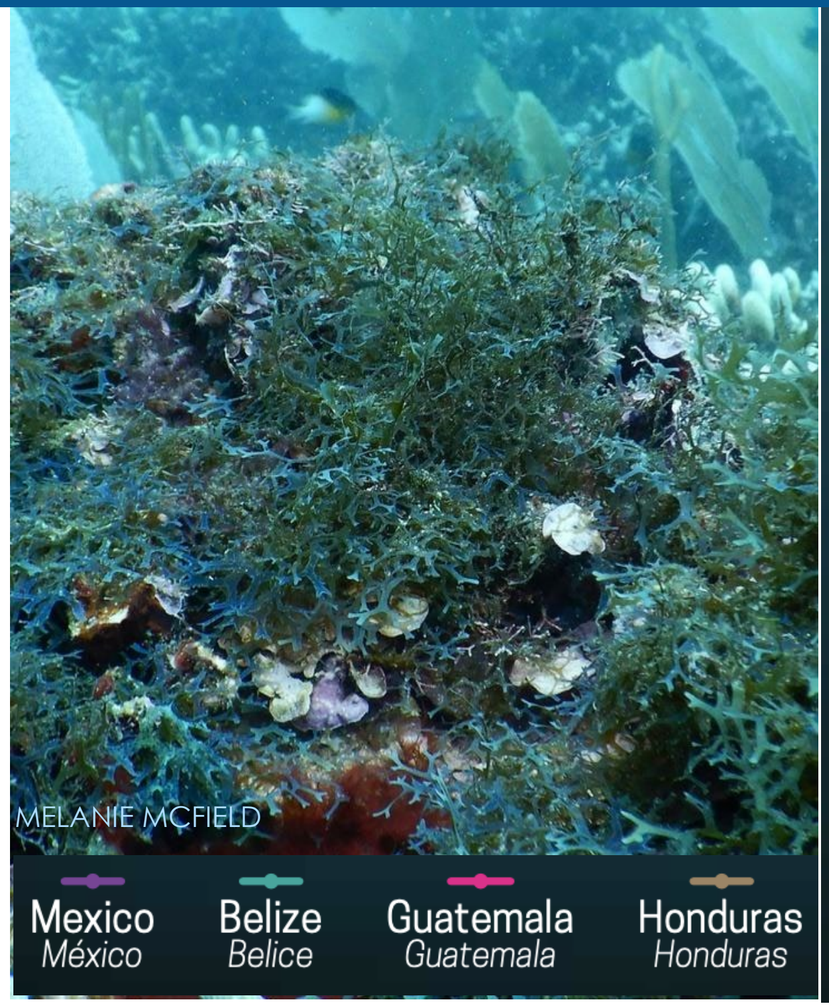


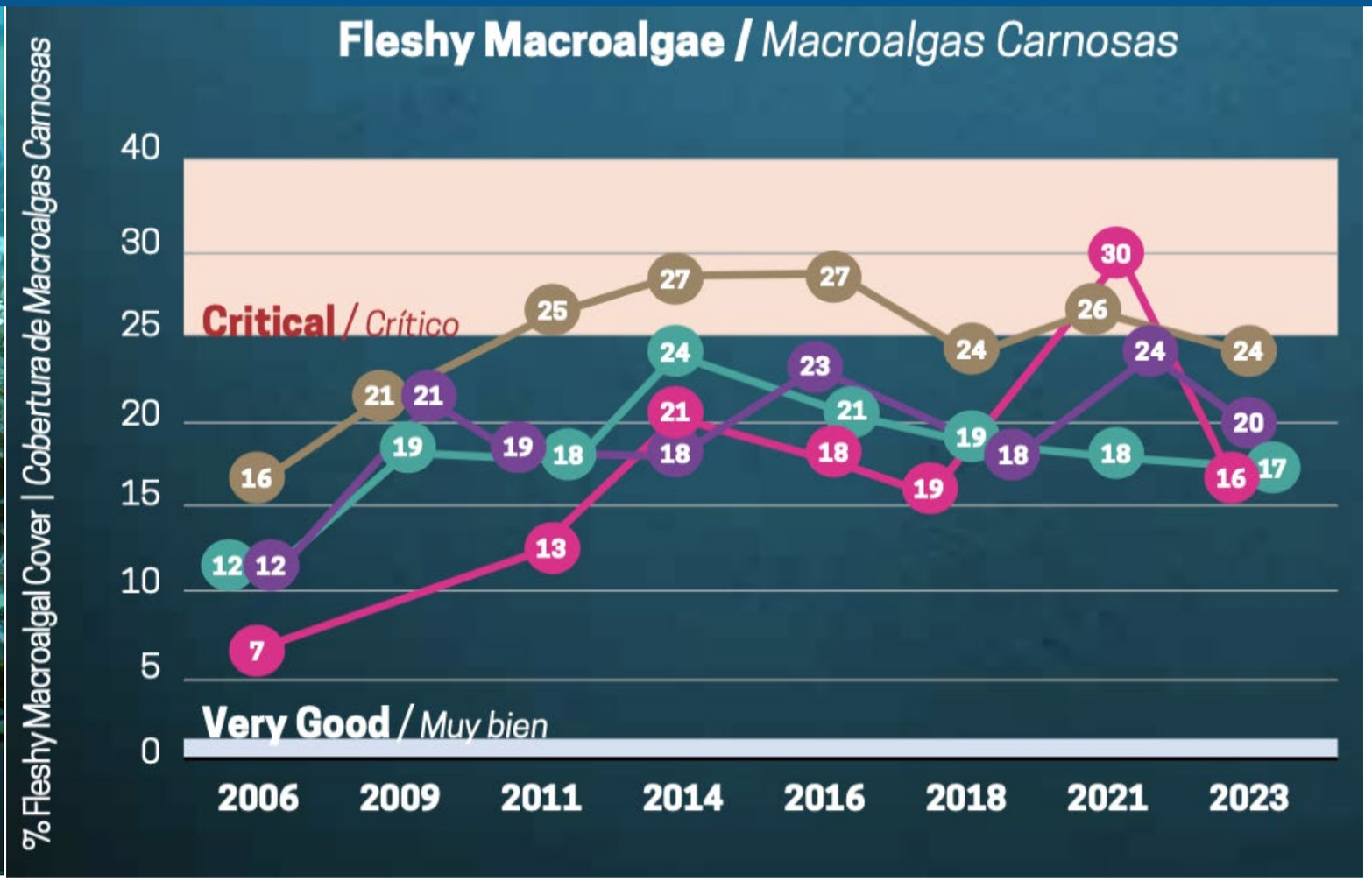
DISEASE AND BLEACHING have reduced total coral cover in the MAR from **19% to 17%.**

The decline is even larger among the massive corals that form the reef structure.

RESULTS BY INDICATOR

FLESHY MACROALGAE COVER

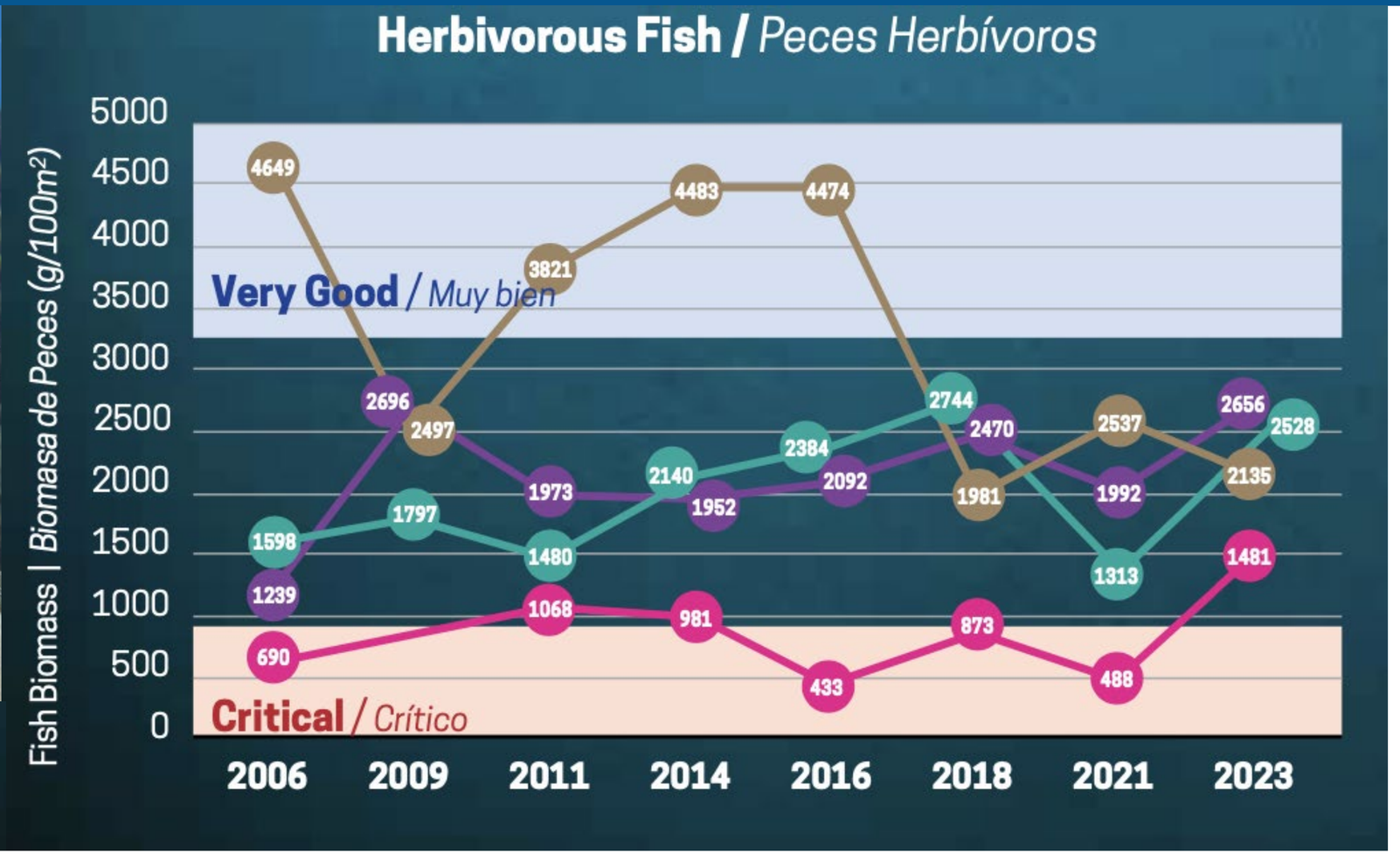




Has decreased slightly from **22% to 20%**, but still remains in **"POOR"** condition, as in all previous evaluations.

RESULTS BY INDICATOR

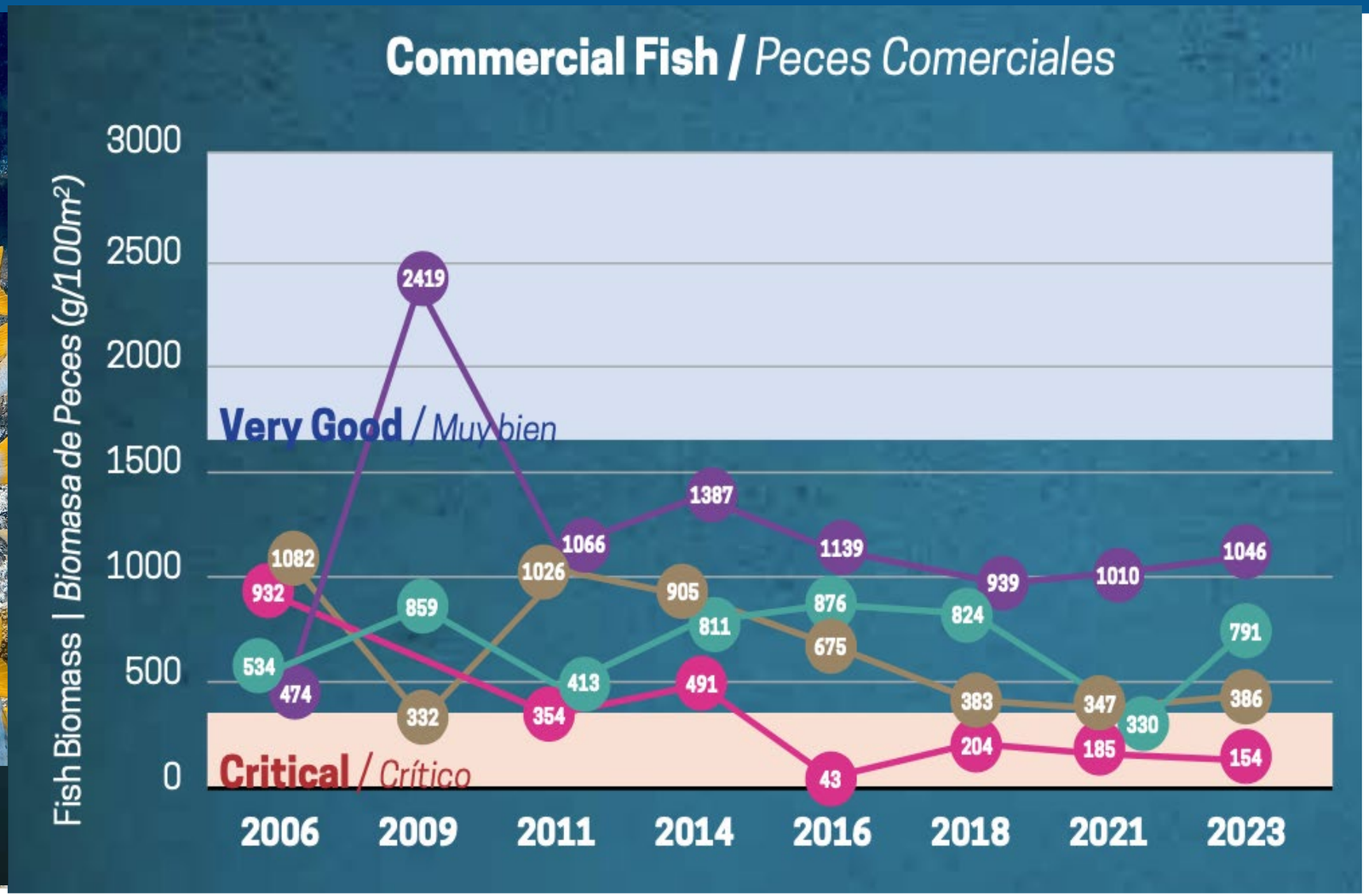
HERBIVOROUS FISH BIOMASS



THE PROTECTION OF HERBIVOROUS FISH SEEMS TO HAVE HELPED to increase biomass in **3 of the 4** countries, almost achieving a "Good" rating, with **2,397g/100m²**.

RESULTS BY INDICATOR

COMMERCIAL FISH BIOMASS



Remains “Poor" (696 g/100 m²); Belize has rebounded, almost catching up with pre-COVID" levels.

Illegal, unreported and unregulated fishing, habitat loss and climate change continue to impact.

THREATS AND INITIATIVES

ONLY 3 OF THE 90 SITES IN THE ENTIRE MAR WERE CLASSIFIED AS NON-DEGRADED.

Regular to **poor or unacceptable** nutrient levels throughout the MAR, fueling macroalgae growth and impeding coral recovery.

64% had **fair to poor** (≤7mg/L) levels of dissolved oxygen, with a regional average of 6.8mg/L.

74% contained human wastewater pathogens, with 7% and 17% of enterococci and coliform samples, respectively, exceeding acceptable limits under the Cartagena Convention.

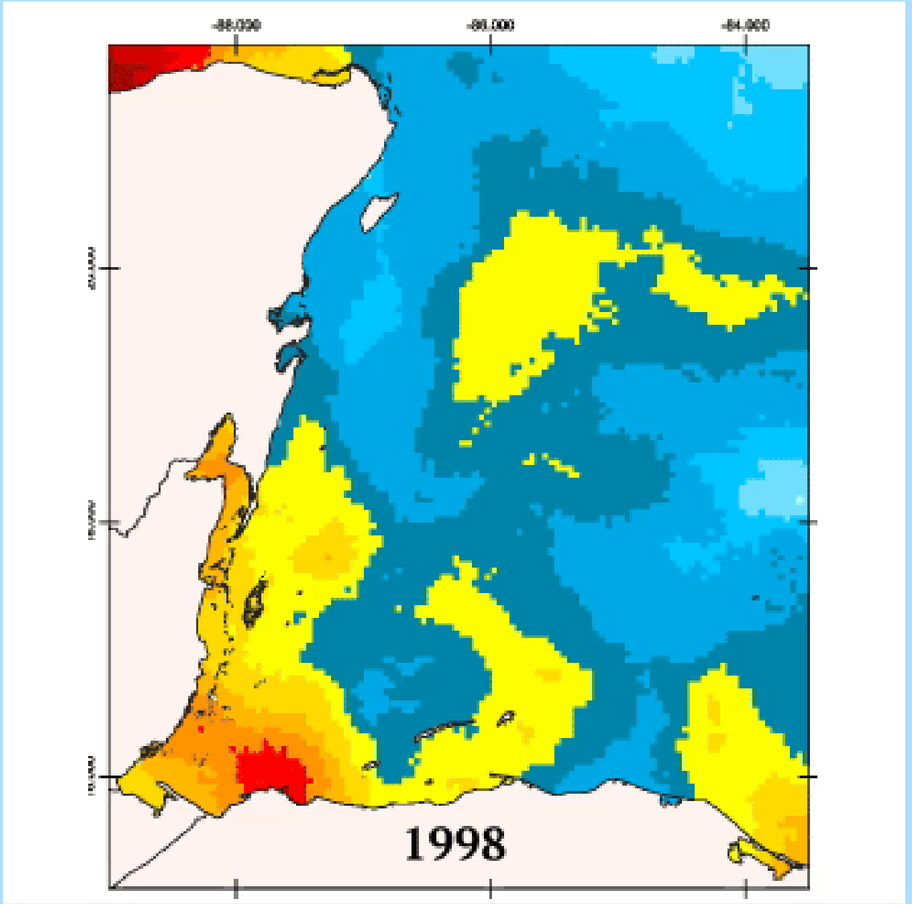
2023 CORAL BLEACHING CRISIS

2023 has suffered record heat stress creating a coral bleaching crisis that extends into 2024.

The corals were exposed to high temperatures for many more weeks than previously seen, drastically affecting their symbiosis: 40% affectation.

The south of the MAR, in Belize, Guatemala and the Gulf of Honduras, is the most affected: Cordelia went from 46% to 5% of coral cover.

The effects of the 2023/2024 bleaching continue to be monitored.

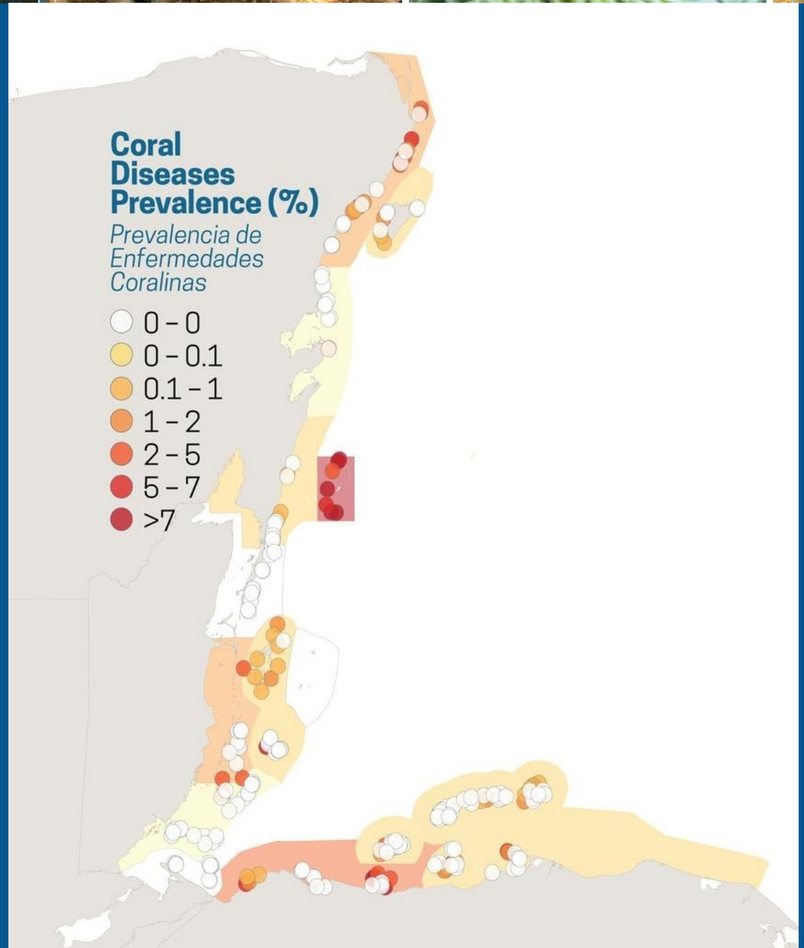


DISEASES

Some pathogens are naturally present, but rising water temperatures, nutrient contamination and dredging trigger disease outbreaks.

The most prevalent disease continues to be SCTLD affecting more than 20 species and 3 of 4 colonies of pillar coral. The second is the white band.

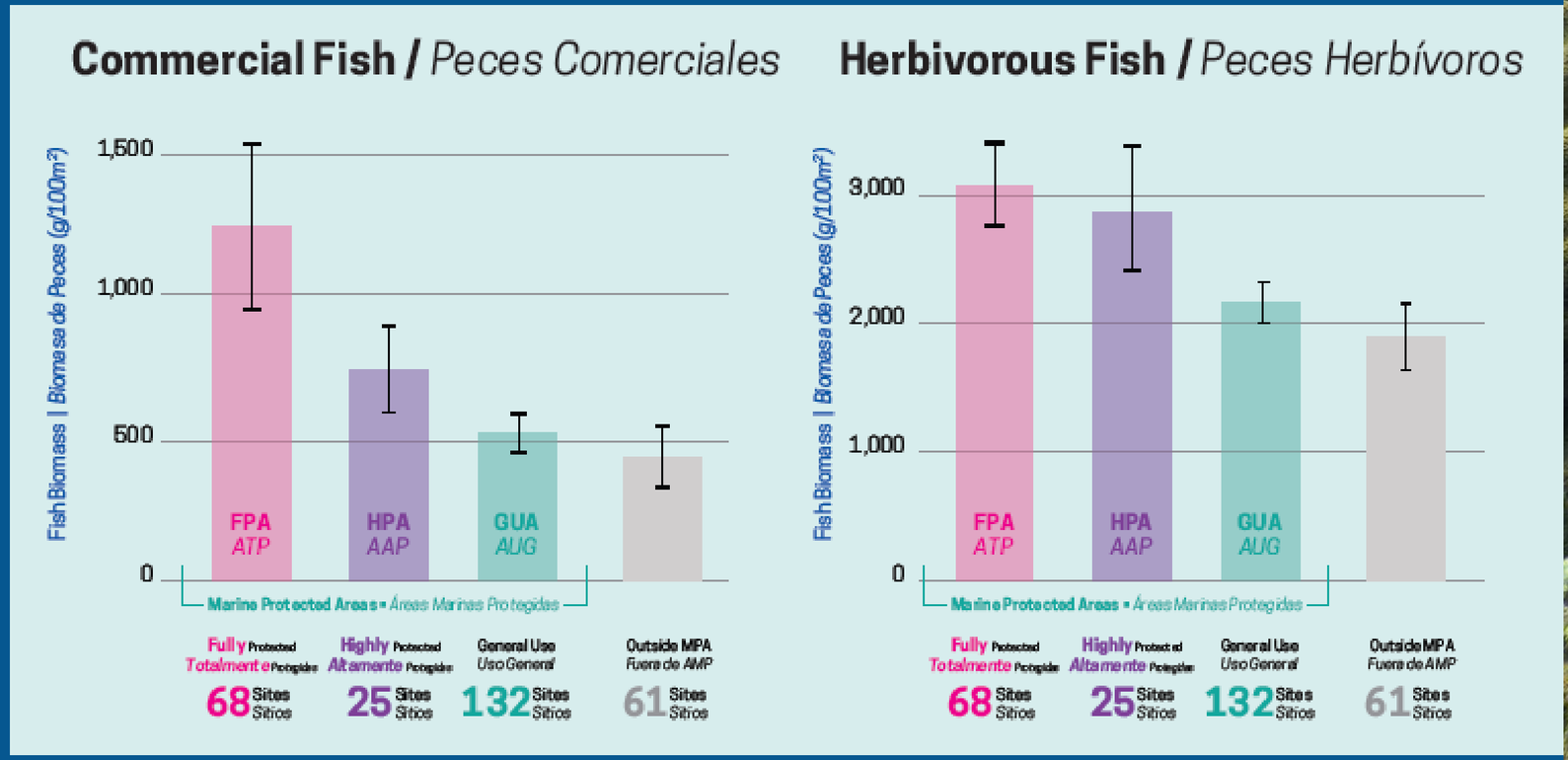
Southern Belize and Guatemala remain unregistered with SCTLD but it has claimed millions of coral lives in the MAR.



TOTAL PROTECTION FOR FISH

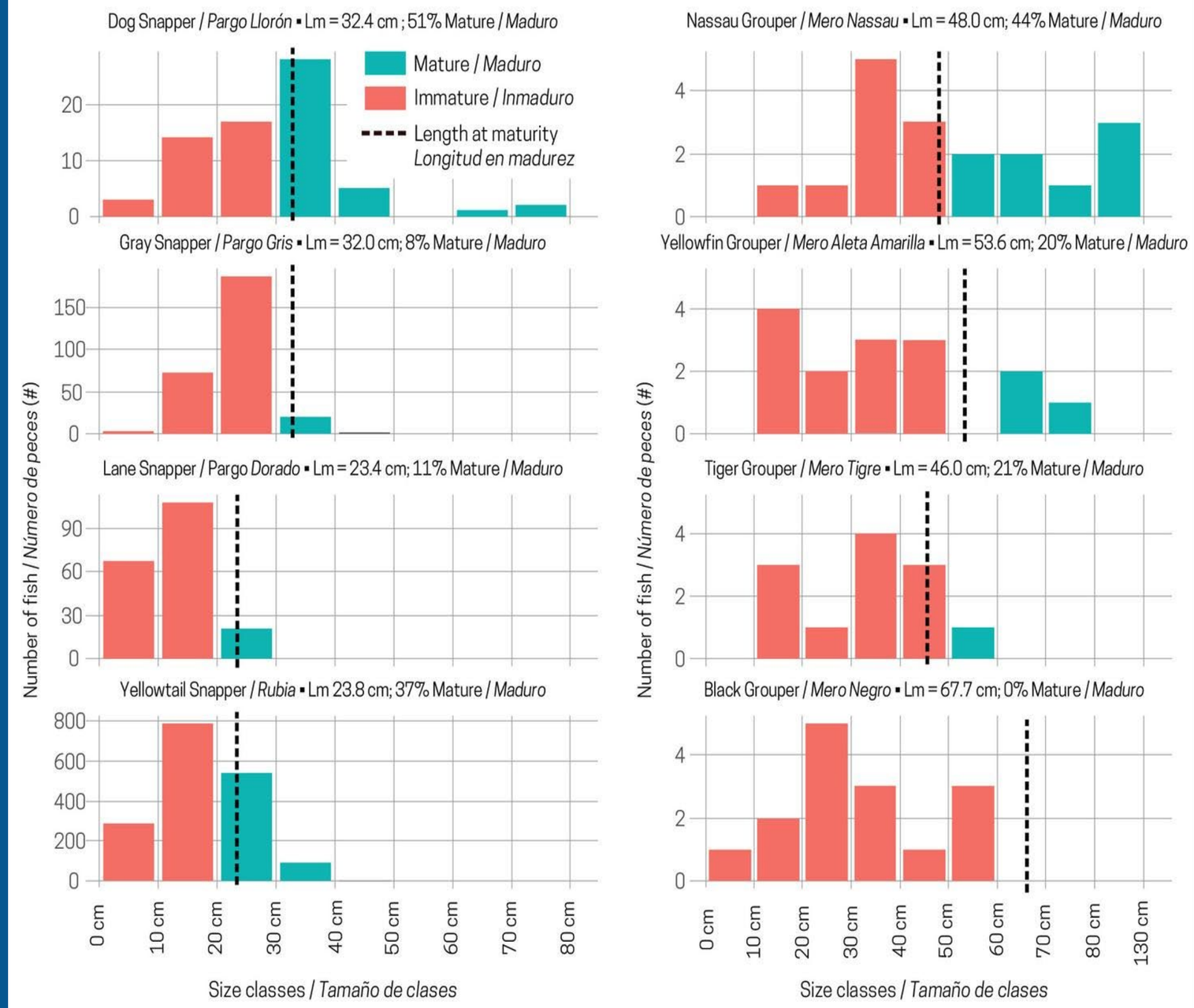
Total protection has increased over the past four decades but has stagnated at 3% of the territorial sea and 11% of reefs.

Full replenishment zones are needed to rebuild commercial fish stocks.



ERIKA HERNANDEZ

MOST FISH CAN'T REPRODUCE



RESTORATION OF CORALS

BARUCH FIGUEROA

V.GROSSO-CORALIUM

RESTORATION PROJECTS
PROYECTOS DE RESTAURACIÓN

100%
WORK WITH BRANCHING CORALS
TRABAJAN CON CORALES RAMIFICADOS

<25%
RESTORE MASSIVE CORALS
RESTAURAN CORALES MASIVOS

FRAGMENTS & MICROFRAGS PLANTED
OVER I *MÁS DE*
200,000
FRAGMENTOS & MICROFRAGMENTOS SEMBRADOS

SEXUAL RECRUITS PRODUCED
OVER I *MÁS DE*
200,000
RECLUTAS SEXUALES PRODUCIDOS

UNAM-CORALIUM'S BIOREPOSITORY HOLDS
EL BIOREPOSITORIO DE UNAM-CORALIUM CONSERVA

CRYOPRESERVED SPERM SAMPLES
1172
MUESTRAS DE ESPERMA CRIOCONSERVADAS

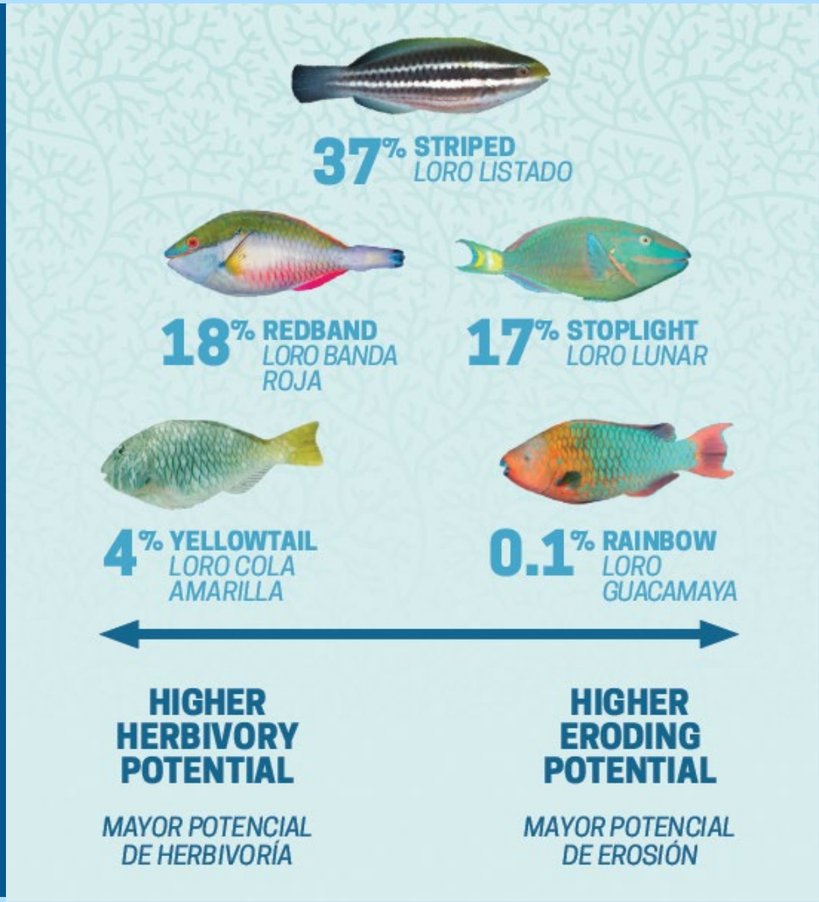
FROM *DE*
6
SPECIES *ESPECIES*

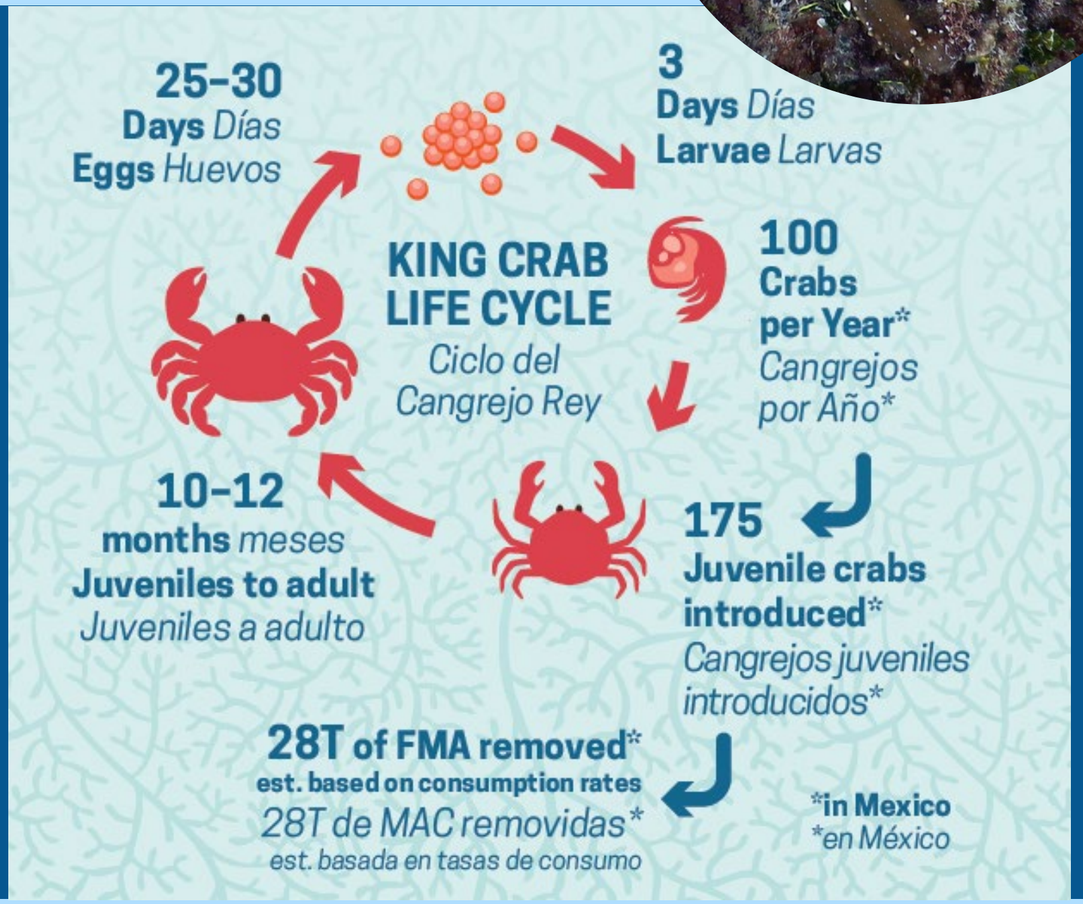
REPRESENTING *REPRESENTANDO*
124
GENOTYPES *GENOTIPOS*


BARUCH FIGUEROA

RESTORATION OF HERBIVORY

ALL 4 COUNTRIES PROTECT PARROTFISH, BUT THE MOST BENEFICIAL SPECIES IN REDUCING MACROALGAE REMAIN SCARCE AND MORE THAN 9 OUT OF 10 PARROTFISH ARE LESS THAN 30 CM.



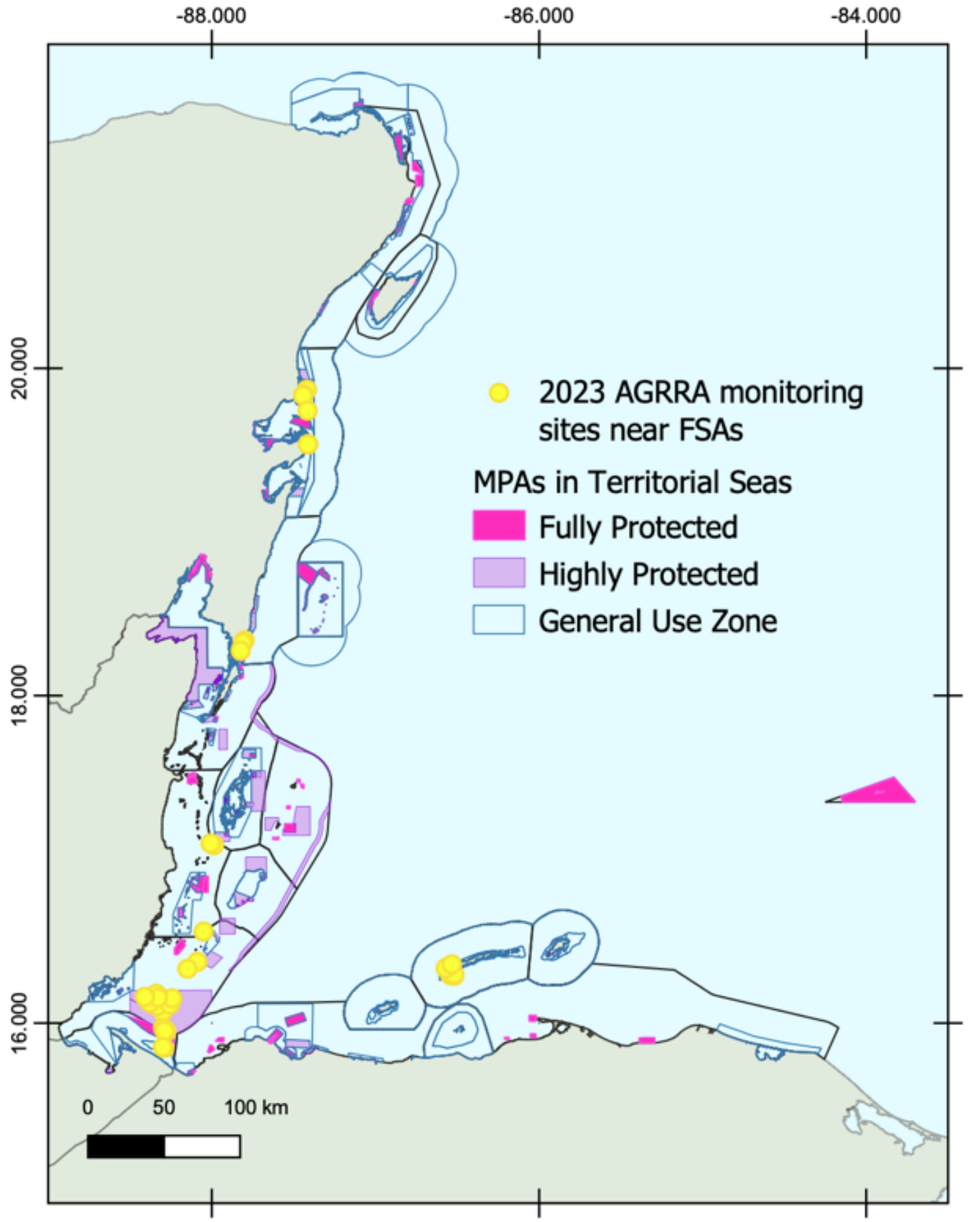


COUNTRY FOCUS

including MAR Fish Project
Reef Health Monitoring Near FSAs

ERIKA HERNANDEZ

Location of AGRRA monitoring sites near FSAs.



In 2021 we monitored 3 sites in Mexico, 6 in Honduras, 7 in Belize, 4 in Guatemala, totaling **20 sites.**

In 2023 we increased the number of monitoring sites, 9 sites in Mexico, 6 in Honduras, 15 in Belize and 4 in Guatemala, totaling **34 sites.**

Funded by FFEM as part of the MARFish Project

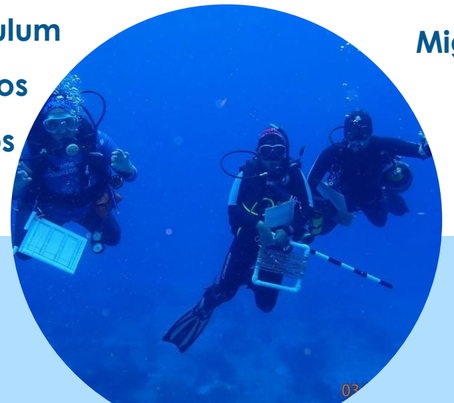
MEXICO

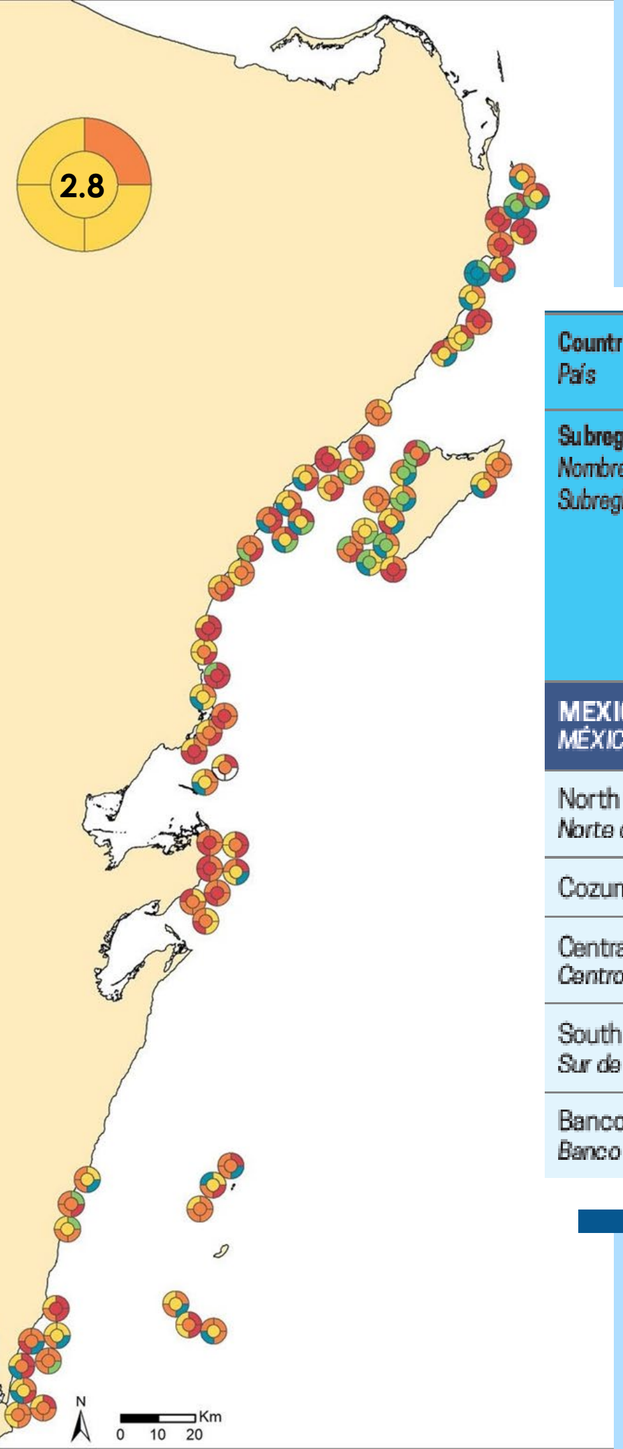
- 70 SITES
- 9 MPAs
- 47 SURVEYORS FROM 18 ORGANIZATIONS

Baruch Figueroa-CEA
Kayla Moore-GVI
Esmeralda Perez-UNAM
Lorenzo Alvarez-UNAM
Ximena Arvizu-Parley
Eduardo Avila-UNAM
Cristina Cortés-Resiliencia Azul
Israel Cruz-UNAM/CONANP
David Díaz-Coop Akumal
Rodrigo Díaz-UNAM
Nuria Estrada-IMIPAS
Carolina Garza-GVI/CEAkumal
Alba Gonzalez-BARCO
Sara Gutiérrez-IMIPAS
Edgar Guzmán-UNAM
Ernesto Hevia-COR
Roberto Ibarra-CONANP

Geovanna León-TAKATA
Teresa Martin-Corales Vivos
Sara Melo-UNAM
Ana Molina-UNAM
Italia Moreno-Corales Vivos
Olivia Moudy-Takata
Rodrigo Nuñez-Corales Vivos
Itzel Tort-Corales vivos
Manuel Olan-UNAM
Claudia Padilla-IMIPAS
Blanca Quiroga-CONANP
Andrea Rivera-CORAL
Roxanna Rodriguez-Corales Tulum
Andrés Romero-Corales Vivos
Alexis Medina-corales vivos

Mateo Sabido-IBANQROO
Dulce Tapia-UNAM
Raúl Tecalco-UNAM
Sophia Vasiliou-CEAkumal
Itzel Zamora-Takata
Lizbeth Tamayo CECIM/COBI
Jose Chan CECIM/COBI
Jose Catzin CECIM/COBI
Pablo Catzin CECIM/COBI
Adonai Ramirez CECIM/COBI
Guillermo Naal CECIM/COBI
Omar Rivera CECIM/COBI
Miguel Tun CECIM/COBI
Israel Muñiz-HRHP
Melina Soto-HRHP





MEXICO

Country / País	RHI Reef Health Index / ISA Índice Salud Arrecifal				2024 Indicator Values / 2024 Valores Indicadores				Reef Area Analysis / Análisis de Área Arrecifal			
Subregion / Nombre de la Subregión	2018 Report Card / Reporte	2020 Report Card / Reporte	2022 Report Card / Reporte	2024 Report Card / Reporte	Live Coral (% cover) / Corales Vivos (% cobertura)	Fleshy Macroalgae (% cover) / Macroalgas Carnosas (% cobertura)	Herbivorous Fish (g/100m²) / Peces Herbívoros (g/100m²)	Commercial Fish (g/100m²) / Peces Comerciales (g/100m²)	% of Reef in Fully Protected Zones / %de Arrecifes en Zonas Totalmente Protegidas	Reef Fully Protected Zones (km²) / Arrecifes en Zonas Totalmente Protegidas (km²)	Reef km² / Arrecife km²	# Sites / Número de Sitios
MEXICO / *MÉXICO*	**2.8**	**2.8**	**2.8**	**2.8**	**13**	**20**	**2656**	**1046**	**15%**	**49**	**332**	**70**
North Quintana Roo / *Norte de Quintana Roo*	2.5	2.8	2.5	3.3	**11**	**22**	**3759**	**1126**	25%	10	42	25
Cozumel / *Cozumel*	3.5	3.8	3.8	3.0	**16**	**16**	**2200**	**1277**	35%	9	26	12
Central Quintana Roo / *Centro de Quintana Roo*	2.3	2.5	2.0	2.3	**12**	**21**	**1576**	**623**	9%	6	71	16
South Quintana Roo / *Sur de Quintana Roo*	2.3	2.8	2.8	2.8	**12**	**17**	**1893**	**1107**	9%	3	31	11
Banco Chinchorro / *Banco Chinchorro*	2.8	2.5	2.0	3.0	**18**	**22**	**3073**	**1194**	13%	20	162	6

MEXICO

AGRRA Monitoring of sites near FSAs			
Year	**2021**	**2023**	**Stability status(decreased/increased/stable)**
Name of site 1	**Punta Allen Norte**		
Reef Health Index	2	2	stable
Name of site 2	**Punta Allen Centro**		
Reef Health Index	2.3	1.8	decrease
Name of site 3	**Nicche Habin somero MX1035**		
Reef Health Index	2.3	3	increase

AGRRA Monitoring of sites near FSAs	
Year	**2023**
Name of site 1	Punta Allen Norte
Reef Health Index	2 – poor
Name of site 2	**Punta Allen Centro**
Reef Health Index	1.8 - critical
Name of site 3	**NiccheHabin somero MX1035**
Reef Health Index	3 - fair
Name of site 4	**Blanquizal 1**
Reef Health Index	2.5 - poor
Name of site 5	**Blanquizal 2**
Reef Health Index	2.5 – poor
Name of site 6	**Blanquizal 3**
Reef Health Index	2.5 – poor
Name of site 7	**San Juan-MX 1037**
Reef Health Index	1.8 – critical
Name of site 8	**Punta Estrella Prof**
Reef Health Index	2
Name of site 9	**Punta Estrella Front**
Reef Health Index	2.8
Name of site 10	**NiccheHabin prof MX 1005**
Reef Health Index	Not enough data

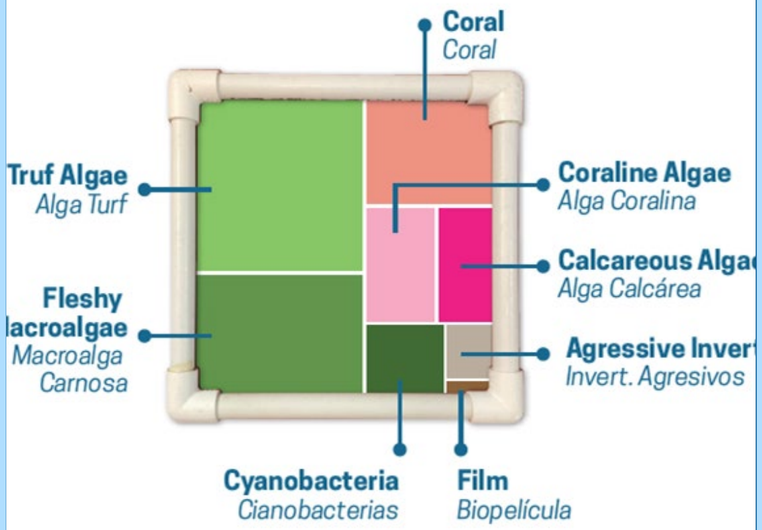
MEXICO

ALGAE DOMINATION

FMA: 20 %, TURF: 30% & CYAN 5%

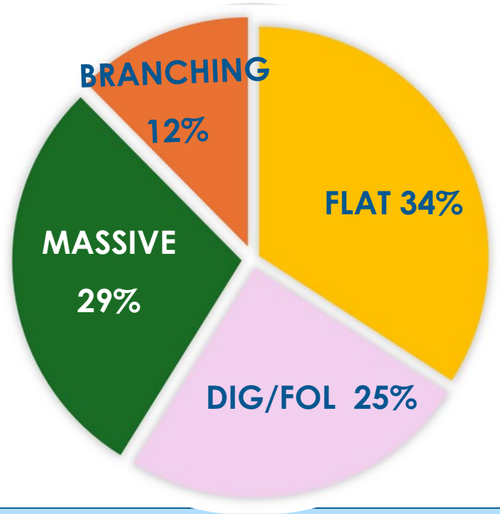
VS

CORAL: 13 %, COR Alg: 7%, CALC ALG: 6%



FEW REEF BUILDERS

Of the total cover (13%) the majority is represented by small, flat species. Branching and massive reef builders only represent 1.7% and 4% of the sea bed.

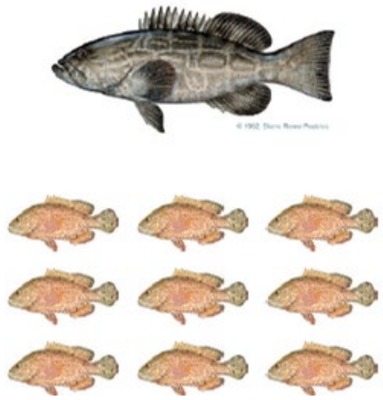


BIG FISH MISSING

Total fish biomass has increased but is dominated by small species and individuals.

80% of the 25,858 fish recorded are less than 20cm.

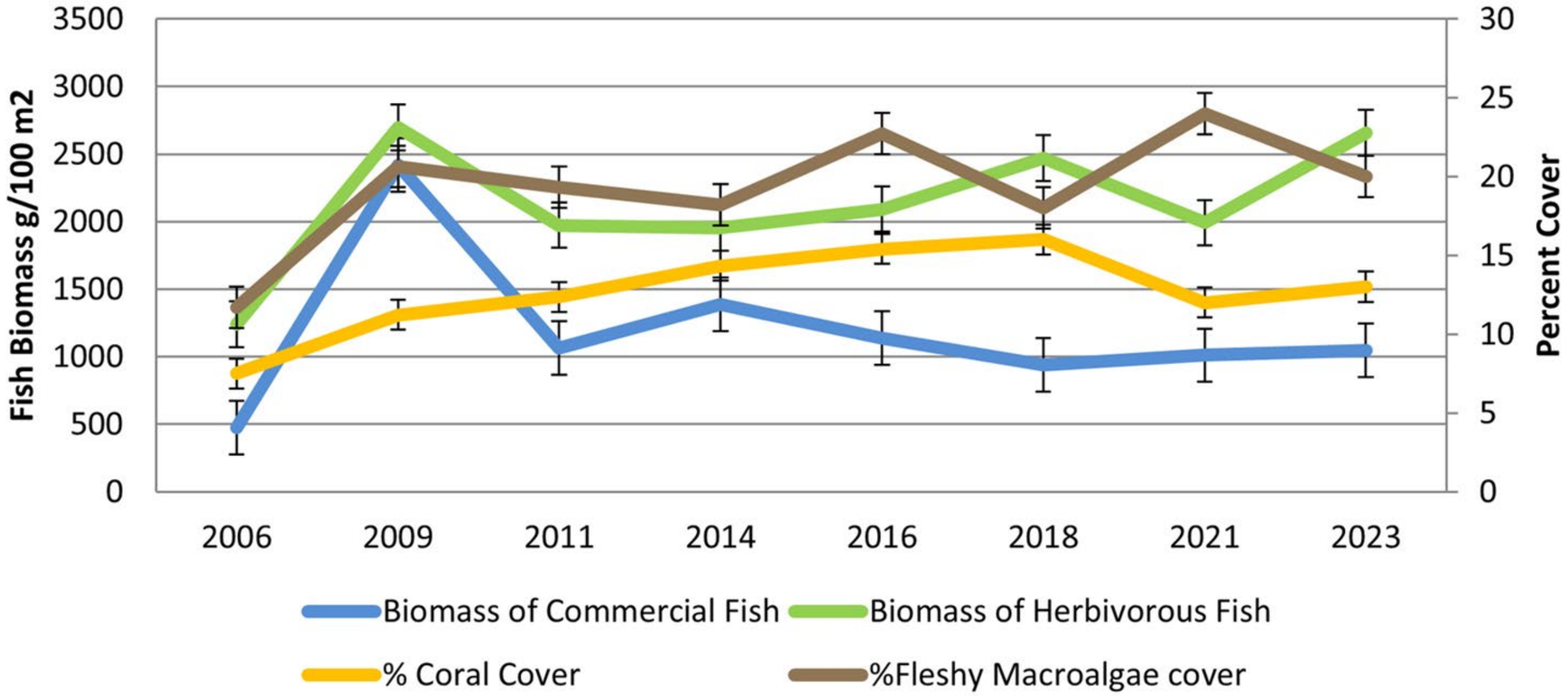
9 out of 10 groupers are less than 30cm.

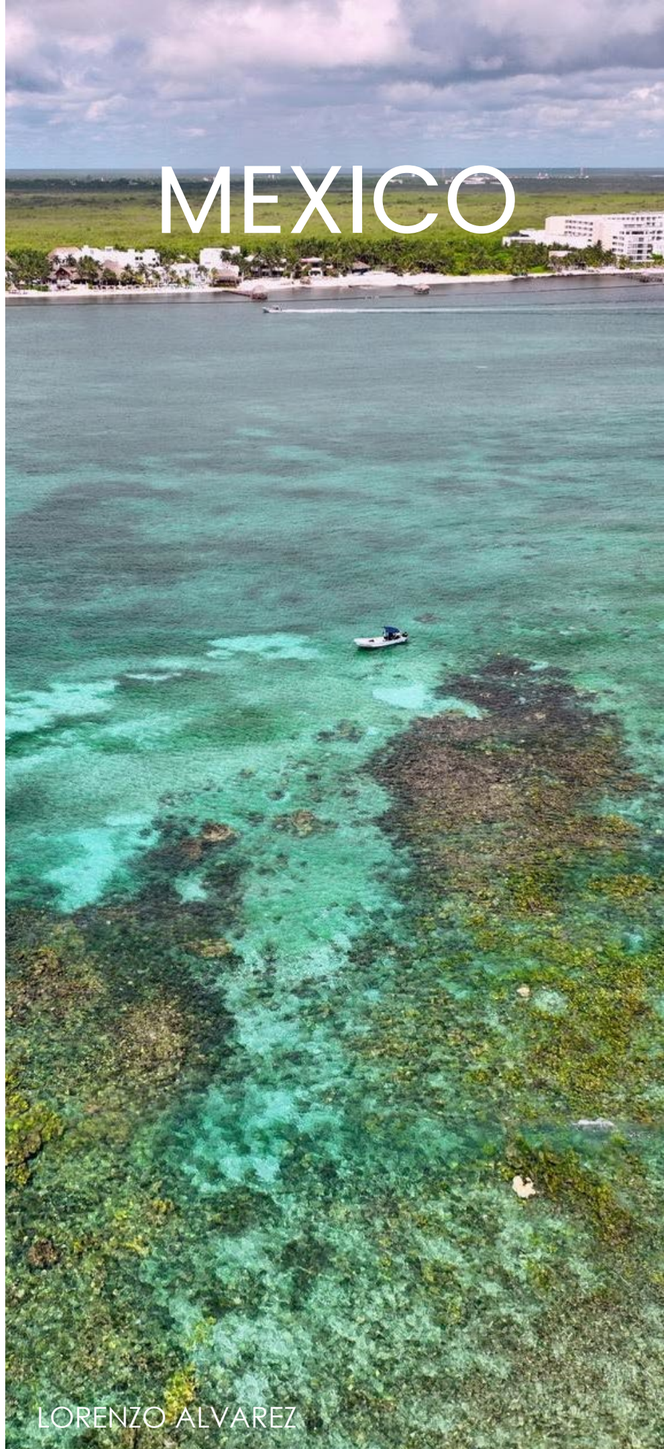


MEXICO

27 million tourists generated USD 20 billion in 2023. However, lack of investment in adequate water treatment and coastal densification increased the pressure.

Quintana Roo islands are facing SCTLD and bleaching. Some reefs still show good fish biomass and coral cover: monitoring, management and restoration in intersectoral coordination are key.





LORENZO ALVAREZ

STORIES OF HOPE

INSPIRATION FROM THE UNDERWATER...

Quintana Roo showcases various coral restoration techniques, from breeding to cryopreservation, on scales from meters to hectares. A dozen collaborations with budgets of $15–30,000 annually drive these tireless efforts. Initiatives such as MAR+Invest seek the financial sustainability of this growing sector.


JORGE HERRERA

... TO VITAL WETLANDS

Quintana Roo has the largest mangrove cover of the MAR, with 200,000 hectares.

Local communities, women, indigenous groups, government, academia and NGOs have restored 70% of the hydrological flow and planted 800 hectares in sites such as Nichupté, Sian Ka'an, Xcalak or Cozumel, improving biodiversity, ecosystem connectivity and resilience to climate change.

BELIZE

- **110 sites**
- **9 MPAs**
- **23 surveyors from 7 organizations**

Raphael Martinez - HRHP
Reylando Castro - BFD
Kevin Rivera - Independent
Nicole Craig - TNC
Reynaldo Ortega - Independent
Mercedes Requena - HCMR
Edgar Gonzalez - BFD
Myles Phillips - WCS
Henry Brown - WCS
Wilbert Castillo - Independent
Anthony Lizama – University of Belize
Ben Lander - HCMR

Keenan Wragg – University of Belize
Reinaldo Caal - Independent
Ronny Gongora – University of Belize
Gabriella Ugarte - BAS
Melanie McField - HRHP
Galento Galvez - UB-ERI
Fara Maza - TASA
Elias Alamina – University of Belize
Kallen Johnson – University of Belize
Ninon Martinez - UB ERI
Kevin Novelo - TASA
Bonnie Young - UB ERI

BELIZE

Country *País*	**RHI Reef Health Index** *ISA Índice Salud Arrecifal*				**2024 Indicator Values** *2024 Valores Indicadores*				**Reef Area Analysis** *Análisis de Área Arrecifal*			
Subregion *Nombre de la Subregión*	**2018 Report Card** *Reporte*	**2020 Report Card** *Reporte*	**2022 Report Card** *Reporte*	**2024 Report Card** *Reporte*	**Live Coral (% cover)** *Corales Vivos (% cobertura)*	**Fleshy Macroalgae (% cover)** *Macroalgas Carnosas (% cobertura)*	**Herbivorous Fish (g/100m²)** *Peces Herbívoros (g/100m²)*	**Commercial Fish (g/100m²)** *Peces Comerciales (g/100m²)*	**% of Reef in Fully Protected Zones** *% de Arrecifes en Zonas Totalmente Protegidas*	**Reef Fully Protected Zones (km²)** *Arrecifes en Zonas Totalmente Protegidas (km²)*	**Reef km²** *Arrecife km²*	**# Sites** *Número de Sitios*
BELIZE *BELICE*	**2.8**	**3.0**	**2.0**	**2.5**	**15**	**17**	**2528**	**791**	**7%**	**56**	**804**	**110**
North Barrier Complex *Norte de la Barrera*	2.8	2.3	2.3	2.3	**8**	**28**	**3025**	**504**	22%	8	37	13
Central Barrier Complex *Barrera Central*	1.8	3.0	2.5	2.3	**15**	**16**	**1657**	**447**	6%	12	195	29
South Barrier Complex *Sur de la Barrera*	3.8	3.3	1.8	3.0	**18**	**13**	**4214**	**710**	5%	16	345	18
Turneffe *Turneffe*	2.5	2.5	2.5	3.0	**17**	**10**	**1948**	**946**	7%	5	70	17
Lighthouse Reef *Arrecife Lighthouse*	3.3	3.0	2.0	2.8	**11**	**21**	**1604**	**1352**	14%	12	82	24
Glover's Reef *Arrecife Glovers*	2.3	2.8	2.0	3.3	**25**	**18**	**4802**	**687**	4%	3	75	9

OVERALL

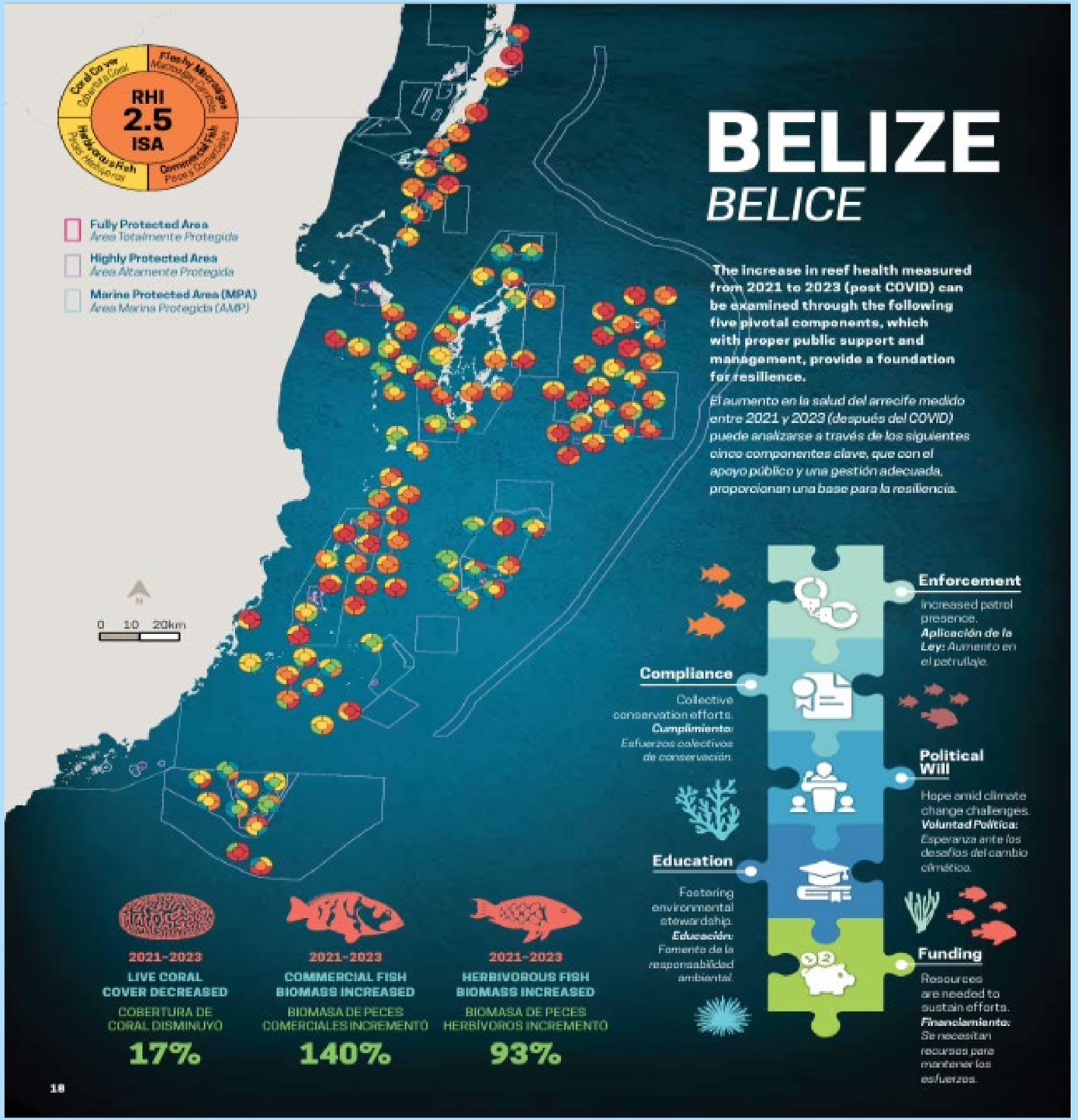
Belize score improved from 2.0 to 2.5.

Commercial fish biomass increased 140% compared to 2021, but remains ‘poor’.

Herbivorous fish biomass increased 93% and is now ‘fair’, compared to 2021.

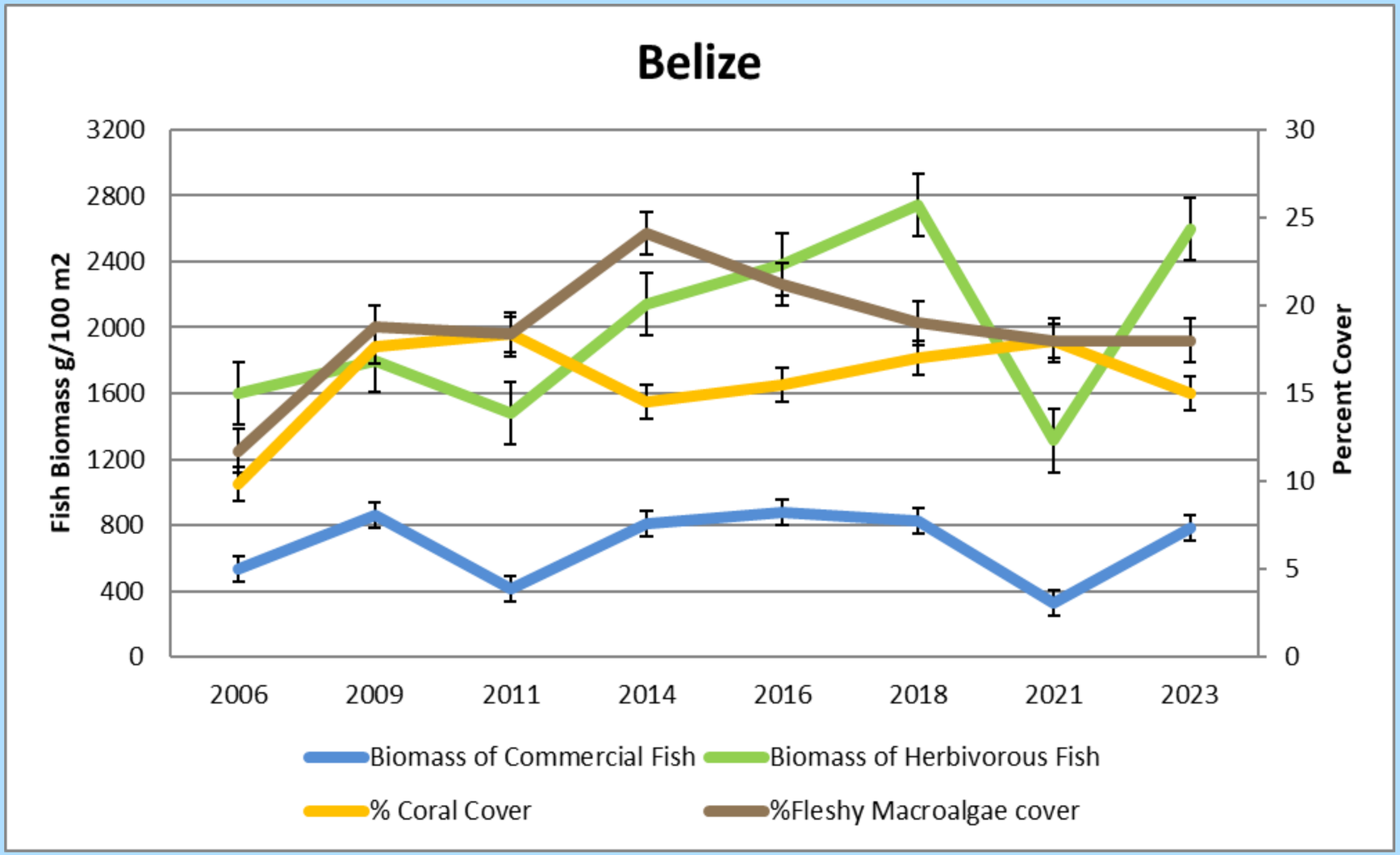
Coral cover saw a relative decline of 17% compared to 2021.

There’s still hope for further improvements.



BELIZE

Over time, we can analyze trends in these four indicators to identify areas where additional efforts can be made, such as reducing macroalgae and improving coral cover.



BELIZE

AGRRA Monitoring of sites near FSAs			
Year	2021	2023	Stability status(decreased/increased/stable)
Name of site 1	BZ1019		
Reef Health Index	2.3	3.8	Increased
Name of site 2	BZ1149-Seal Caye		
Reef Health Index	1.8	3	Increased
Name of site 3	BZ1124		
Reef Health Index	2	3	Increased
Name of site 4	BZPHMR02		
Reef Health Index	2	3.3	Increased
Name of site 5	Valle de Aga- Corona Caiman		
Reef Health Index	2	2.5	Increased
Name of site 6	Corona Caiman, Temp logger		
Reef Health Index	1.8	1.8	Stable

AGRRA Monitoring of sites near FSAs	
Year	2023
Name of site 1	BZ1019
Reef Health Index	3.8
Name of site 2	BZ1149-Seal Caye
Reef Health Index	3
Name of site 3	BZ1124
Reef Health Index	3
Name of site 4	BZPHMR02
Reef Health Index	3.3
Name of site 5	Rise and Fall
Name of site 6	BZ1041- Gladden Caye
Reef Health Index	3.8
Name of site 7	BZCGMF-Caye Glory
Reef Health Index	3
Name of site 8	BZ2054 (Caye Glory)
Reef Health Index	3.8
Name of site 9	Pompion (Gladden Spit area)
Reef Health Index	1.8
Name of site 10	Ranguana
Reef Health Index	3
Name of site 11	Nicholas Caye
Reef Health Index	3.8
Name of site 12	BZSCMR
Reef Health Index	3.5
Name of site 13	BZ1026 (Seal Caye area)
Reef Health Index	4
Name of site 14	Valle de Aga- Corona Caiman
Reef Health Index	2.5
Name of site 15	Corona Caiman, Temp logger
Reef Health Index	1.8

MAR FUND

marfish

STORIES OF HOPE

NO TO OIL EXPLORATION

BELIZE PRIORITIZES PROTECTION of marine ecosystems saying NO to drilling on the high seas, responding to 22,090 voters who called for a legislative amendment. Statutory Instrument 42 of 2023 guarantees that any oil exploration must be approved by a public referendum.

PEOPLE CENTRIC CONSERVATION AGENDA

BELIZE PLEDGED TO triple total protection of reefs (7%–20%), designating 30% of the sea in high protection by 2030 and securing additional funds for marine conservation.

Public mangroves of the Belize Barrier Reef (World Heritage Site) were declared reserves within the Sustainable Ocean Plan under development.

GUATEMALA

Thank you to the incredible monitoring team!

Ángela Mojica - Pixan'Ja

Cristopher Avalos- Independent

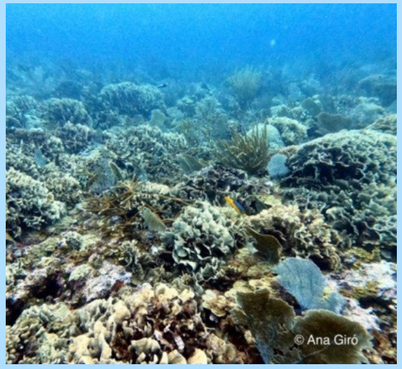
Carlos Mechell - ABIMA

Ana Hacohen - UVG

Guillermo Galvez - FUNDAECO

Paolo Guardiola - Coral Reef Alliance

Ana Giró-HRHP



pixan'ja

FUNDAECO

ABIMA Asociación de Biología Marina Guatemala

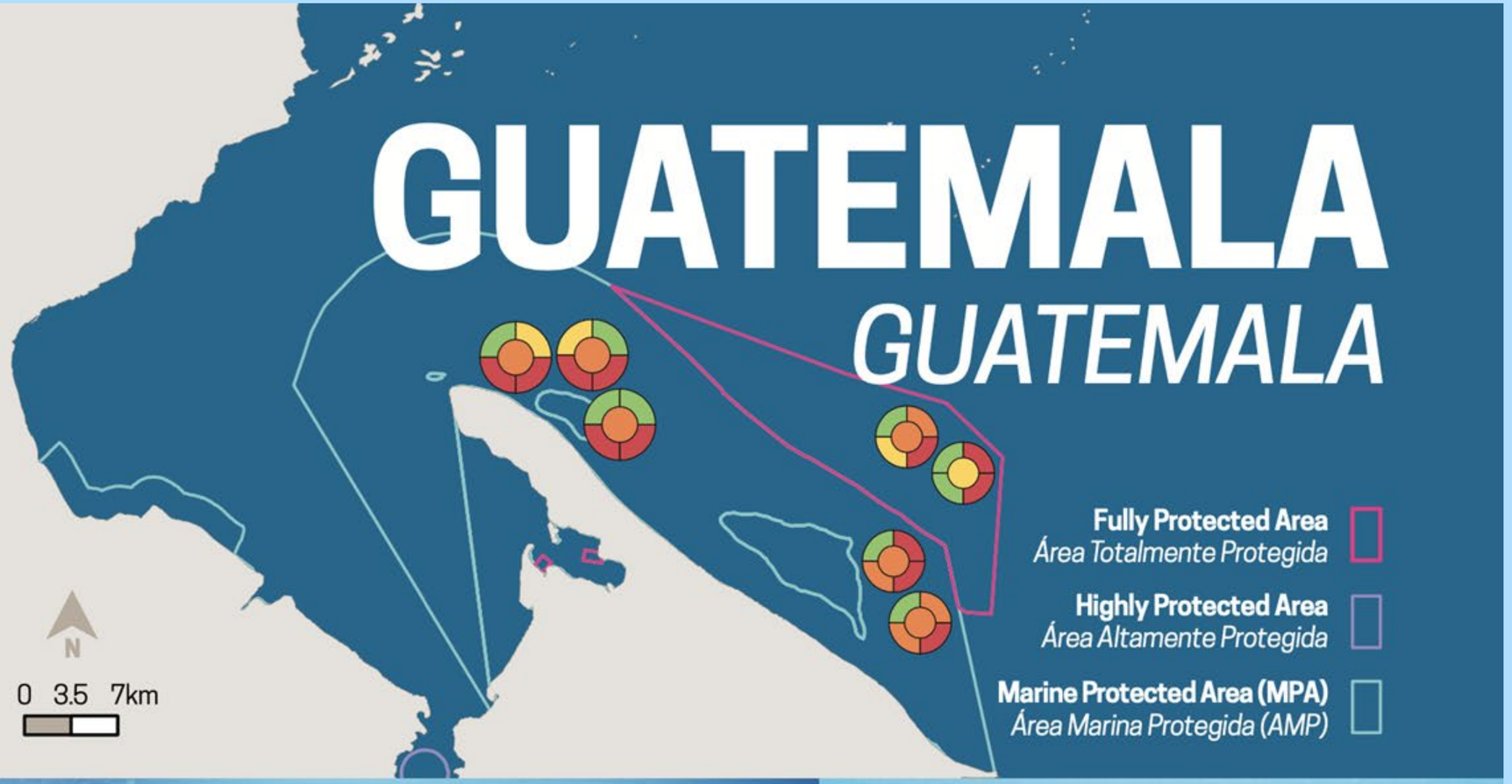
CORAL REEF ALLIANCE

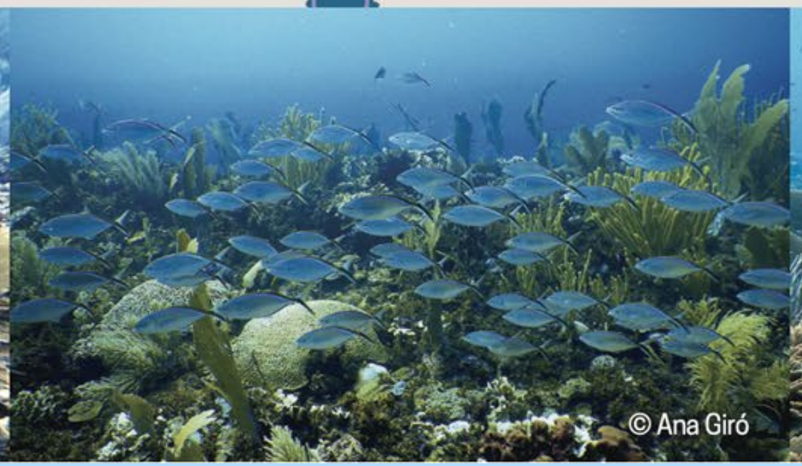
UVG UNIVERSIDAD DEL VALLE DE GUATEMALA

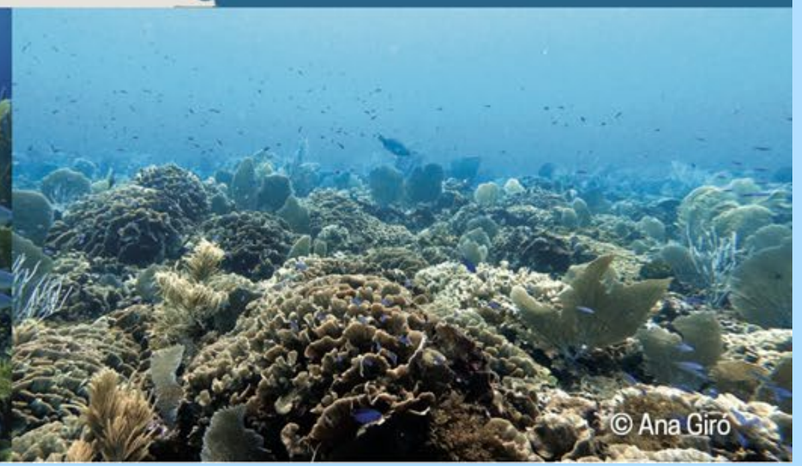
Healthy Reefs for healthy people

GUATEMALA

GUATEMALA

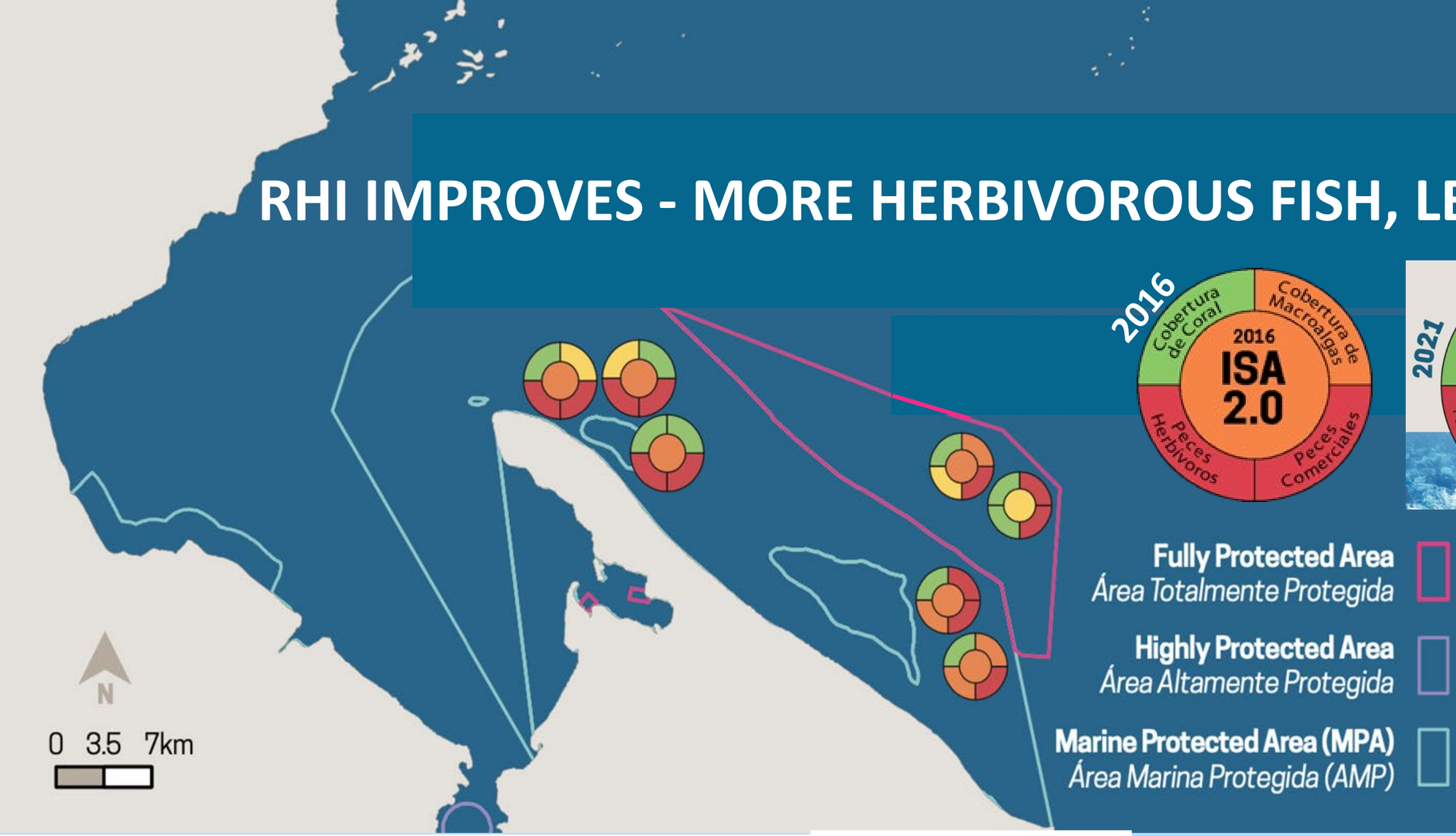


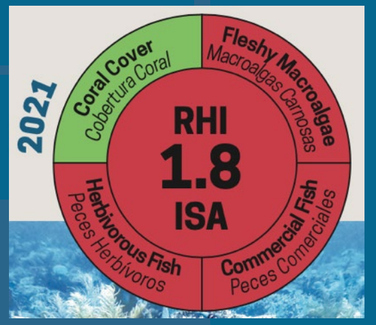


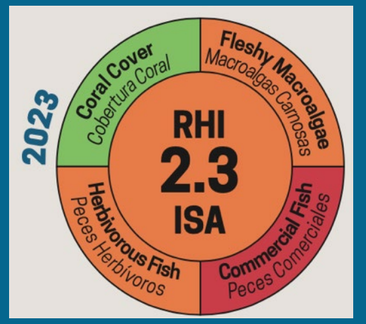


GUATEMALA

RHI IMPROVES - MORE HERBIVOROUS FISH, LESS MACROALGAE







Fully Protected Area
Área Totalmente Protegida

Highly Protected Area
Área Altamente Protegida

Marine Protected Area (MPA)
Área Marina Protegida (AMP)

CORAL COVER
COBERTURA DE CORAL
25%

FLESHY MACROALGAE
MACROALGAS CARNOSAS
26%

COMMERCIAL FISH BIOMASS
BIOMASA DE PECES COMERCIALES
54g/100m²

HERBIVOROUS FISH BIOMASS
BIOMASA DE PECES HERBÍVOROS
1,480g/100m²

What does the data tell us?

- Coral cover remained in good condition.
- Improved biomass of herbivorous fish.

Decrease in fleshy macroalgae cover

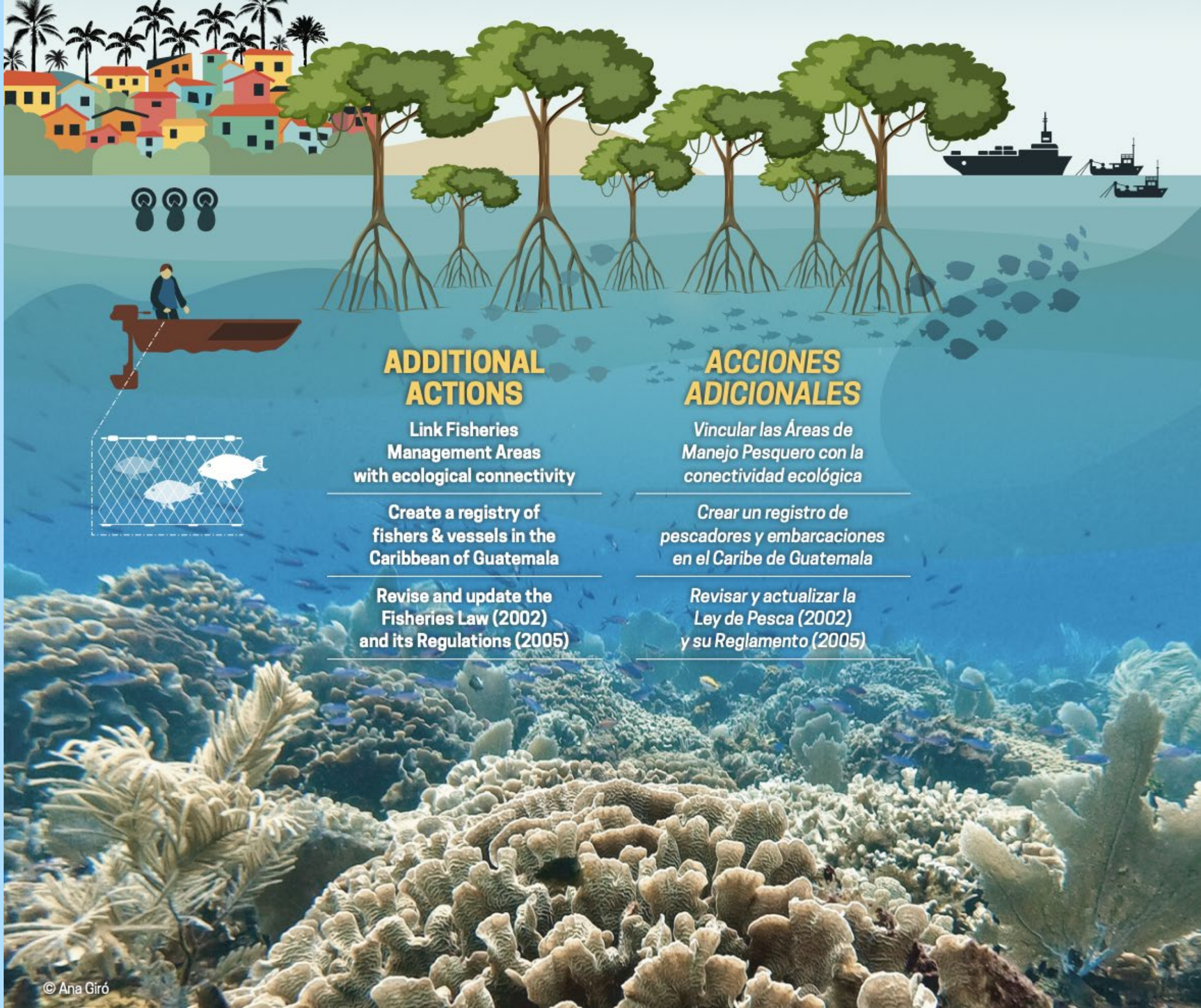
GUATEMALA

- 4 sites monitored in 2021 and 2023
- All increased but mostly because of herbivorous fish biomass that increased and macroalgae decreased.

AGRRA Monitoring of sites near FSAs			
Partner	**Healthy Reefs for Healthy People**		
Year	**2021**	**2023**	**Stability status(decreased/increased /stable)**
Name of site 1	**Bajon Corona Caiman**		
Reef Health Index	2	2.5	Increased
Name of site 2	**Corona 022 Lucido**		
Reef Health Index	1	2.8	Increased
Name of site 3	**Motaguilla 136**		
Reef Health Index	1.8	2	Incresed
Name of site 4	**Motaguilla 1**		
Reef Health Index	1.8	2	Increased

CONNECTIVITY FROM THE BASIN TO THE REEF IS VITAL FOR THE HEALTH OF THE ECOSYSTEM

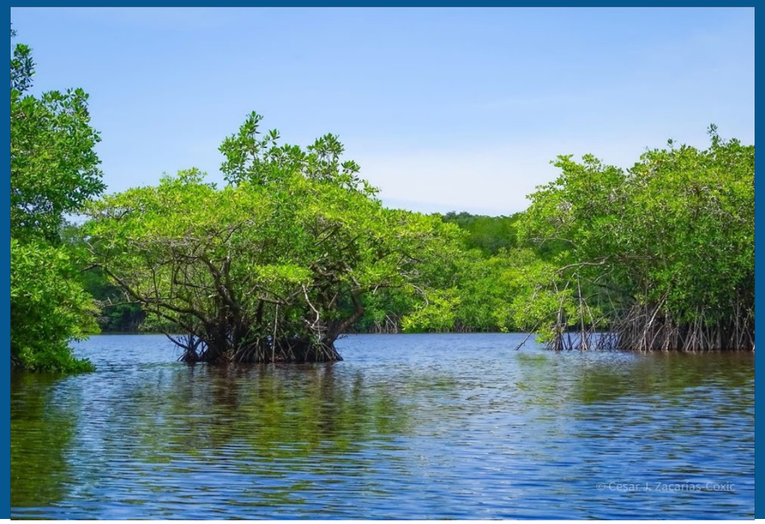
- Prevent unsustainable fishing practices.
- Improve closed fishing periods, especially for groupers and snappers.
- Improve governance and institutional strengthening.
- Ensure clean water for human consumption and for reefs.
- Reduce pollution from wastewater discharges.
- Address unreported and unregulated transboundary fishing.



STORIES OF HOPE

18 YEARS MAINTAINING A CLOSED SEASON CALENDAR FOR FISHING

For 18 years Guatemala has maintained seasons of closure for several species, which are crucial to sustainable fishing. The fishermen, dedicated to safeguard their livelihoods and promote healthy ecosystems, have been strong advocates for these regulations.



REEFS AND MANGROVES NOW IN NDCs

GUATEMALA'S NATIONALLY DETERMINED CONTRIBUTION (NDCs) includes reefs and mangroves for their vital environmental and socioeconomic roles.
This integration supports marine life, ecosystem health, and coastal communities. Commits to mitigation and enhanced community resilience.

HONDURAS

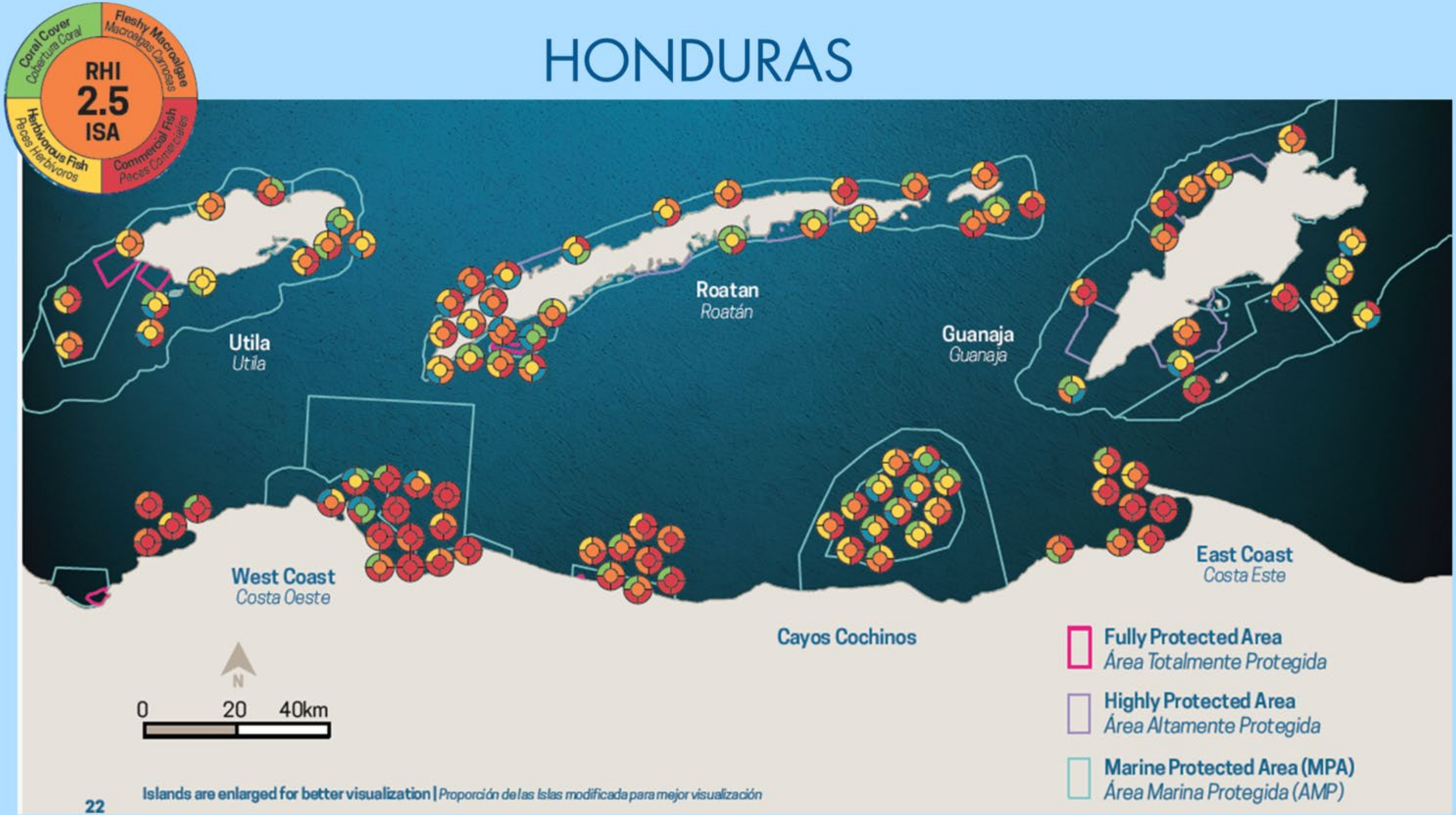
- 99 sites
- 7 MPAs & 4 FRZ out of MPAs
- 24 surveyors from 11 organizations

Alejandra Thompson – Tela Marine
Andrea Izaguirre – Volunteer
Andrea Michelle Cerrato - WSorc
Andrea Godoy - Roatan Marine Park
Antal Borcsok - Tela Marine
Arlene Rodríguez - CURLA UNAH
Caitlin Chock – Volunteer
Clement Alvarez - Volunteer
Edoardo Antúnez - Volunteer
Flama Molina - SERNA
Gisselle Brady - BICA

Luis Flores - BICA
Maria Fernanda Pavón - CEM
Mario Motiño - Tela Divers
Mayra Nuñez - Coral Reef Alliance
Nikyta Van den Abbeel -BICA/HRHP Inter
Pamela Ortega - Coral Reef Alliance
Paola Gómez - FCC
Paolo Guardiola - Coral Reef Alliance
Raj Mathias - BICA Inter
Valeria Valladares - BICA
Zara Zúniga - BICA

ANA GIRÓ Y CLAUDIA GUERRERO - HRHP

HONDURAS



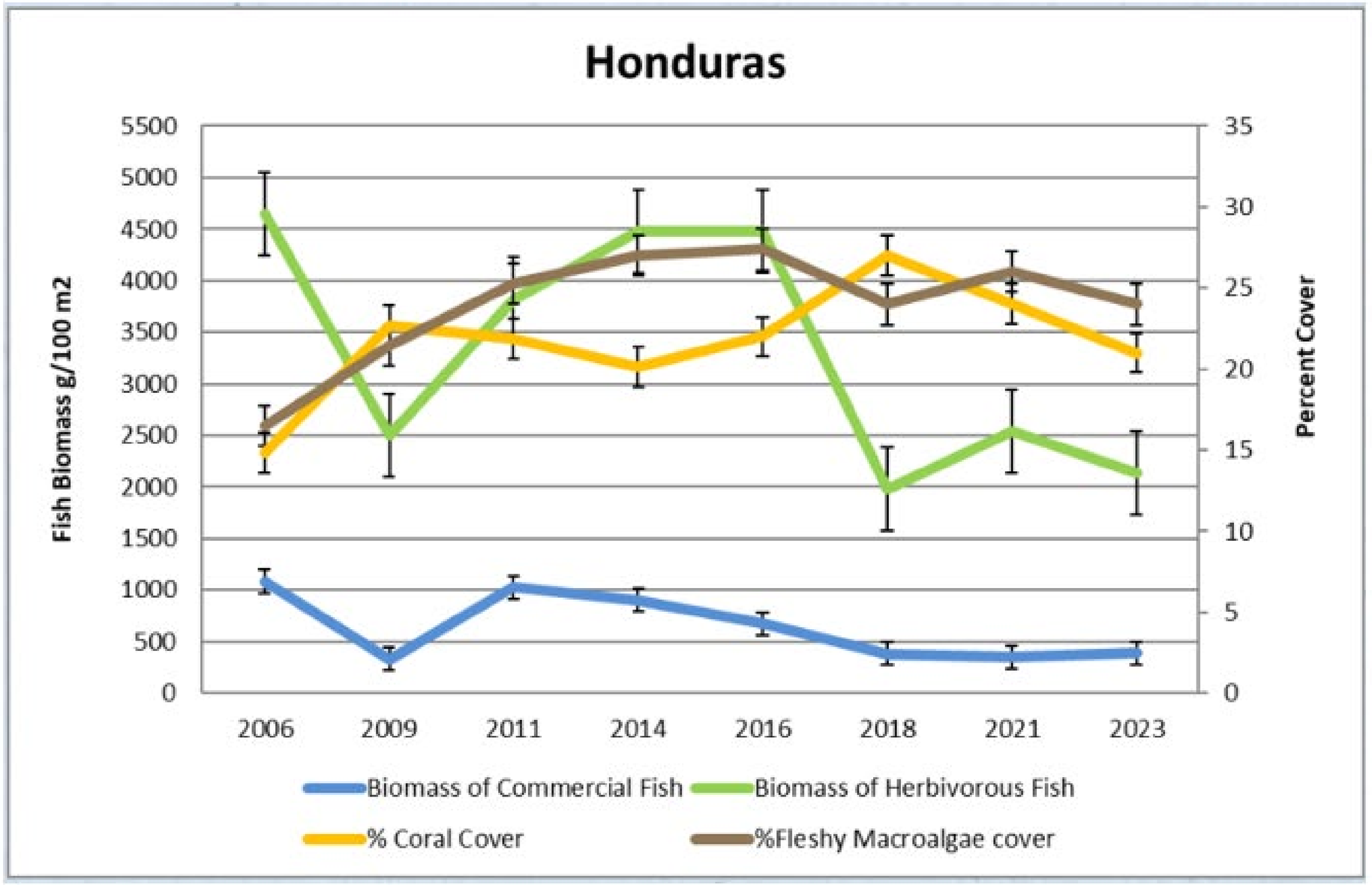
Islands are enlarged for better visualization | *Proporción de las Islas modificada para mejor visualización*

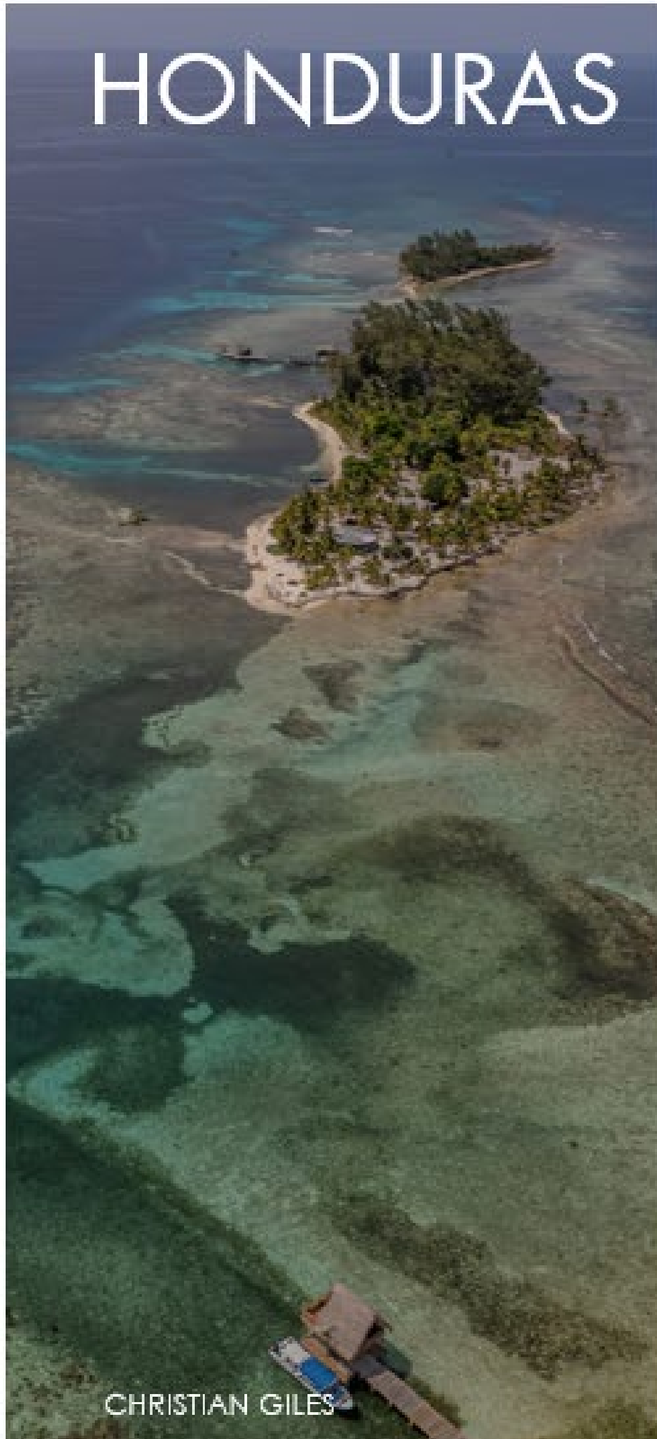
HONDURAS

Country *País*	**RHI Reef Health Index** *ISA Índice Salud Arrecifal*				**2024 Indicator Values** *2024 Valores Indicadores*				**Reef Area Analysis** *Análisis de Área Arrecifal*			
Subregion *Nombre de la Subregión*	**2018 Report Card** *Reporte*	**2020 Report Card** *Reporte*	**2022 Report Card** *Reporte*	**2024 Report Card** *Reporte*	**Live Coral (% cover)** *Corales Vivos (% cobertura)*	**Fleshy Macroalgae (% cover)** *Macroalgas Carnosas (% cobertura)*	**Herbivorous Fish (g/100m²)** *Peces Herbívoros (g/100m²)*	**Commercial Fish (g/100m²)** *Peces Comerciales (g/100m²)*	**% of Reef in Fully Protected Zones** *% de Arrecifes en Zonas Totalmente Protegidas*	**Reef Fully Protected Zones (km²)** *Arrecifes en Zonas Totalmente Protegidas (km²)*	**Reef km²** *Arrecife km²*	**# Sites** *Número de Sitios*
HONDURAS *HONDURAS*	**3.0**	**2.5**	**2.3**	**2.5**	**21**	**24**	**2135**	**386**	**16%**	**38**	**233**	**99**
West Coast Honduras *Costa Oeste de Honduras*	2.6	2.0	2.3	1.8	**25**	**26**	**772**	**161**	21%	11	50	26
Cayos Cochinos *Cayos Cochinos*	2.8	2.0	2.3	3.3	**22**	**21**	**3336**	**434**	0%	0	14	13
Utila *Utila*	3.5	2.0	2.8	2.8	**18**	**16**	**2996**	**396**	5%	1	19	12
Roatan *Roatán*	3.3	2.8	3.0	2.8	**22**	**19**	**2742**	**374**	3%	1	31	25
East Coast Honduras *Costa Este de Honduras*	2.0	—	1.8	1.8	**13**	**45**	**1688**	**80**	5%	3	15	8
Guanaja *Guanaja*	2.8	2.5	2.8	3.0	**21**	**24**	**1997**	**908**	0%	0	81	15
Swan Islands *Islas del Cisne*	—	—	—	—	—	—	—	—	100%	23	23	—

HONDURAS

AGRRA Monitoring of sites near FSAs			
Year	**2021**	**2023**	**Stability status(decreased/increased/stable)**
Name of site 1	**Cordelia Smith (ROA015)**		
Reef Health Index	3	2.5	Decreased
Name of site 2	**Shark Dive (HNROASHARK)**		
Reef Health Index	1.8	3	Increased
Name of site 3	**Cordelia (ROA018)**		
Reef Health Index	4	3.8	Stable
Name of site 4	**Wrasse Hole (MARROA004)**		
Reef Health Index	2	2.25	Stable
Name of site 5	**Front Porch (MARROA005)**		
Reef Health Index	2.5	2.3	Decreased
Name of site 6	**Man O´ War Cay (ROA005)**		
Reef Health Index	1.3	3.3	Increased


Honduras
Fish Biomass g/100 m2
Percent Cover
5500
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
35
30
25
20
15
10
5
0
2006
2009
2011
2014
2016
2018
2021
2023
Biomass of Commercial Fish
Biomass of Herbivorous Fish
% Coral Cover
%Fleshy Macroalgae cover


HONDURAS
CHRISTIAN GILES

HONDURAS

About the indicators

Live Coral
Coral Vivo

-3%

Fleshy Macroalgae
Macroalgas Carnosas

-2%

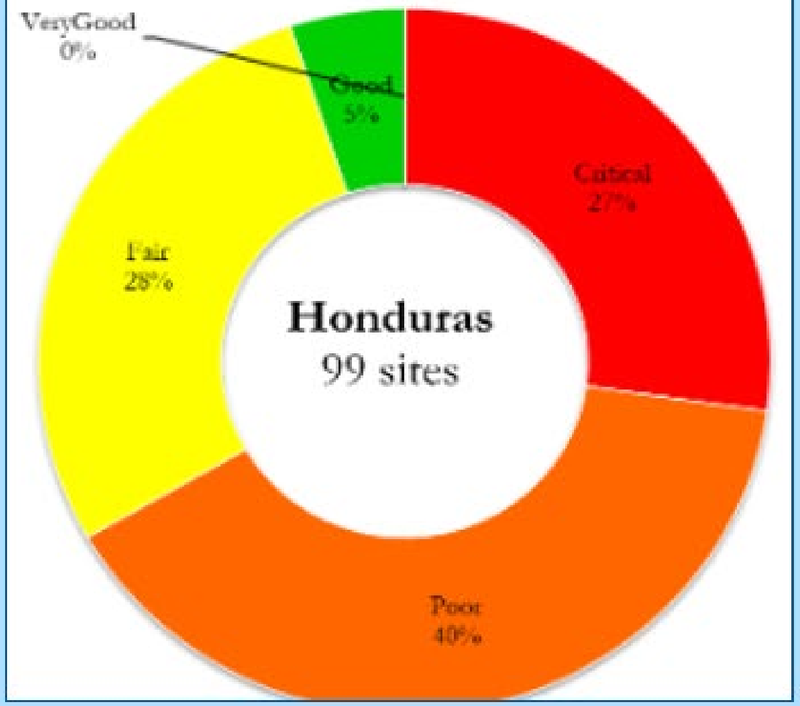
Herbivorous Fish
Peces Herbívoros

+10% West Coast
-18% Bay Islands

Commercial Fish
Peces Comerciales

Guanaja doubled
Unlike Cayos Cochinos, which decreased

General
5% Good
40% Poor
28% Fair
27% Critical



NEEDED ACTIONS

- Strengthen government capacity to monitor and patrol MPAs and enforce regulations.
- Increase investment for on-site data collection, particularly in remote areas of limited access like Swan Island.
- Promote the formalization and application of the Technical Standard for Marine Water Quality.
- Monitor and audit wastewater and sanitation operations of private companies.
- Establish a functional research permitting processes within government agencies.

STORIES OF HOPE

ASSISTED REPRODUCTION IN ROATAN

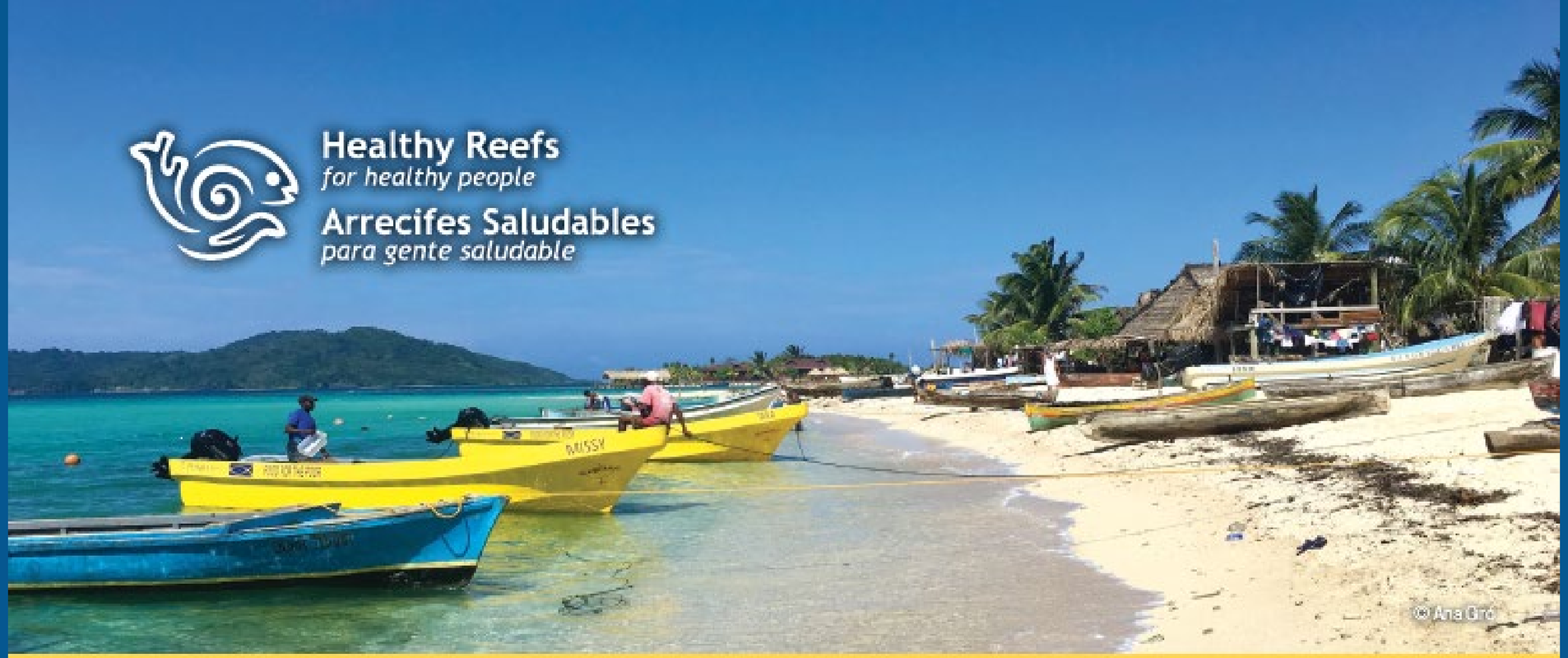
SINCE 2022, THE ROATAN MARINE PARK has restored 250 m² of live coral tissue by means of an innovative assisted sexual reproduction program.

In 2023, the first predictive coral spawning calendar was created for Honduras, validating the spawning of nine species. Two assisted coral fertilization events were successfully completed with two of these species.

ISLANDERS FOR CHANGE

IT IS A YOUTH-LED INITIATIVE focused on marine conservation capacity building, led by BICA in Roatan and Utila.

Since 2023, the program has certified young divers, training them in monitoring and restoration techniques and involving them in projects of conservation. These young people are now emerging as empowered community leaders.



CALL TO ACTION

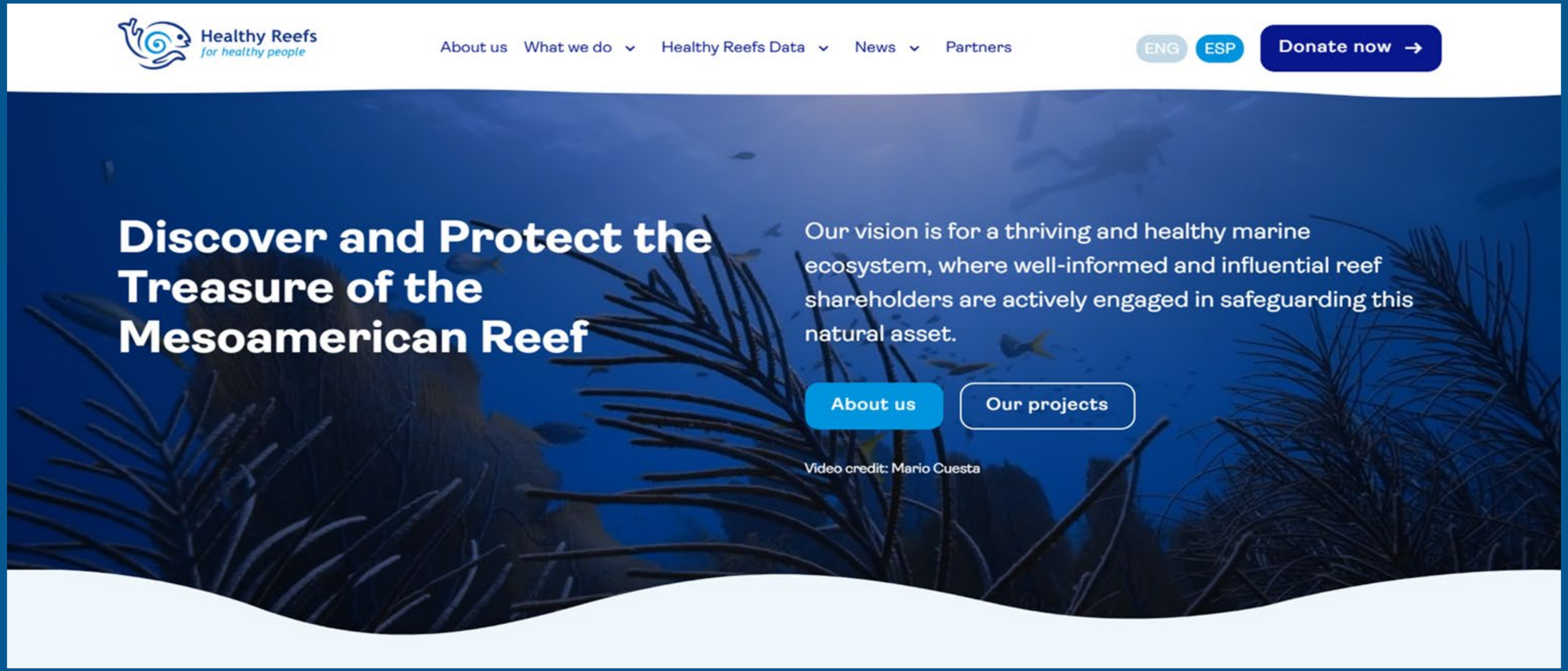
1. **FULLY protect 20% of the sea, for each habitat** (governments).
2. **Invest in adequate sewage treatment** (municipalities & businesses).
3. **Prevent massive coastal developments with irreparable damages** (governments & communities).
4. **Demand the global community addresses the cause of global climate change and consider legal actions.**

LLAMADO A LA ACCIÓN

1. ***Proteger TOTALMENTE el 20% del mar, para cada hábitat*** *(gobiernos).*
2. ***Invertir en un adecuado tratamiento de aguas residuales*** *(municipalidades y empresas).*
3. ***Prevenir desarrollos costeros masivos con daños irreparables*** *(gobiernos y comunidades).*
4. ***Exigir que la comunidad global aborde la causa raíz del cambio climático global y considerar acciones legales.***

BE SURE TO VISIT OUR NEW WEBSITE!

WWW.HEALTHYREEFS.ORG



THANK YOU!

Healthy Reefs
for healthy people

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MIGUEL NUÑEZ