

An underwater photograph showing a vibrant coral reef with numerous small fish swimming in the clear blue water. The scene is illuminated from above, creating a bright, sunlit effect.

Cooperation on disaster management and other environmental matters – A look back and a path forward



**Environmental
Defense
Fund**

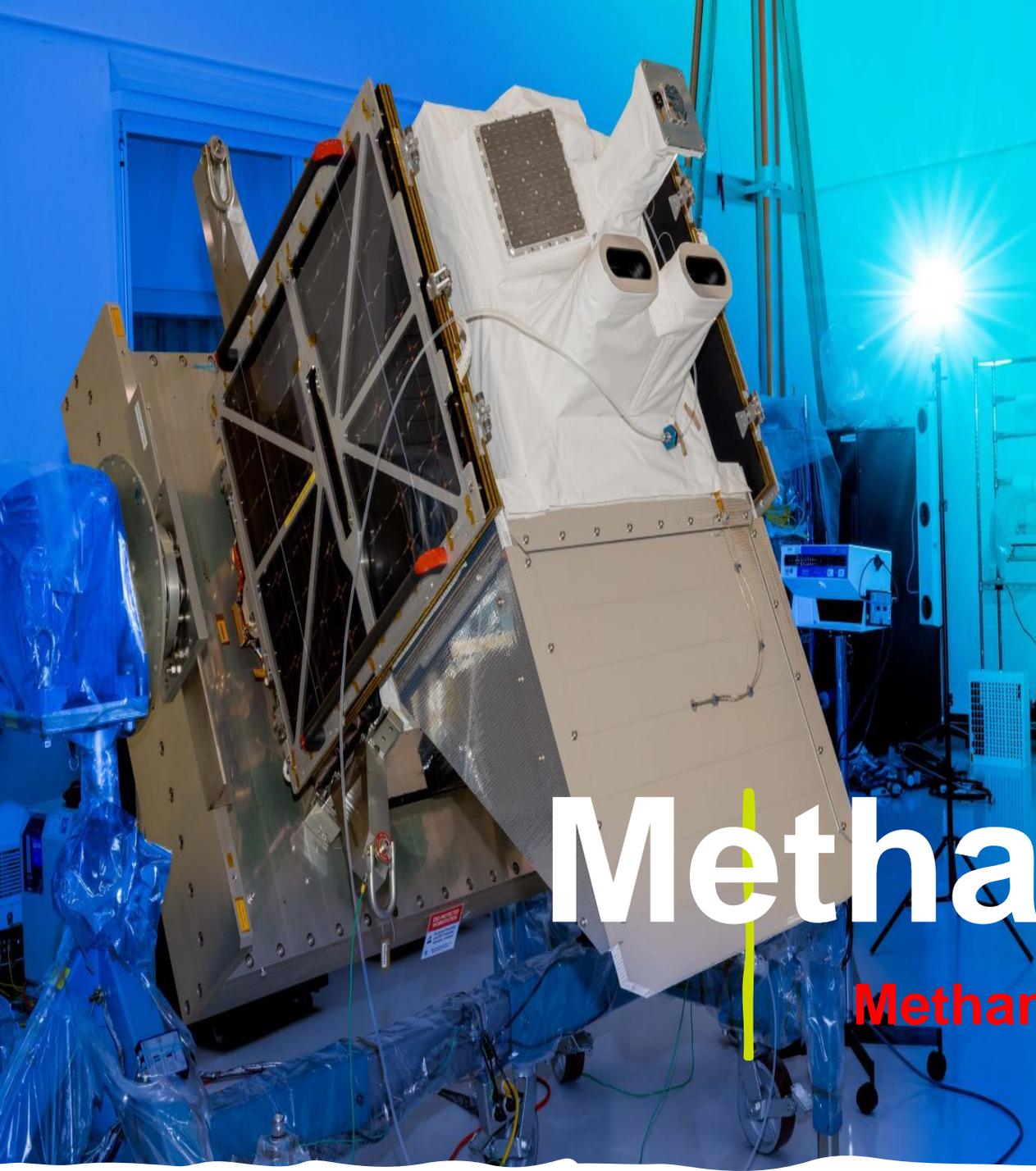
Daniel Whittle

Associate VP, Resilient Caribbean

Environmental Defense Fund

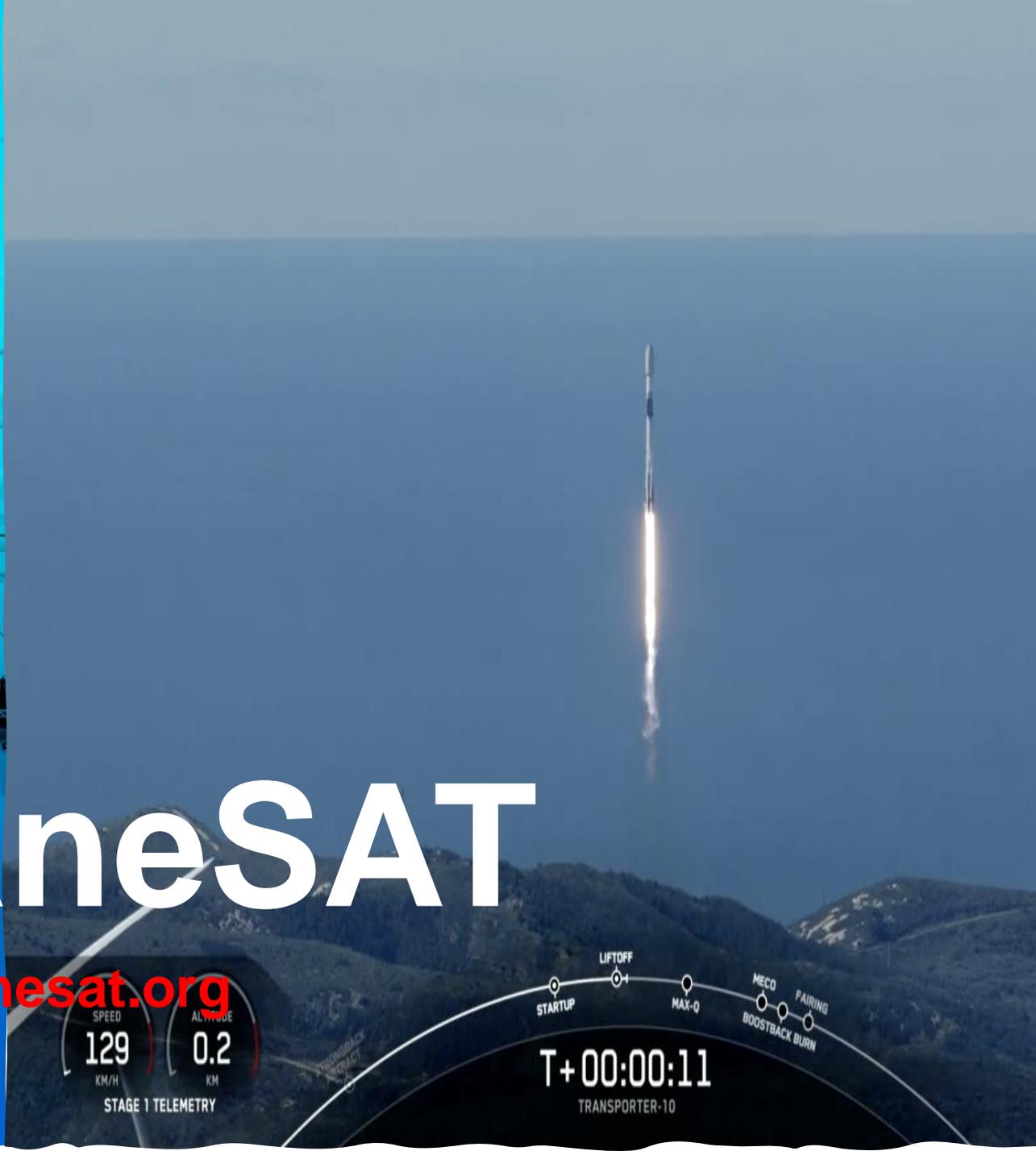
dwhittle@edf.org

Photo: Noel López



MethaneSAT

Methanesat.org



SPEED
129
KM/H

ALTITUDE
0.2
KM

STAGE 1 TELEMETRY

STARTUP

LIFTOFF

MAX-Q

MECO

FAIRING

BOOSTBACK BURN

T+00:00:11

TRANSPORTER-10

1. There has been a long and continuous history of scientific and environmental cooperation between our two countries (Ha habido una larga y continua historia de cooperación científica y ambiental entre nuestros dos países)
2. Cooperation has consistently served the interests of both countries (La cooperación siempre ha servido a los intereses de ambos países)
3. Priority areas for collaboration (Áreas prioritarias de colaboración)

Long and continuous history of scientific and
environmental cooperation

Larga y continua historia de cooperación científica y
ambiental

**US - CUBA WORKING TOGETHER AGAIN:
LESSONS FROM ENVIRONMENTAL
COOPERATION**

**CUBA - ESTADOS UNIDOS VOLVIENDO A
TRABAJAR CONJUNTAMENTE: LECCIONES
DE LA COOPERACIÓN AMBIENTAL**

**EDITED BY
DR. MARGARET E. CRAHAN**

**WITH THE ASSISTANCE OF
GRETCHEN SANCHEZ**

CO-SPONSORED BY

Cuba Program | Institute of Latin American Studies | Columbia University

Environmental Defense Fund 

American College of Environmental Lawyers 

Fundación Antonio Núñez Jiménez 



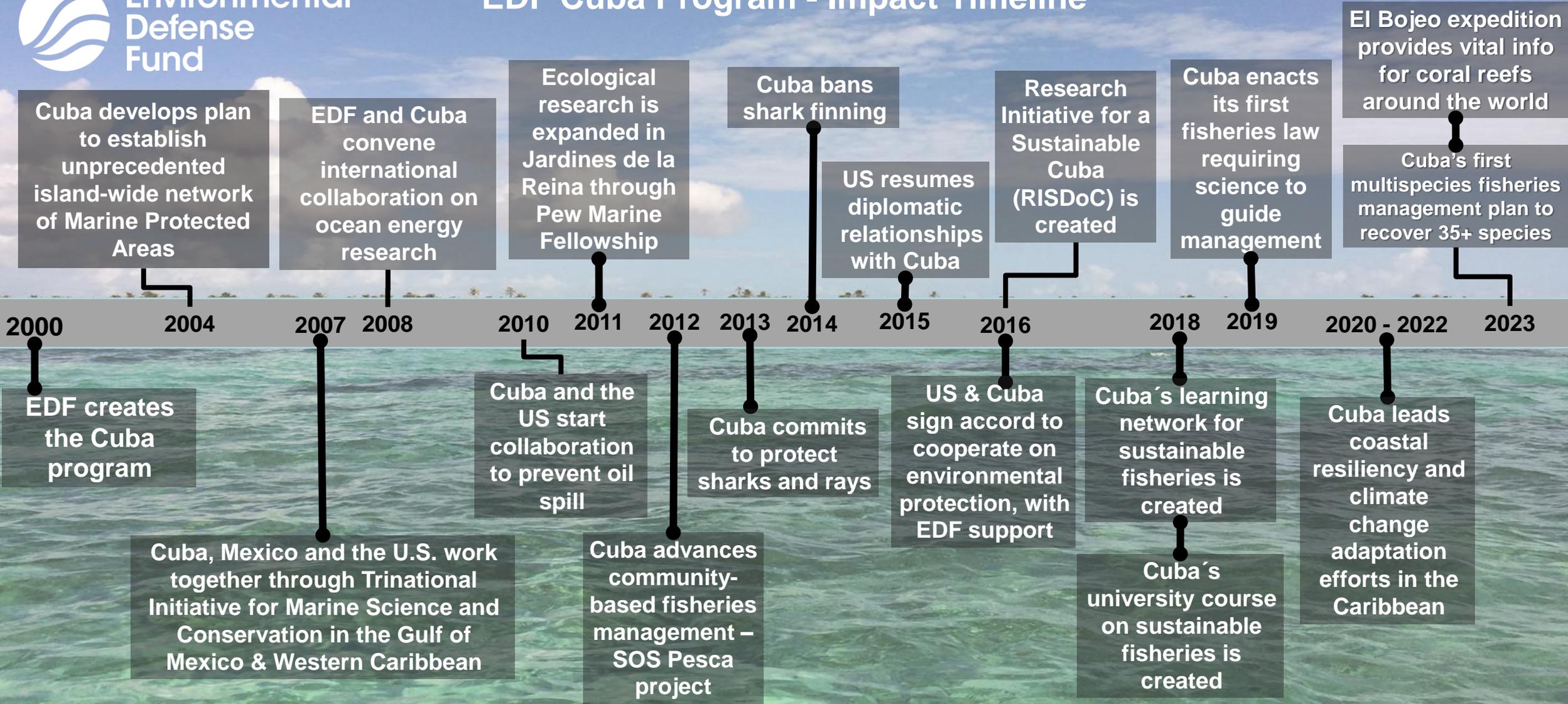
Results (Resultados)

- Discovery of new species (Descubrimiento de nuevas especies)
- Soil conservation (Conservación del suelo)
- Better pest management (Mejor manejo de plagas)
- New approaches to addressing overfishing (Nuevos enfoques para reducir la sobrepesca)
- Hurricane readiness (Preparación para huracanes)



**Environmental
Defense
Fund**

EDF Cuba Program - Impact Timeline



Colaboraciones en Cuba



Grupo Empresarial
de la Industria
Pesquera



cim.UH
Centro de Investigaciones Marinas
Universidad de La Habana



CIEC



FUNDACIÓN
ANTONIO NÚÑEZ JIMÉNEZ
DE LA NATURALEZA Y EL HOMBRE



cospe
ONLUS



CAI CARIBBEAN
AGROECOLOGY
INSTITUTE

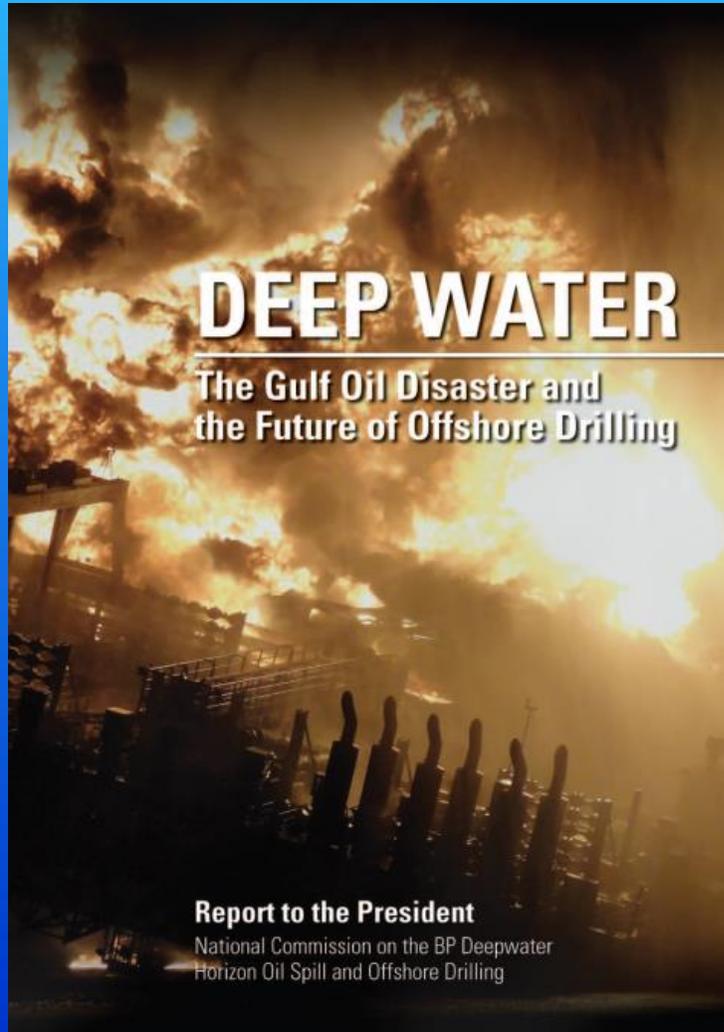


¡Resiliencia a toda costa!

**Cooperation has consistently served the
interests of both countries**

La cooperación siempre ha servido a los intereses de
ambos países

Disasters without Borders / Desastres sin fronteras



"Es de interés nacional para nuestro país negociar ahora con [Cuba y México] para acordar un conjunto de estándares comunes y rigurosos ...





Bridging the Gulf

Finding Common Ground on Environmental and
Safety Preparedness for Offshore Oil and Gas in Cuba

TEMAS PRINCIPALES

Medidas Cubanas de Seguridad y
Protección Medioambiental.

Diálogo Estados Unidos-Cuba /
Cooperación

Papel del Sector Privado de los
Estados Unidos en Prevención y
Respuesta



Acuerdo de Áreas Protegidas

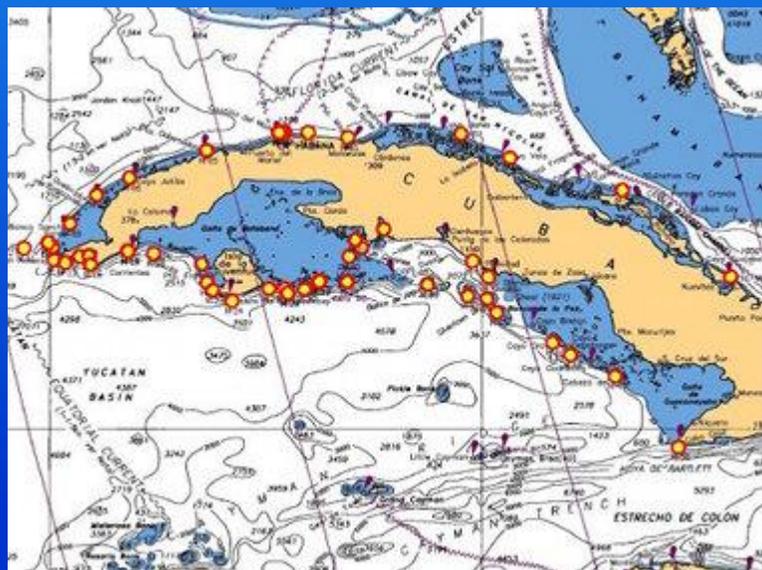
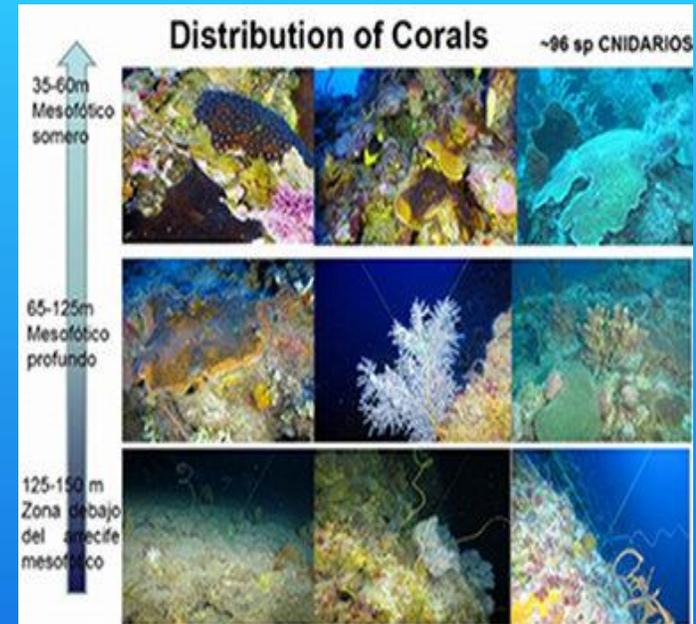
18 de noviembre, 2015

NOAA, US National Park Service & Centro Nacional de Áreas Protegidas (CITMA)

- FL Keys NMS & Flower Garden Banks NMS
- Dry Tortugas & Biscayne National Parks
- Parque Nacional Guanahacabibes y Banco San Antonio

Componentes

- Esfuerzos en conjunto de ciencia, custodia y manejo de áreas marinas protegidas.
- Intercambio de información (e.j., datos científicos y técnicos, mejores prácticas de manejo, etc.)
- Desarrollo de Mejores Prácticas de Manejo, lineamientos y metodologías
- Coordinación de actividades complementarias de investigación, monitoreo, enfrentamiento, involucramiento público, etc.
- Establece un camino para expediciones investigativas colaborativas, intercambios profesionales, mapeo, encuestas, capacitación, etc.





Bulletin of
Marine
Science

2018 Edición Especial de Cuba
(18 artículos científicos)

BOJEO A CUBA



Bojeo a Cuba

A Circumnavigation Expedition around
Cuba to Explore Coastal Coral Reefs

July 18th – September 8th, 2023



The journey has just begun...





Historic marine expedition

New science on coral reefs and marine species, developed during the hottest months on record, is guiding the future of Cuba's marine management and conservation programs.

The expedition is the result of **collaboration** between various Cuban institutions with the support of international organizations, united around **science, education** and **environmental conservation**.

The data collected will provide a better understanding of the impacts of **climate change** and help guide decision-making processes. The research findings are extremely valuable for **Cuba**, for the **Caribbean region** and for the **world**.



Key Initial Findings



All Cuban coral reefs sampled, even in densely populated areas, have a high level of biodiversity, which is the basis for the ecological goods and services they provide.



Scientists found a high density of corals. However, all sampling areas indicate extensive bleaching due to high sea temperatures. They also discovered the new presence of an invasive coral species and disease. Future monitoring will reveal their recovery levels.



In areas with greater protection, the biomass of large fish was high, and sharks were present. However, in most sampling areas both were very scarce. Also, in over half of the survey sites scientists found high biomass of herbivore fish which are critical to reef health.

Summary *in numbers*



epic journey



53
days on
board



64
kilometers
swum



1,960
nautical miles
traveled



584
hours of
observation



320
hours of
diving

key information



23
coral reefs
assessed



66
coral reef
sites sampled



33
indicators and
variables
measured



66
oceanic sites
sampled

collaboration



31
organizations
involved



15
research
areas



18
experts and
scientists
on board

inspiration



396
hours of
underwater
video



40
TV programs
produced



16,000
photos
taken



Scientists evaluated Cuba's coastal coral reefs, including four of the world's most climate-resilient reefs.



57,839
coral reef colonies surveyed



53
coral species sampled



15%
average coral cover found



60%
evaluated corals affected by bleaching



>50%
algae cover in all sampled areas

Cuba's fish and shark populations are critical to coral reef health.



82
fish species monitored



36%
sampled areas had frequent shark presence



>50%
areas sampled had high biomass of herbivores



88%
observed human activities related to fishing



AbE-C

¡Resiliencia a toda costa!



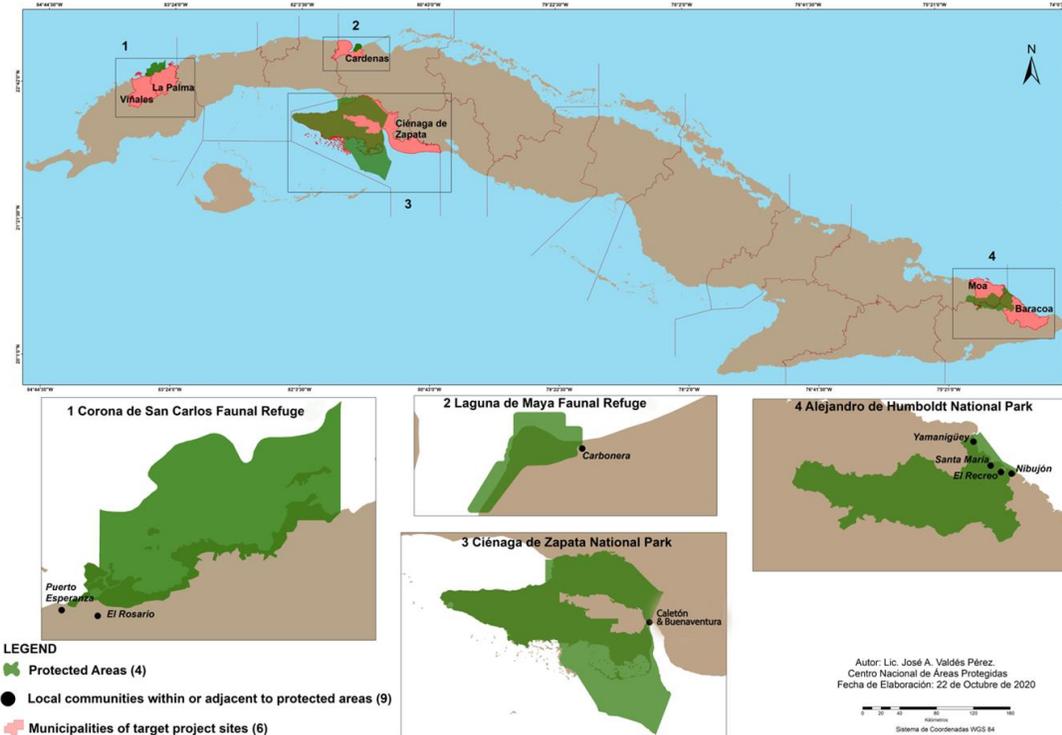
Proyecto “Aplicando soluciones basadas en la naturaleza para incrementar la resiliencia costera y la capacidad de adaptación al cambio climático en áreas”

Project “Applying nature-based solutions to increase coastal resilience and capacity for climate change adaptation in protected areas of Cuba.”

Financed by the Caribbean Biodiversity Fund

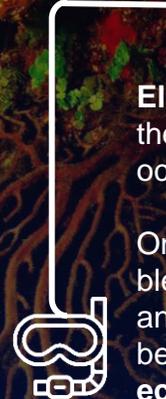


FIGURE 1. PROTECTED AREAS AND ASSOCIATED COASTAL COMMUNITIES AT PROJECT SITES



Priority areas for collaboration

Áreas prioritarias de colaboración



El Bojeo a Cuba found extensive bleaching and highlights the global concern for coral reef health in the face of rising ocean temperatures and changing conditions.

Ongoing monitoring is needed to assess recovery to bleaching and disease and fill data gaps in deeper waters and mangroves. In the coming years, the Bojeo team will better understand the **resilience of Cuba's coral reef ecosystems**.

The results of El Bojeo a Cuba are already informing protections for marine species, fisheries regulations, Cuba's commitment to **30x30** and strategies for coastal community development.

There are **places of hope** in Cuba. The areas with high biomass of large fish and herbivores, and with sharks present, offer hope for recovering fish populations in decline and maintaining healthy reefs.

This **knowledge** could lead to new **management and conservation** techniques to preserve and slow the degradation of reefs around the world in the face of climate change.



The Cuban Electric Grid

Lessons and Recommendations for Cuba's Electric Sector

**Medios de vida sostenibles en las zonas
costeras cubanas: el desafío de lograr la
resiliencia climática en turismo, energía,
pesca, agricultura y comunidades**

Informe Técnico



Thank you!

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