

LBS Protocol: *Catalyzing Regional Cooperation to Combat Marine Pollution*

Presented by Mr. Christopher Corbin, Christopher.Corbin@un.org



Mission

"To promote regional co-operation for the protection and development of the Wider Caribbean Region"



Objective

To achieve sustainable development of marine and coastal resources in the Wider Caribbean Region through effective, integrated management that allows for economic growth and sustainable livelihoods.

Technical Protocols



Pollution from Oil Spills

Adopted : 1983

Entered into force : 1986



Specially Protected Areas & Wildlife (SPAW)

Adopted : 1990

Entered into force : 2000



Land-Based Sources and Activities of Marine Pollution (LBS)

Adopted : 1999

Entered into force : 2010





* Caribbean Netherlands: Special public bodies of the Netherlands. Alternatively known as Bonaire, St. Eustatius and Saba, BES Islands



Specific Objectives:



Reduce the impacts of priority pollutants by establishing sewage and emissions limits and implementing best management practices.



Exchange scientific & technical information on land-based pollution through regional cooperation in monitoring and research.

Obligations:

- Classify recreational water bodies based on pollution risk to human health and the environment
- Establish legally binding standards for sewage effluent and discharges
- Develop National Programmes of Action for Integrated Watershed and Coastal Area Management
- Identify and assess sources and activities contributing to pollution
- Develop management plans and demonstration projects to reduce marine pollution





How are we supporting countries?



Research & Monitoring

Governance

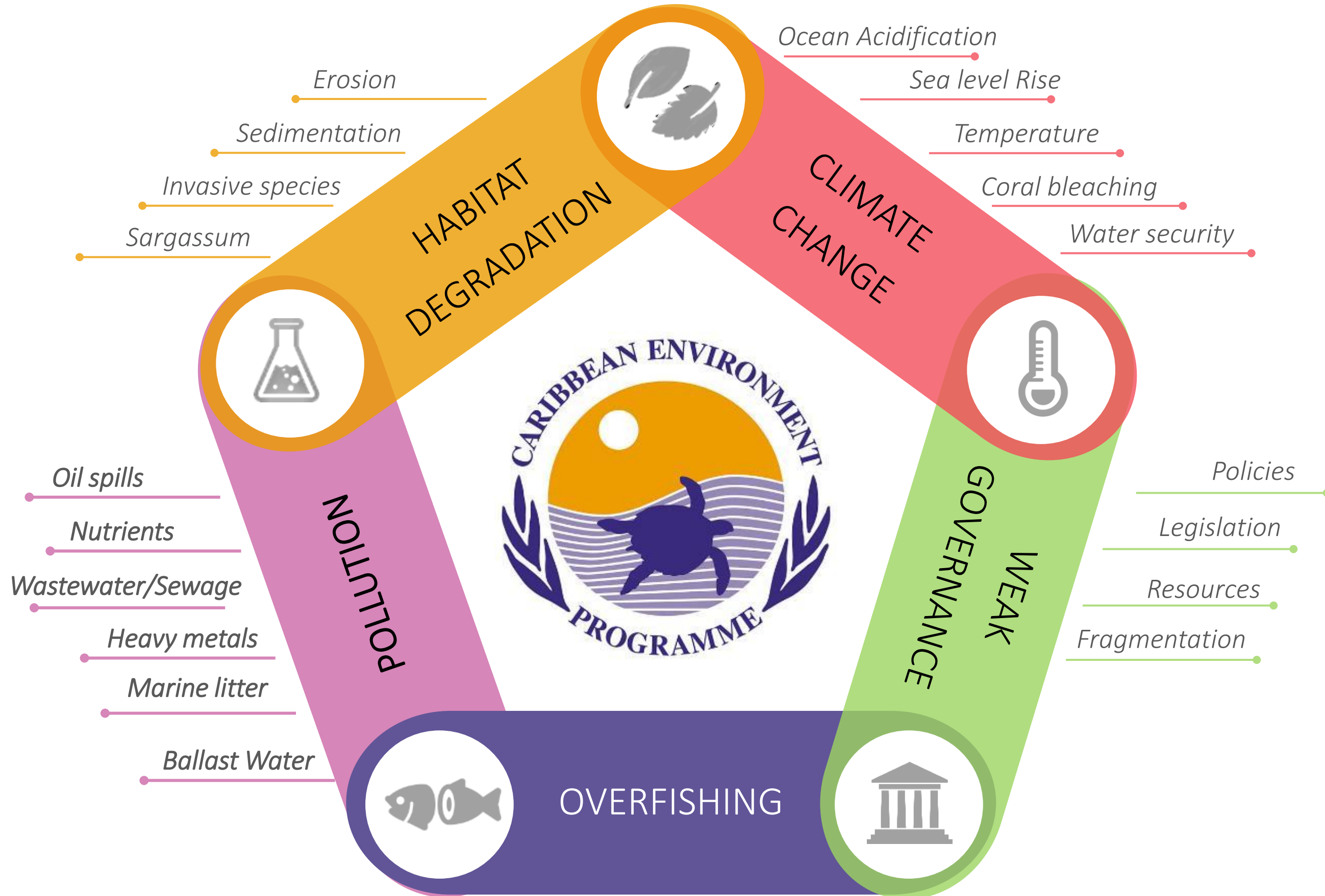
Communication

Capacity Development & Training



Supported by: (1) Regional Activity Centres (RACs) in Guadeloupe for Marine Biodiversity, Cuba and Trinidad and Tobago for Pollution, & Curacao for Oil Spills. (2) Partner Organizations - Regional Activity Network (RAN) through MOUs of Cooperation; (3) Donor funded projects including GEF International Waters

Some of our technical areas of focus include:



Monitoring and Assessment

- State of Convention Area Report on Marine Pollution
- Laboratory Capacity Building
- Indicators, Criteria, Standards
- Recreational Water Quality Monitoring Programmes
- Databases and Decision-Support Tools
- Reporting on SDGs and MEAs
- Citizen Science
- GEF CReW+, IWEco, CLME+, ACP MEA



Wastewater – Annex III

- GEF CReW+
- Policy, Legislative & Regulatory reforms
- Effluent Discharge Criteria
- Decentralized Solutions
- Treated Wastewater Reuse
- Integrated Water & Wastewater Management approaches
- Awareness & Education
- CWWA, GWP, Development Banks, UNEP GPA





Non-Point Run Off/Nutrients – Annex IV

- Regional Nutrients Reduction Strategy and Action Plan
- National Programme of Action
- GEF IWEco and CReW+, ACP MEA
- Ecosystem-Based Management Activities

Photo: NOAA Ocean Service

Solid Waste/Marine Litter/Plastics

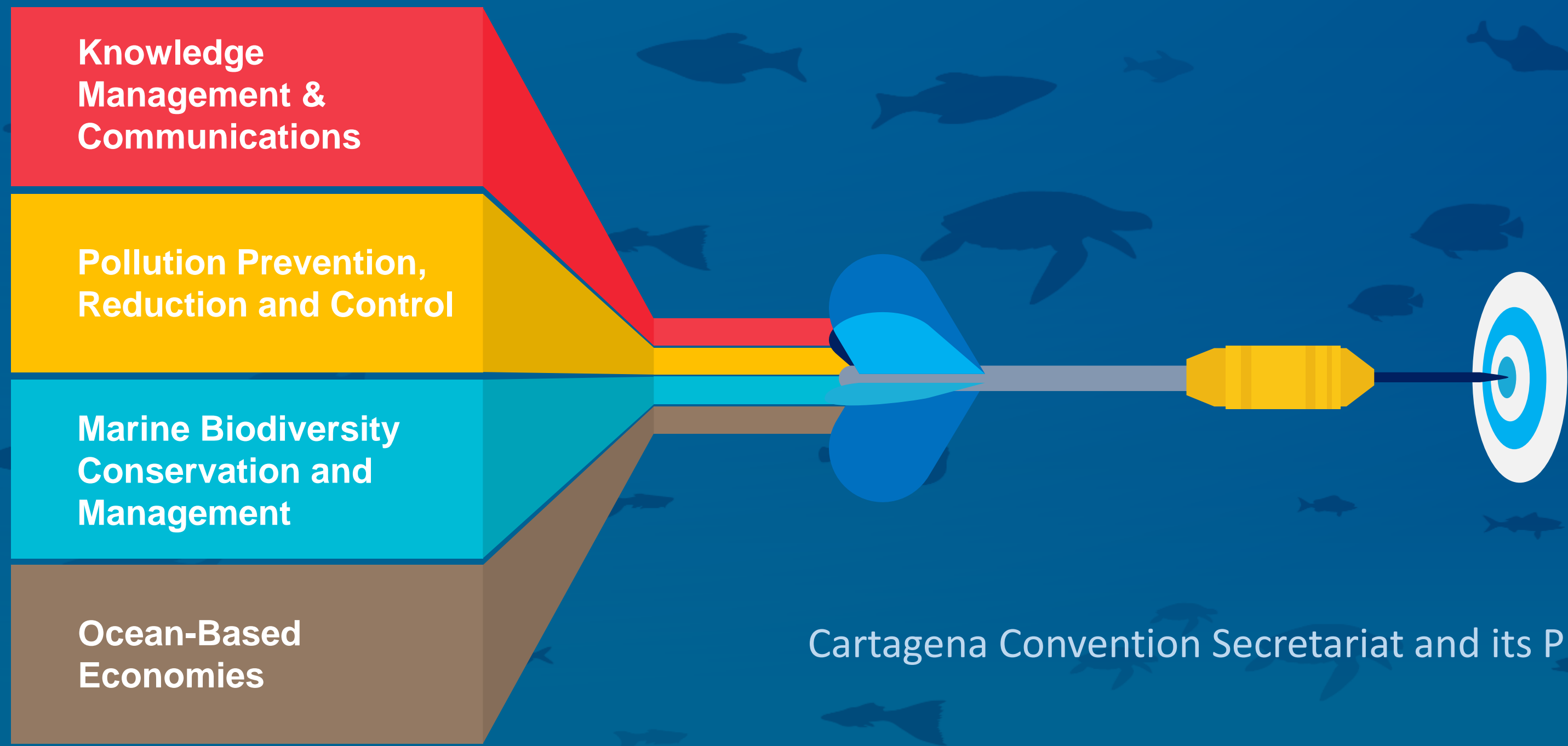
- Regional Marine Litter Node
- Regional Clean Seas Campaign
- Community-Based Projects on Marine Litter
- Microplastics in Fish
- National and Regional Marine Litter Action Plans
- Plastics recycling & upcycling
- Plastics Leakage
- Research Priorities
- Private Sector Engagement
- ACP MEA, German Proposal





Emerging Issues

Moving Forward





LBS Regional Activity Centres and Network



Regional Activity Network

 		 <i>One Community - Growing Together</i>			 <i>Central American Commission for Environment and Development</i>	
	 <i>Centre for Resource Management and Environmental Studies The University of the West Indies</i>	 <i>UNIVERSIDADE FEDERAL DO PARÁ</i> <i>University of Para</i>	 <i>Water Centre for the Humid Tropics of Latin America and the Caribbean</i>	 <i>Institute of Marine and Coastal Research</i>	 <i>Caribbean and Central America</i>	

RAC-IMA

Laboratory Capacity in Support
of
the LBS Protocol



IMA

The Institute of Marine Affairs (IMA) was established, incorporated and is administered in accordance with the provisions of an Act of Parliament (1976), and became operational in 1978.



IMA RAC agreement was signed on 4, April 2018 by Dr Lorna Inniss, Coordinator Secretariat of Cartagena Convention UNEP and Honourable Mrs. Camille Robinson-Regis, Minister of Planning and Development.

Mission and Vision

Mission

To conduct and foster research and to provide advice for the sustainable management of the coastal and marine areas and resources of Trinidad and Tobago.

Vision

To be the Centre of Expertise for Marine Scientific Research in the Caribbean

IMA's Role and Functions include

- Conduct research on the marine and related resources of Trinidad and Tobago, the Caribbean and adjacent regions;
- Study the multiple uses of the sea and coastal zones, their resources and use potential in Trinidad and Tobago, the Caribbean and adjacent regions and to evaluate and promote such studies with a view to minimizing possible conflicts which may result from such uses;
- Establish an Information Centre for the collection and dissemination of information on economic, social, technological, scientific, environmental and legal developments in the marine areas and coastal zones of the Caribbean and adjacent regions;
- Provide information and advice to the Government in its formulation of policies relating to the marine and other related aspects of the environment;
- Respond to technical enquires and questions by policy-making organs of the Government, private sector organizations and individuals;

Research Departments/Expertise

- **Oceanography and Coastal Processes**
 - **Biodiversity and Ecology**
 - **Fisheries and Aquaculture**
 - **Environmental Quality**
 - **Marine Policy and Governance**
 - **Geomatics**
-
- Pollution Monitoring
 - Bathing Beach monitoring
 - Fish Age and Growth
 - Marine Geology
 - Socio-Economic Assessment
 - Wetlands Ecology
 - Benthic Ecology
 - Physical Oceanography
 - Taxonomy/Marine
 - Coral Reef Ecology
-
- Remote Sensing
 - Geographic Information Systems
 - Marine Environmental Policy and Law
 - Public Education and Awareness
 - Information Management



Programmatic Research

National Coastal Conservation Programme

Monitoring of Coral Reef, Seagrass Beds, Mangroves, Beaches and Bays

Long Term Environmental Quality Monitoring and Assessment in Trinidad and Tobago

Update and Maintenance of the IMA's Fingerprinting Database on Petroleum Hydrocarbons

Bacteriological Water Quality at Popular Recreational Water use Sites in Trinidad and Tobago

Monitoring and Testing Capacity

Monitoring parameters	Test Parameters	Methods of Analysis
Physio Chemical	pH, DO, temperature, salinity/conductivity, turbidity	YSI Meters, turbidity meter
Nutrients (water)	Ammonia (NH_4^+ -N), Nitrites (NO_2^- —N),Nitrates (NO_3^- —N),Total nitrogen (TN),Total phosphates (TP),Reactive phosphates (PO_4^{3-} —P)	APHA, Standard Methods for the Examination of Water and Wastewater. Grasshoff Methods of Seawater analysis
Wet Chemistry	COD, BOD_5 ,Free Chlorine, Alkalinity, Acidity, Hardness, Solids, Chlorophyll a	APHA, Standard Methods for the Examination of Water and Wastewater.
Hydrocarbons	Oil and grease	Gravimetric
	Disolved and Dispersed Petroleum Hydrocarbons	Fluorescence Spectroscopy
	Absorbed and adsorped petroleum hydrocarbons	Fluorescence Spectroscopy
Heavy Metals	Cadmium, Chromium, Copper, Iron, Lead, Nickel, Zinc	Flame Atomic Absorption Spectroscopy, Graphite furnace

General Monitoring Capacity

General Environmental Monitoring	Indicators	General Method
Bathing Beach Bacteriological	Total coliform (TC) count Faecal coliform count E.coli count Enterococci count	Membrane filtration, define substrate, Rapid assessment using - Idexx Method
Monitoring Benthic Organisms	Macro and micro benthic communities	Grab samples and sediment cores, sieving and sorting of samples, identification of species to lowest taxonomic level. Statistical analysis to determine species richness, abundance and diversity
Coral Reef	Benthic cover on coral reef, species distribution, richness and diversity, reef structure (rugosity), reef fish assessment	Photo transects and video transect, fish counts, use of Coral Point Count with excel extension for analysis of data
Location and frequency of algal blooms	Algal blooms, Chlorophyll a, nutrients, pH	Photographic, spectrometric, meters
Quantification of Beach Litter	Trash and Garbage	Total weight

Future Projects/Partnerships for Capacity Building

- Caribbean Community Climate Change Centre (5Cs) and IMA. Coral Reef Early Warning System (CREWS) in Tobago. New data buoy to collect meteorological, current, temperature, depth (CTD), Fluorescent Dissolved Organic Material (FDOM), turbidity, chlorophyll a, DO and pH.
- Regional project TLA0063 with IAEA -Using Nuclear Techniques for Climate Change Adaptation and Mitigation
- Proposed National Project under the IAEA 2022-2023 TC cycle to build capacity of the IMA laboratory, both equipment and trained staff, to conduct studies in **Ocean Acidification** and environmental monitoring - (algal blooms, bacteria, POPs, oil spills).



Carretera del Cristo No. 3 esquina a Tiscornia. Casablanca.
Habana, Cuba.

<https://www.cimab.transnet.cu>
dirección@cimab.transnet.cu

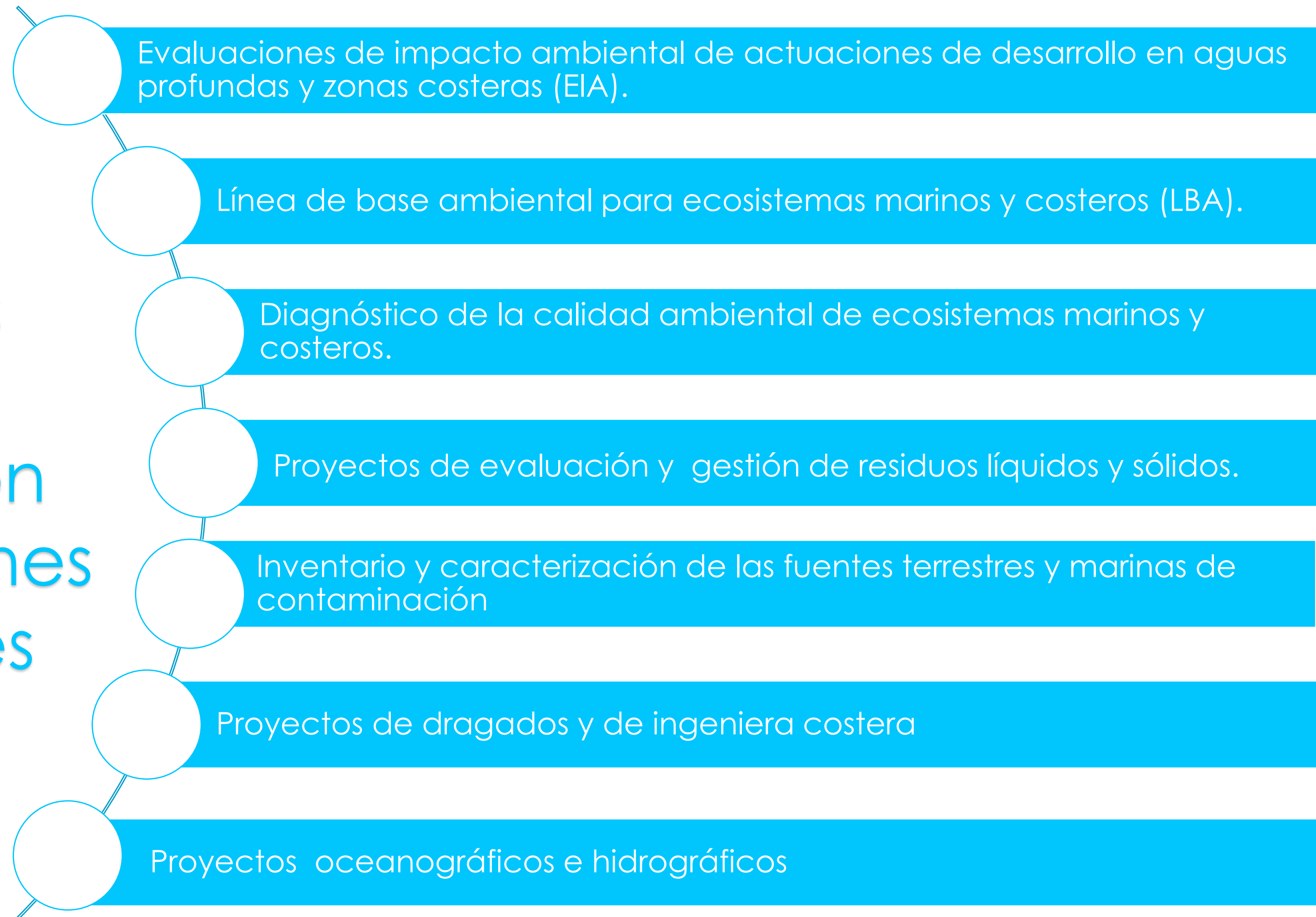


Funciones del Cimab como Centro de Actividad Regional (RAC Cimab):

- Contribuir a la promoción y aplicación del Protocolo FCTM por medio de la coordinación y supervisión de actividades.
- Fomentar la cooperación científica técnica entre las agencias de las Naciones Unidas, organizaciones gubernamentales, intergubernamentales y no gubernamentales
- Facilitar asistencia científica y técnica (expertos, consultorías), entrenamientos, cursos, seminarios y talleres a gobiernos e instituciones de la Región del Gran Caribe.
- Evaluar y aplicar tecnologías innovadoras requeridas para la implementación de los programas y actividades relacionadas con el Protocolo FTCTM.
- Movilizar recursos humanos, financieros y materiales hasta donde sea posible para satisfacer las demandas del Programa Ambiental del Caribe.



Principales líneas de investigación de las Divisiones Ambientales

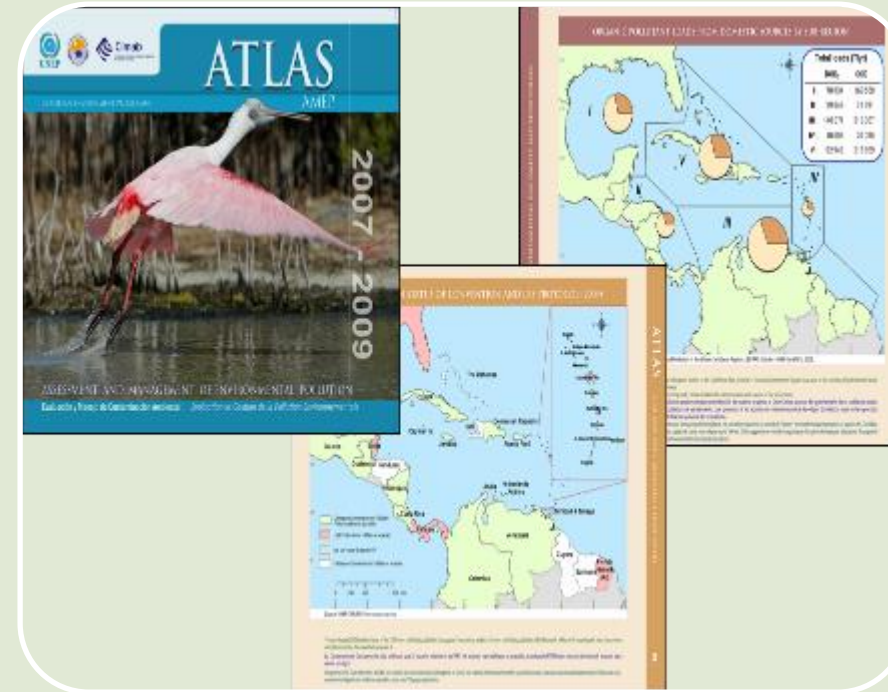
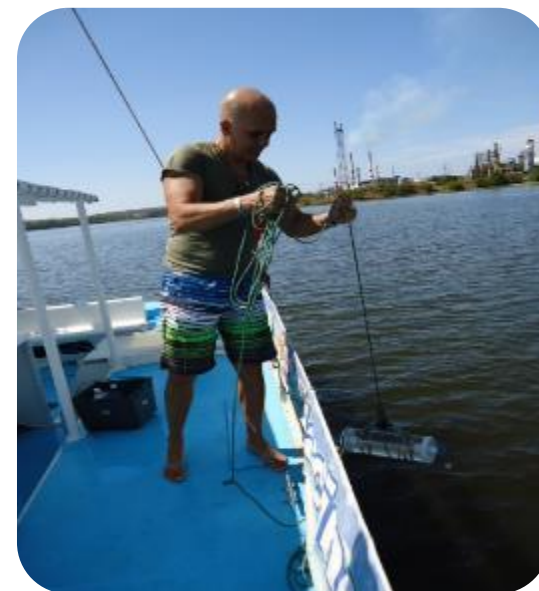


Reportes Técnicos desarrollados por RAC Cimab



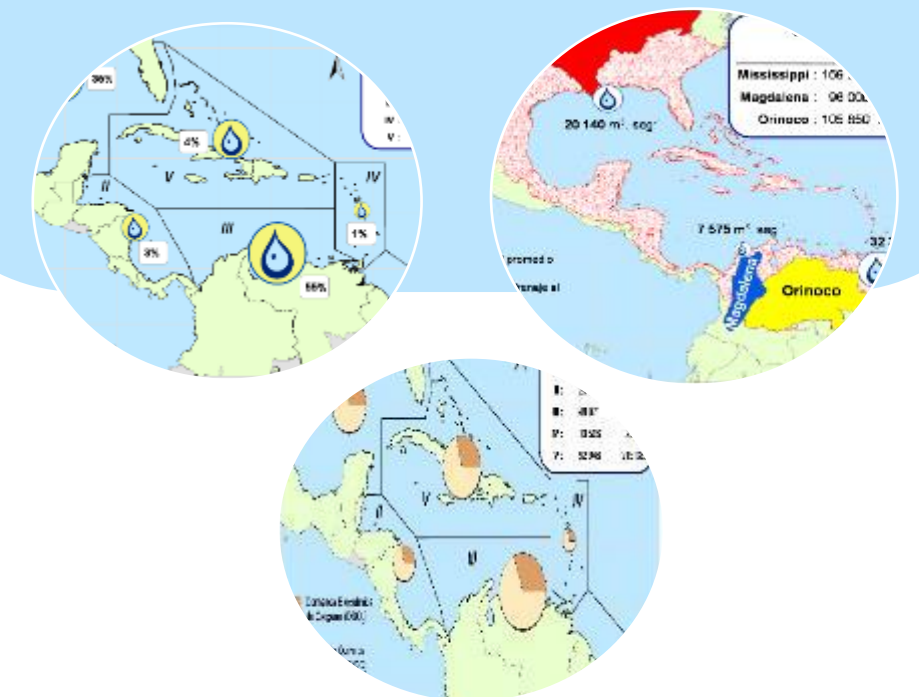
MONITOREO AMBIENTAL EN ZONAS COMPROMETIDAS AMBIENTALMENTE (PROYECTO KNOW WHY-NETWORK) (TR No. 67) (2006 – 2009)

LINEA BASE SOBRE EL MANEJO DE LAS AGUAS RESIDUALES DOMESTICAS EN PAÍSES DE LA REGIÓN DEL GRAN CARIBE (TR No. 55) (2010)



ATLAS AMEP (2007 – 2009) (TR No.)

FUENTES Y ACTIVIDADES TERRESTRES EN LA REGIÓN DEL GRAN CARIBE: CARGAS CONTAMINANTES DOMÉSTICAS E INDUSTRIALES Y EL APOORTE DE LAS CUENCAS HIDROGRÁFICAS TRIBUTARIAS (TR No. 52) (2010)





Estudio subregional: “El Protocolo FTCEM: dificultades y retos dentro de los países participantes en el proyecto GEF-Crew” (2014).



Entrenamiento Teórico - Práctico “Monitoreo y Evaluación de las aguas residuales de origen doméstico e industriales” (La Habana, Cuba, abril 2015)



Taller Teórico-Práctico: “Técnicas Analíticas para la Evaluación de la Calidad de Aguas Residuales y Marinas” (Tegucigalpa, Honduras, enero 2017)



Taller: “Inventario de Fuentes y Actividades Contaminantes que Impactan a Zonas Marino Costeras” (Tegucigalpa, Honduras, febrero 2017)



Línea Base Ambiental del Área Demostrativa: “Cuenca del Río Guanabo” (2019)



Programa de Monitoreo en la cuenca del Río Guanabo y en la zona costera de influencia (2020 – 2022)



Empowered lives.
Resilient nations.



www.theGEF.org



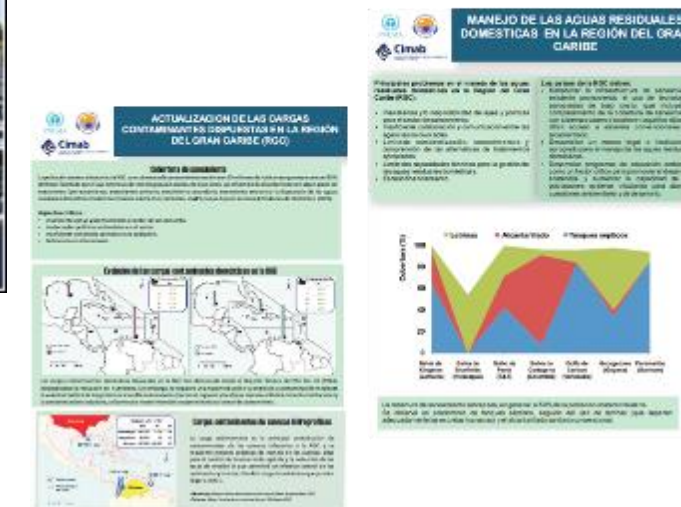
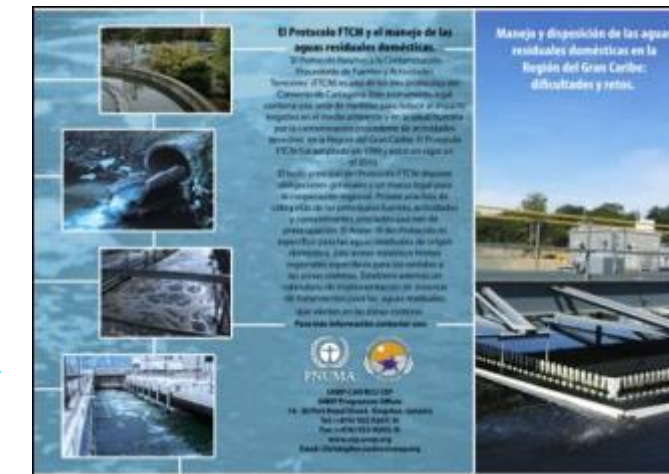
Estrategia Regional de Nutrientes y Plan de Acción Asociado (2020)

Otras Actividades en el marco del Subprograma AMEP:

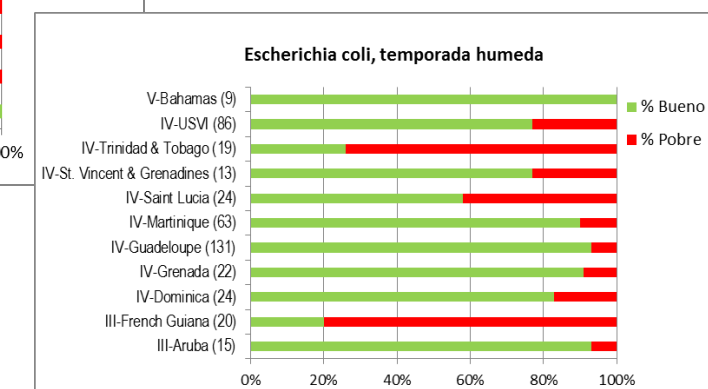
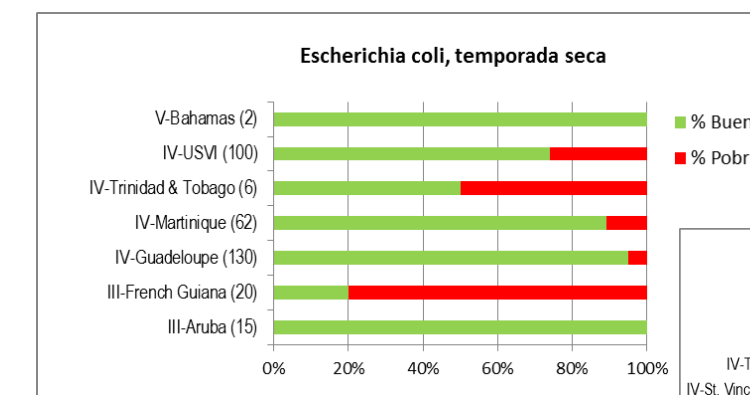
Organización y participación en talleres regionales de promoción del Protocolo FTCM



Diseño y distribución de de plegables y "factsheet"



Miembro del Grupo Regional de Expertos en Monitoreo y Evaluación
Participación en el subgrupo de datos en apoyo a SOCAR





Protecting Our Caribbean Sea, Sustaining Our Future

THANK YOU/GRACIAS/MERCI

United Nations Environment Programme Caribbean Environment Programme
and Cartagena Convention Secretariat

14-20 Port Royal Street
Kingston, Jamaica, W.I.

<https://www.unenvironment.org/cep/>

unep-cartagenaconvention@un.org



UNEPCartagenaConvention



UNEP_CEP



Youtube: CEPUNEP



LinkedIn: UNEP-Caribbean Environment Programme