



○ **DATA A INFORMATION
MANAGEMENT EXPERIENCE
MARINE AND COASTAL RESEARCH
INSTITUTE (COLOMBIA)**

Expert consultation on operationalisation of
the Caribbean Sea Commission

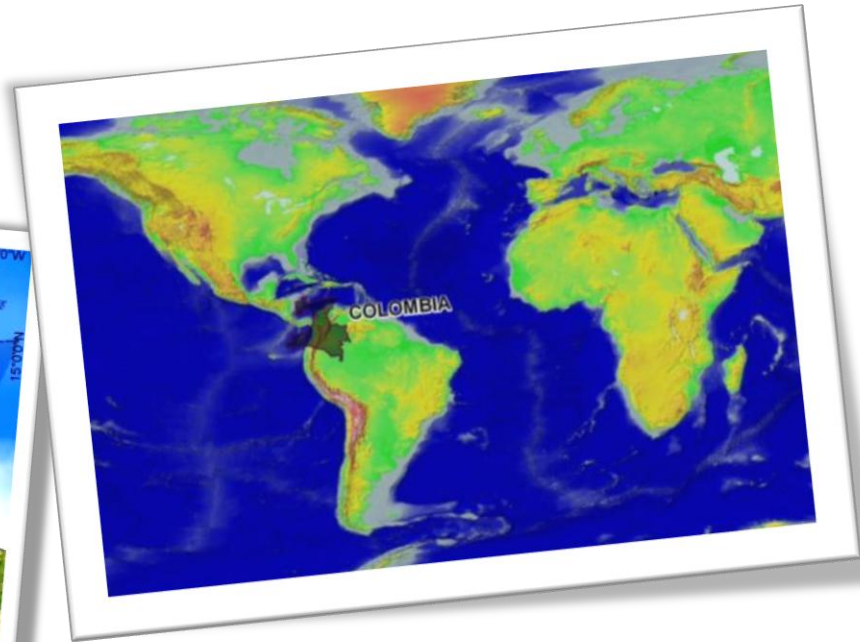
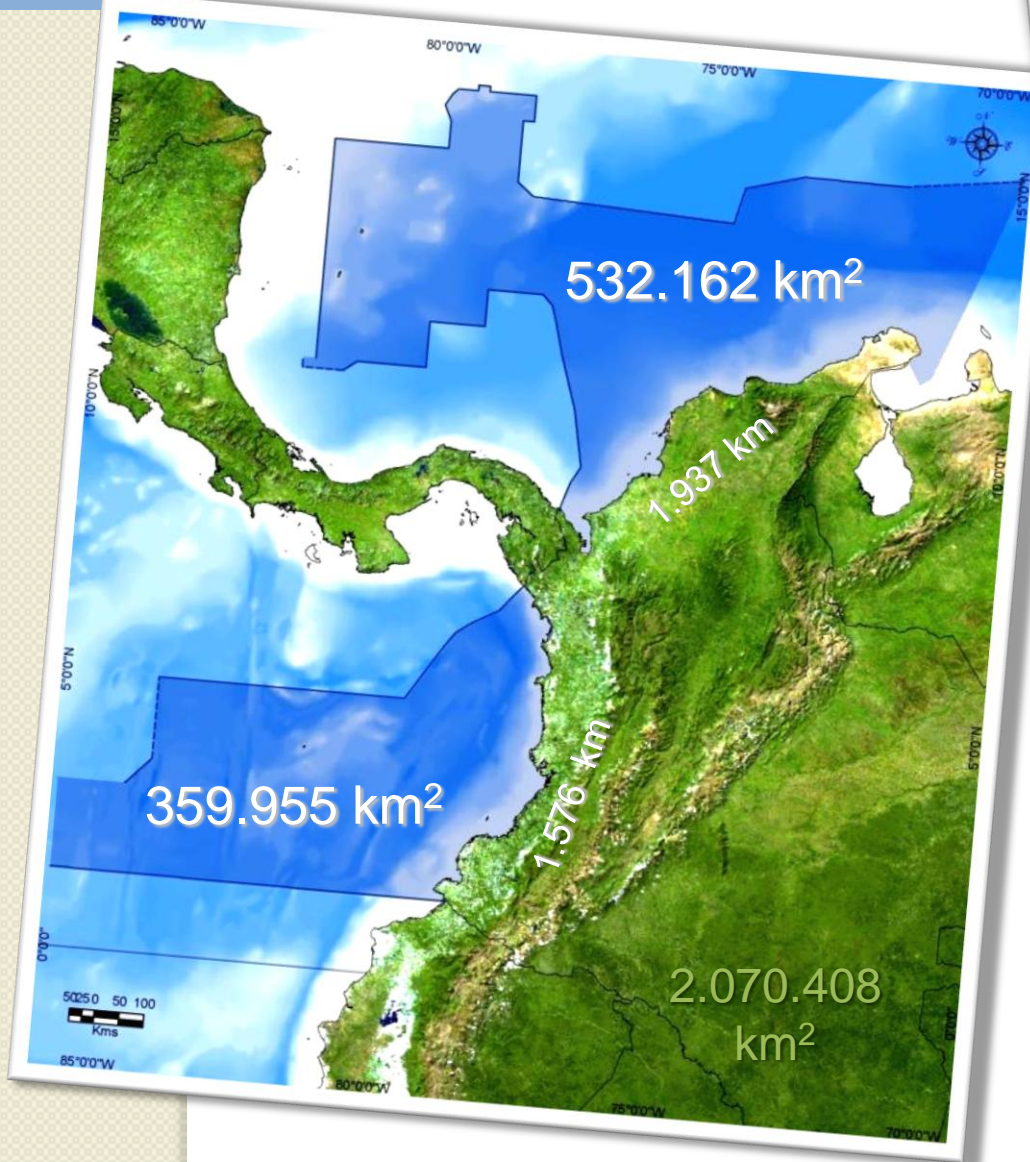
Pilar Lozano-Rivera
Integrated Information Analysis
Coastal and Marine Management Research Programm
Barbados, July de 2010



Outline

- Introduction
- Environmental Marine Information System of Colombia SIAM
 - SIBM
 - SISMAC
 - SIPEIN
 - GOOS
 - MIZC
 - Geoservices
- Action lines



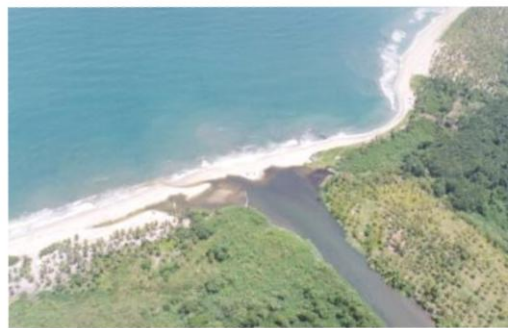


COLOMBIA

- 50% Sea
- Caribbean Sea and Pacific Ocean

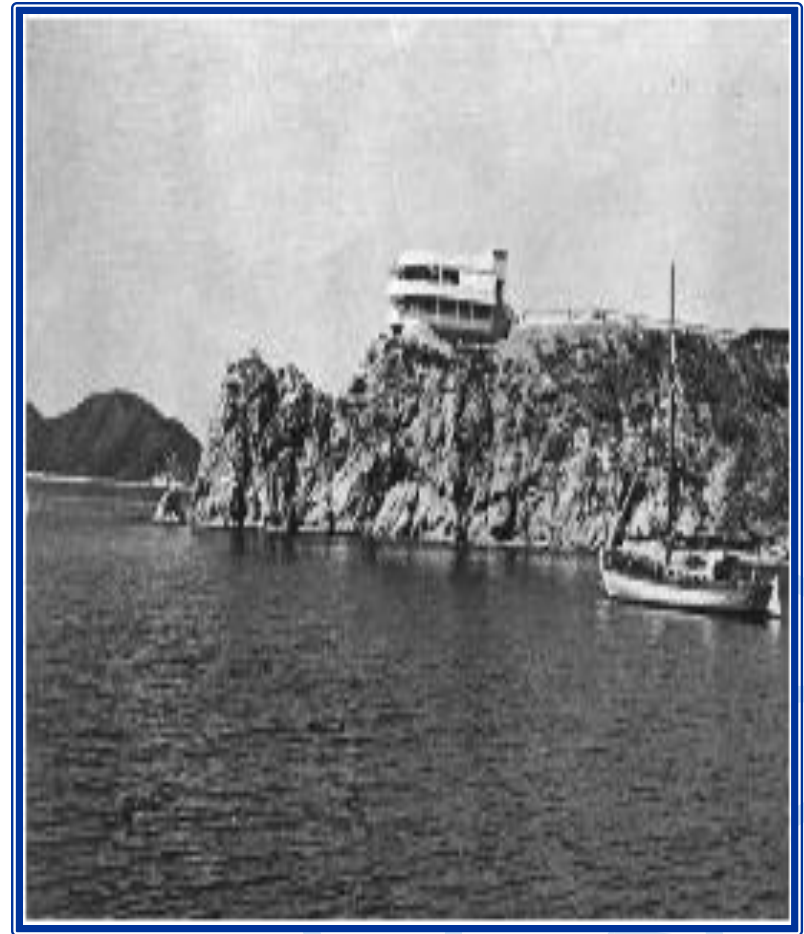


Inyama



° INVEMAR

- 1963-1973: Colombo - Germany Scientific Research Institute – ICAL, part of Justus Liebig University (Gissen)
- 1974: Special project of Scientific Research Colombian Institute “Francisco José de Caldas” – COLCIENCIAS
- 1993: Law 99/93, INVEMAR is entiled to the Environmental Ministry



Marine and Coastal Research Institute “José Benito Vives de Andreis” INVEMAR

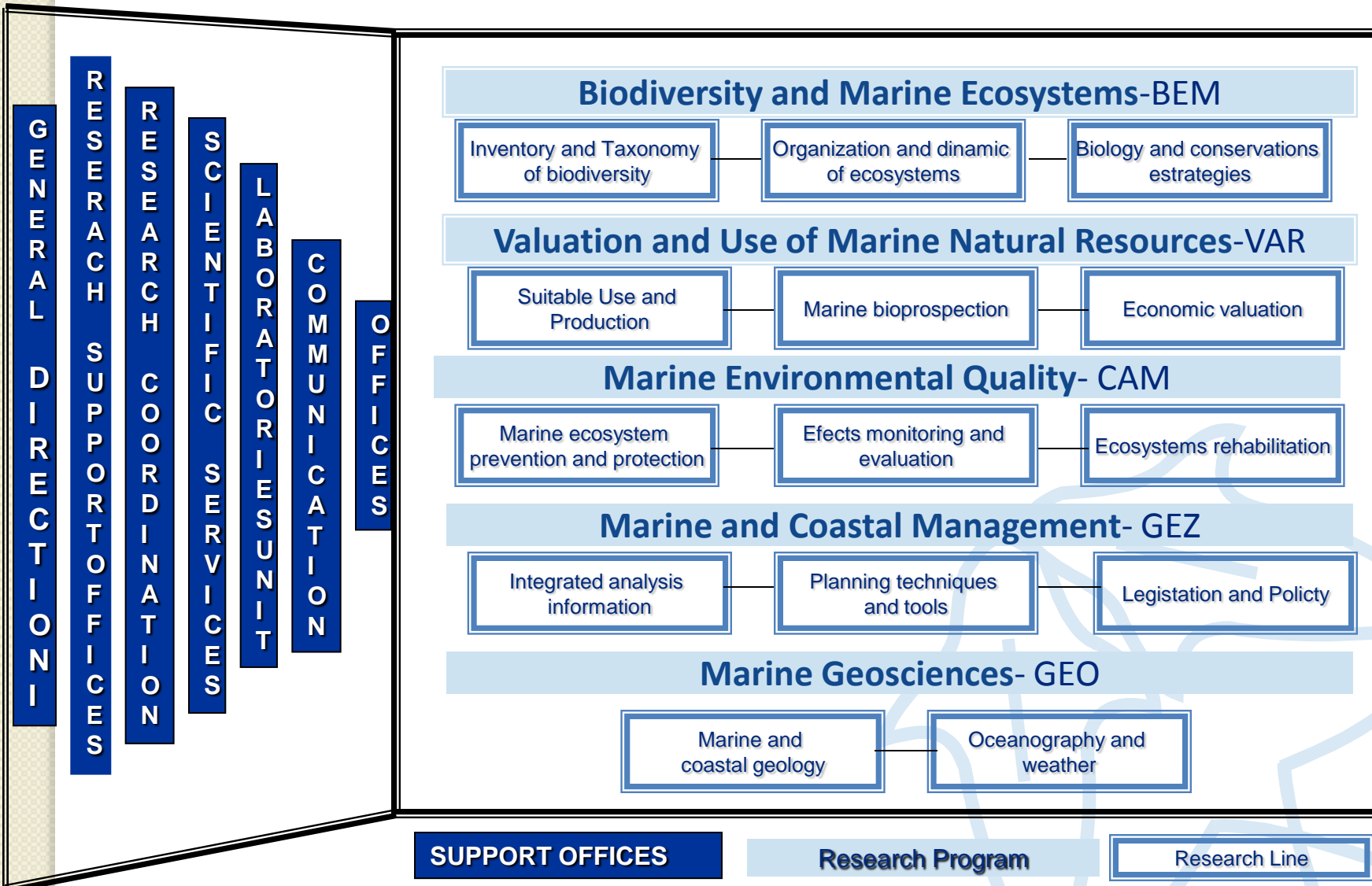


Scientific and technologic institution where **basic and applied research projects** are developed. Projects aim to understand renewable **natural resources, coastal environments, marine and oceanic ecosystems** to provide a scientific basis for management, design of strategies and plans for the **sustainable use of resources**, recovery and conservation of **marine biodiversity** and improvement of the quality of life of Colombian citizens.





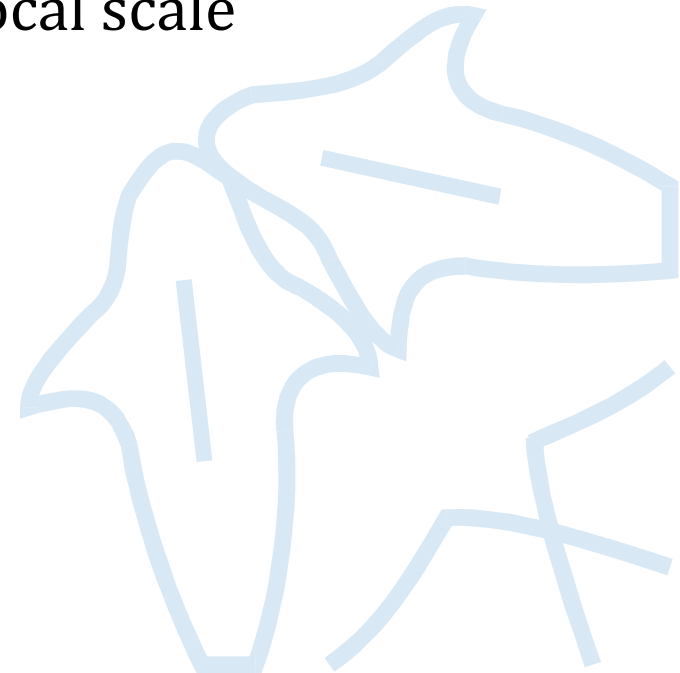
INEMAR STRUCTURE





Environmental Marine Information System - SIAM

SIAM is a tool that groups conceptual elements, policies, process, human and technological resources in order to satisfy **environmental marine information demand** from government, academy and general users in global, regional, national and local scale

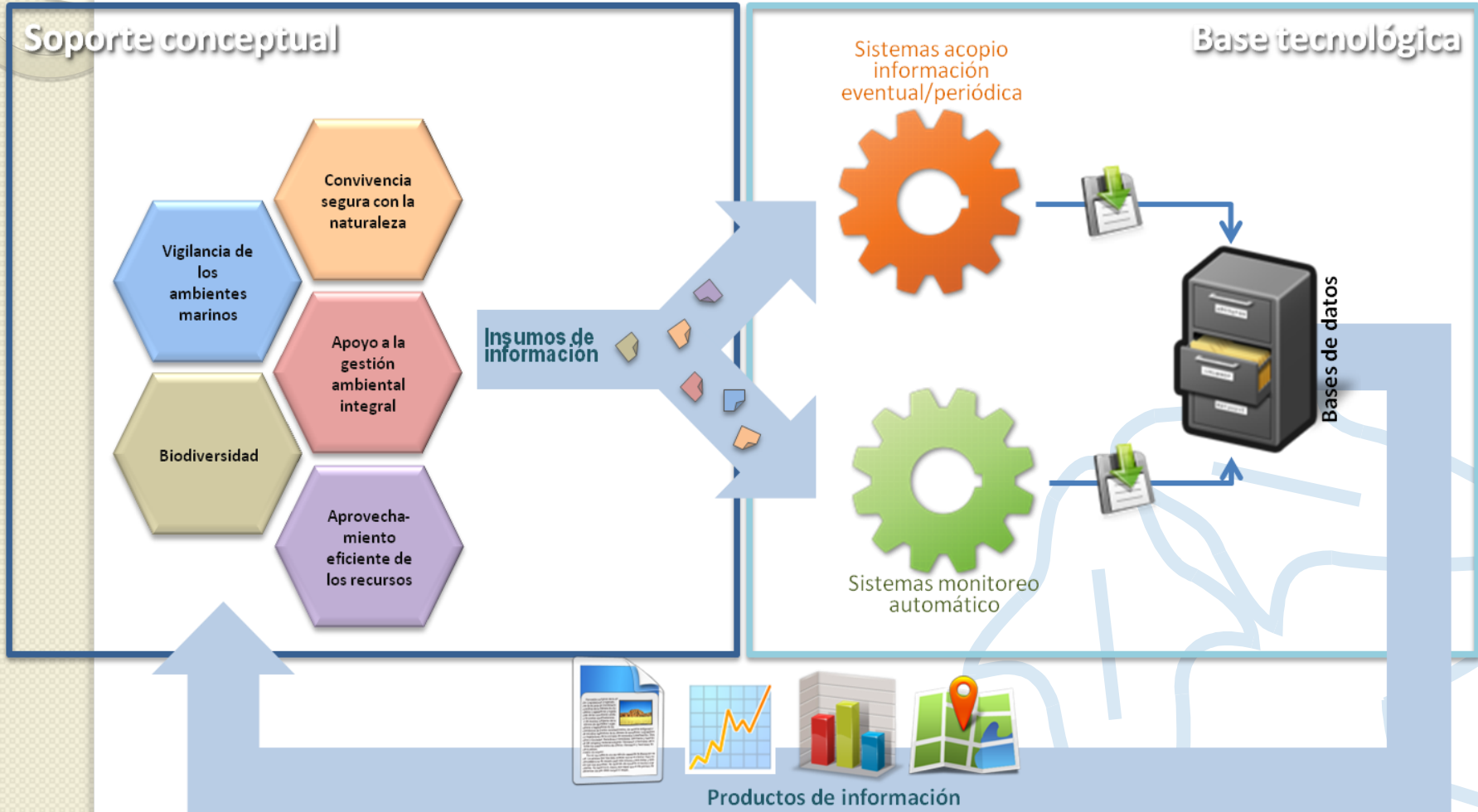




invemar

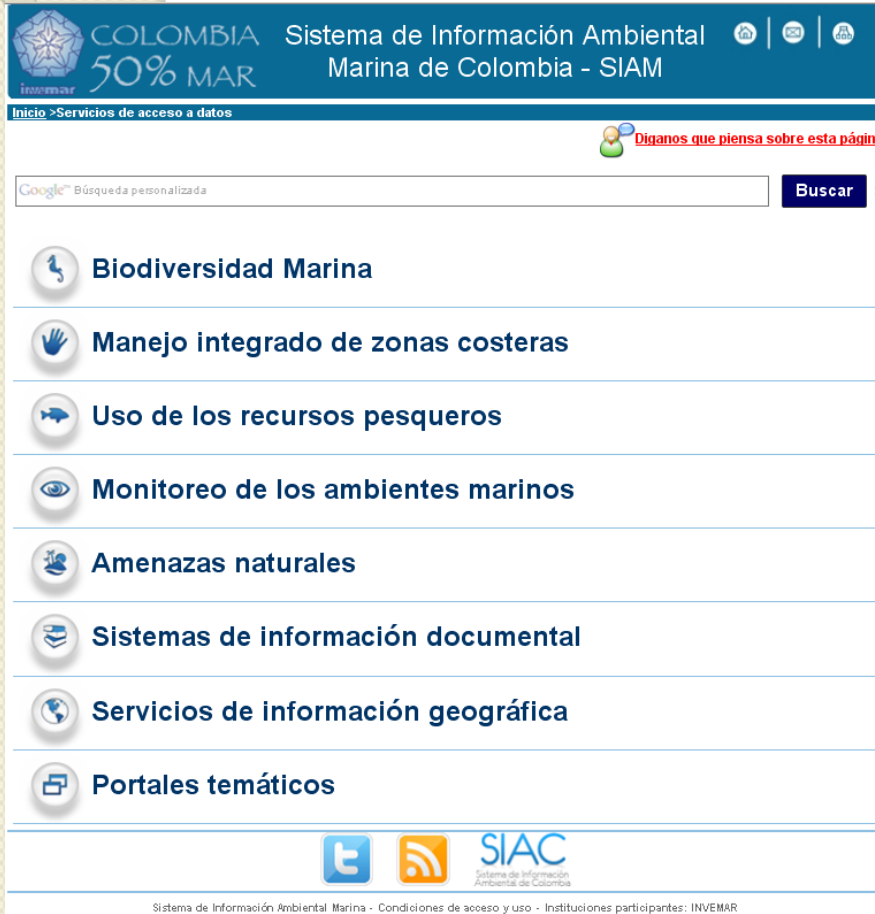
Environmental Marine Information System - SIAM

SIAM





Environmental Marine Information System - SIAM

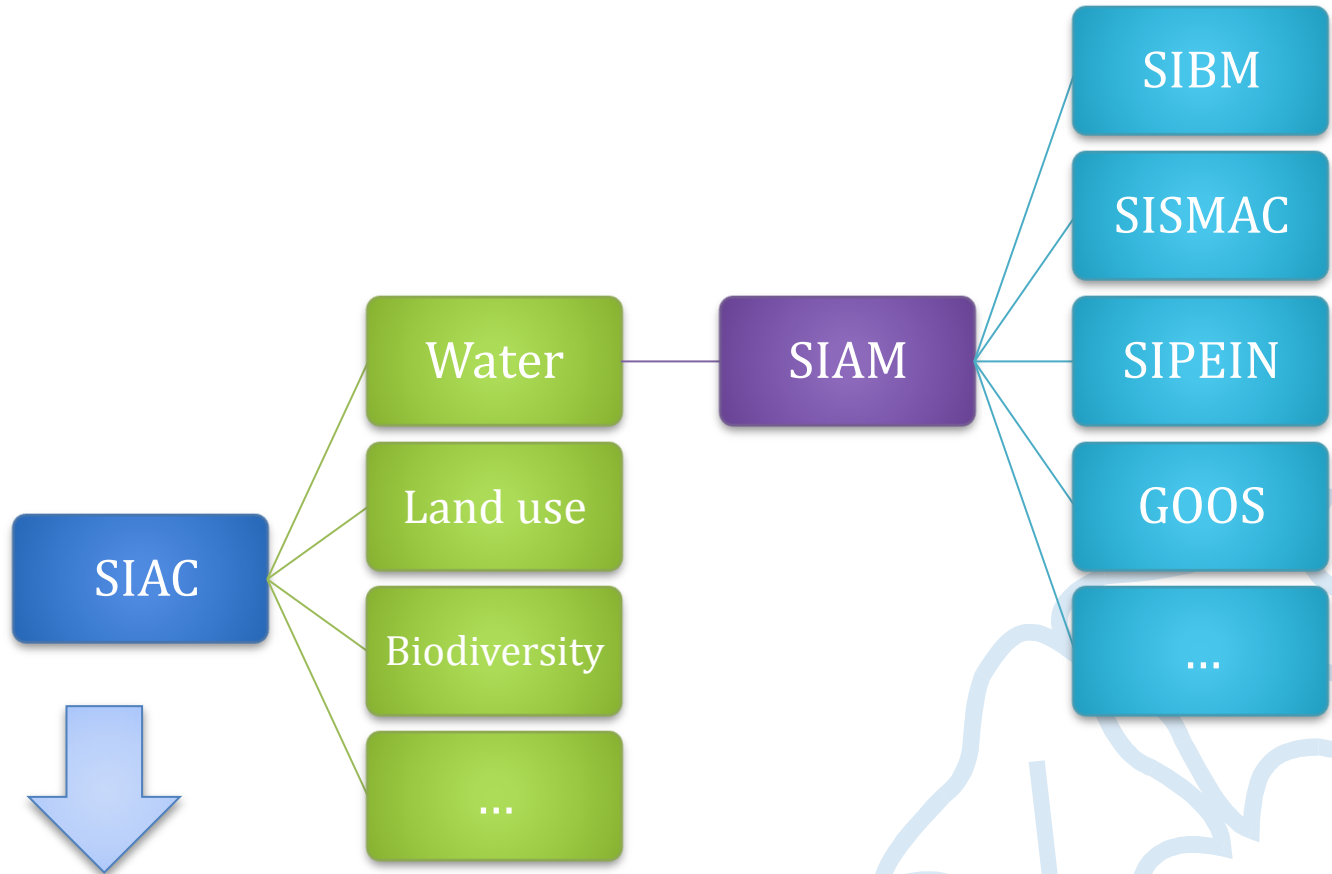


The screenshot shows the homepage of the Sistema de Información Ambiental Marina de Colombia (SIAM). At the top left is the INVEMAR logo and the text 'COLOMBIA 50% MAR'. The main header reads 'Sistema de Información Ambiental Marina de Colombia - SIAM'. Below this is a navigation bar with 'Inicio > Servicios de acceso a datos'. A search bar with the Google logo and the text 'Búsqueda personalizada' is present, with a 'Buscar' button. A red banner says 'Díganos que piensa sobre esta página'. A vertical menu on the left lists several services: Biodiversidad Marina, Manejo integrado de zonas costeras, Uso de los recursos pesqueros, Monitoreo de los ambientes marinos, Amenazas naturales, Sistemas de información documental, Servicios de información geográfica, and Portales temáticos. At the bottom, there are social media icons for Twitter and RSS, and the SIAM logo. The footer contains the text: 'Sistema de Información Ambiental Marina - Condiciones de acceso y uso - Instituciones participantes: INVEMAR'.

Data and information services:
<http://www.invemar.org.co/siam>



National context of SIAM



- Management data mechanism
- Institutional evaluation

Biodiversity information system

 **Biodiversidad Marina**

 <p>SIBM - Sistema de información sobre biodiversidad Marina</p> <p>+ Información del proyecto</p>	 <p>CCBM - Colección Colombiana de Bacterias Marinas</p> <p>+ Información del proyecto</p>
 <p>SISMAC - Sistema de soporte al monitoreo las áreas coralinas.</p> <p>+ Información del proyecto</p>	

- Species **catalog**
- Biological registers of MHNMC and PNN – Gorgona
- Catalog from the strain of marine bacteria degrading persistent organic compounds
- Networks: **SIB, OBIS, IABIN, CARICOMP**

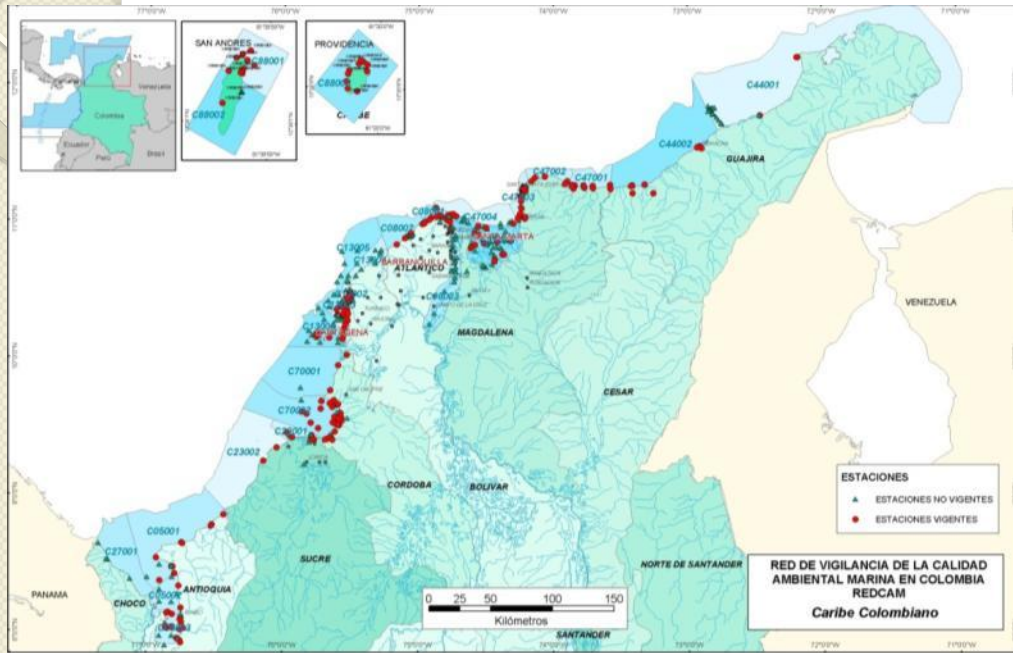
Coral reef areas monitoring information system - SISMAC



- **Monitoring data** of main coral reef area in Colombia
- Information of state and dynamic
- Knowledge for conservation an sustainable use
- Network: **SIMAC, CARICOMP.**

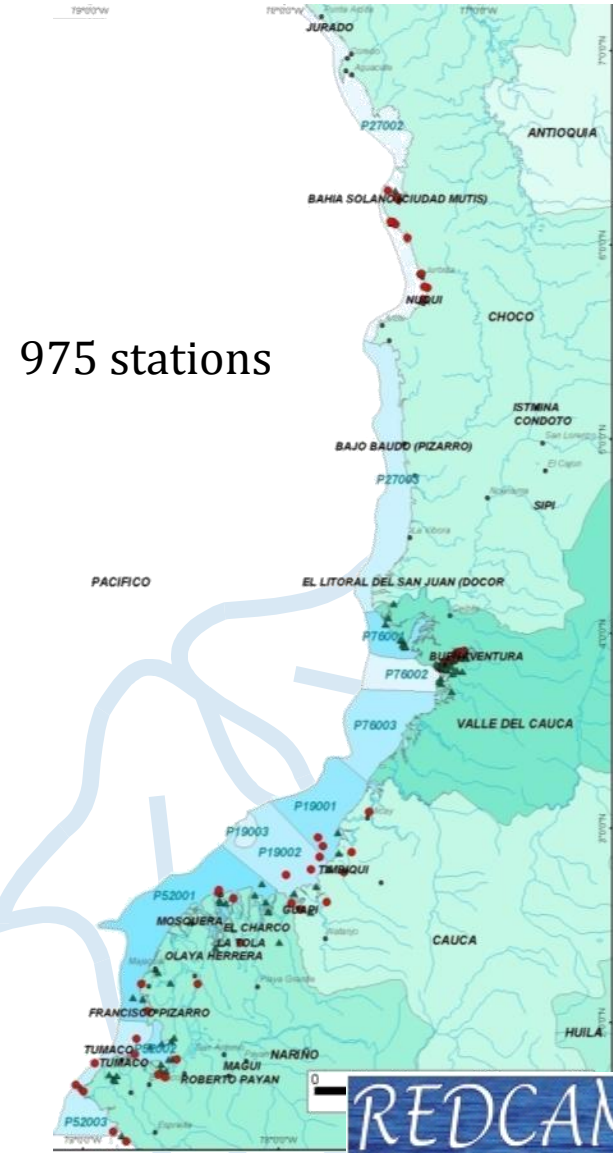
Distribución de estaciones (51)

Colombian Environmental Marine Quality Network - REDCAM



- Coastal and marine quality monitoring
- Online data and information (maps, statistics)

REPCar: Reducing Pesticides Run-off to the Caribbean Sea (Costa Rica, Nicaragua, Colombia) – Coastal monitoring



Fishing information system - SIPEIN

Captura total desembarcada por arte de pesca

Seleccionar arte de pesca

- AROS
- ATARRAYA
- BUCEO ALMEJAS
- BUCEO CARACOL
- CHINCHORRA

Periodo de tiempo

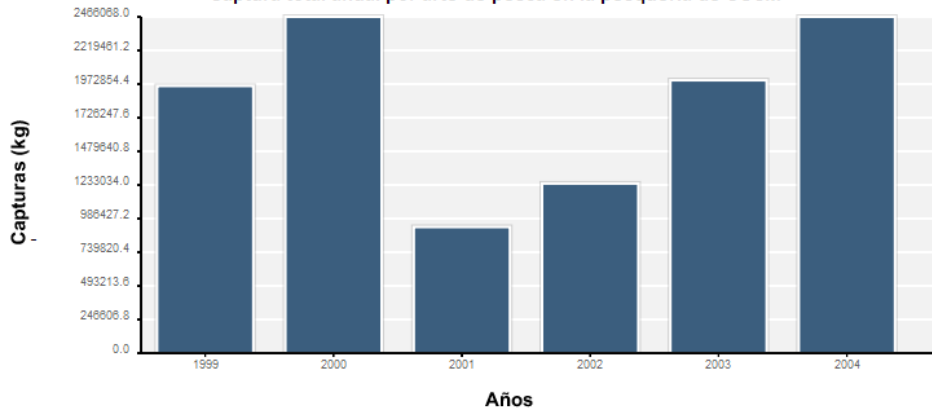
Inicio Fin

Tipo de Grafica

barras lineal

Graficar

Captura total anual por arte de pesca en la pesquería de CGSM



■ ATARRAYA

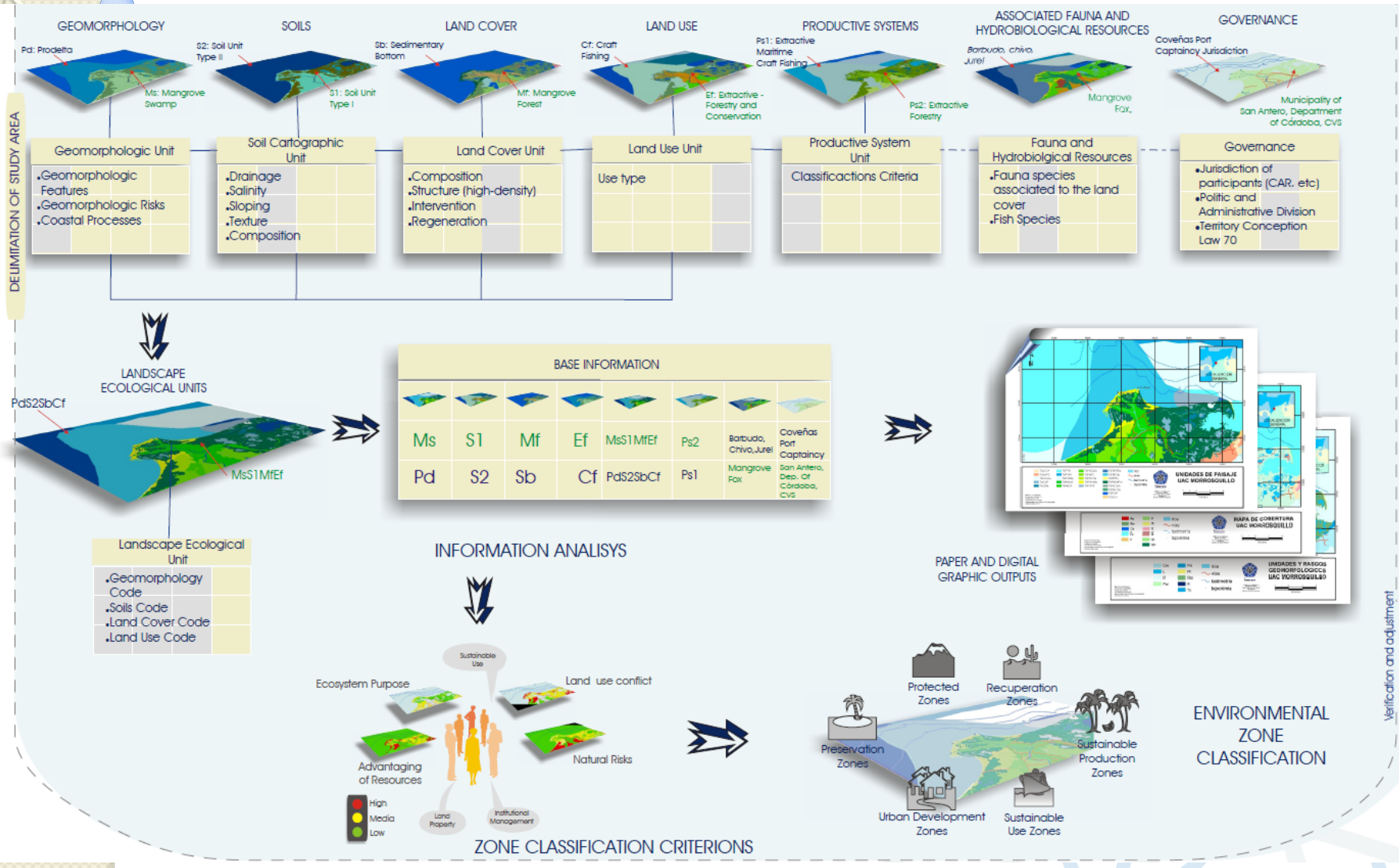
Arte de Pesca	1999	2000	2001	2002	2003	2004
ATARRAYA	1958964.48	2466068.32	924156.43	1242917.77	2000882.22	2465777.85

Sistema de Información Ambiental Marina - Condiciones de acceso y uso - Instituciones participantes: INVEMAR

- SIPEIN is a tool for **fishing management** (CGSM)
- It is based on commercial fishing statistics
- SIPEIN has been used for National Natural Parks



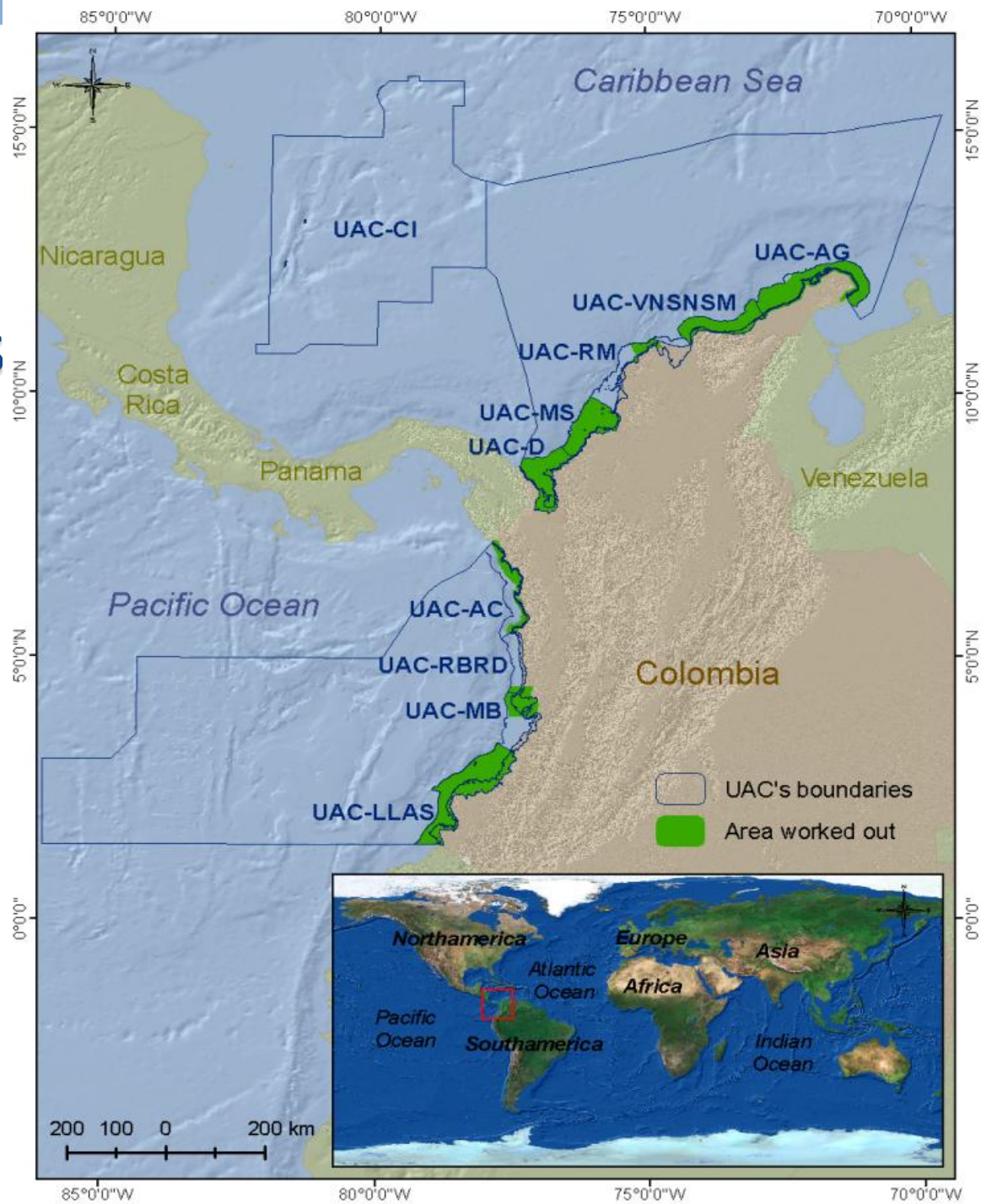
Analysis and integration of data for Integrated Coastal Zone Management MIZC



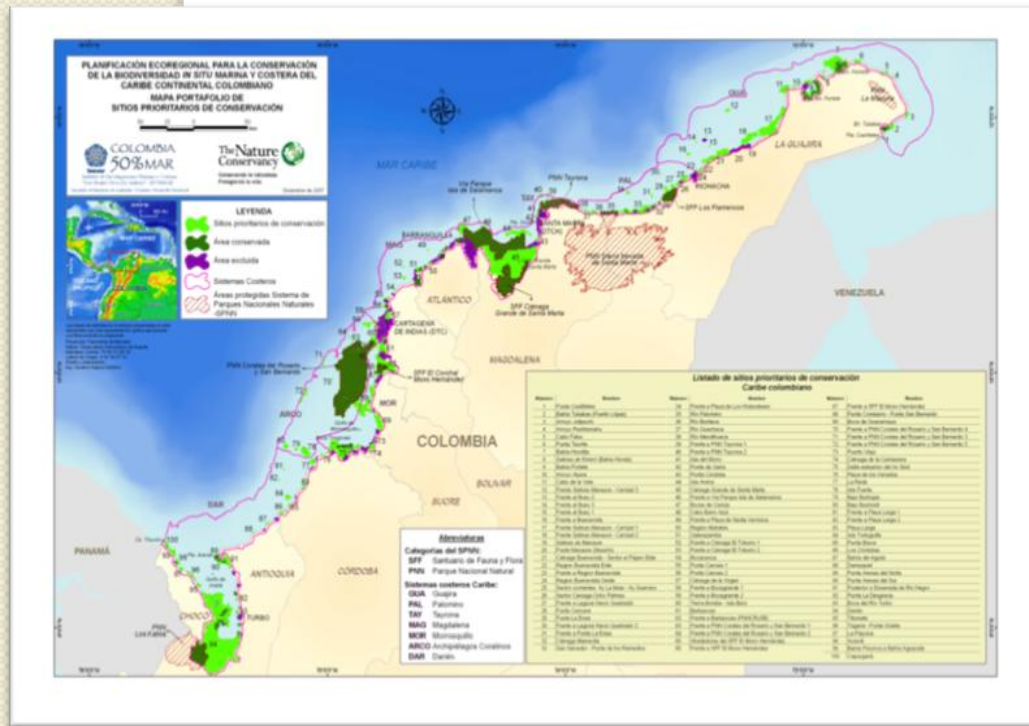


MIZC projects advance

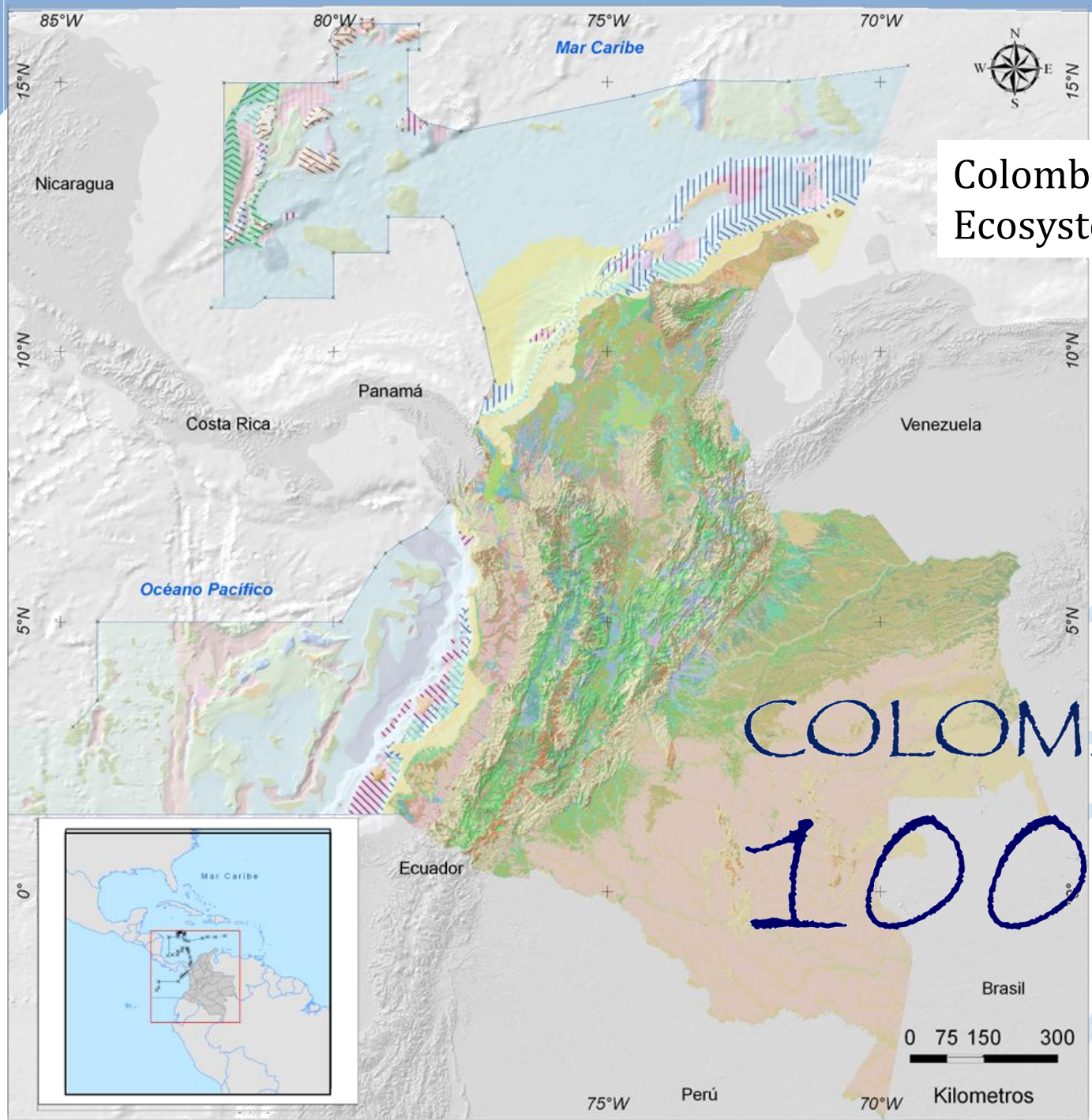
Networks:
RedCostera
Coastman



Other coastal zone planning initiatives



- Design of a representative system of marine protected areas in Colombia
- As a national strategy for the in-situ conservation of marine biodiversity, a national study of marine ecoregions, was carried out to identified high-priority unprotected sites that need immediate conservation attention.



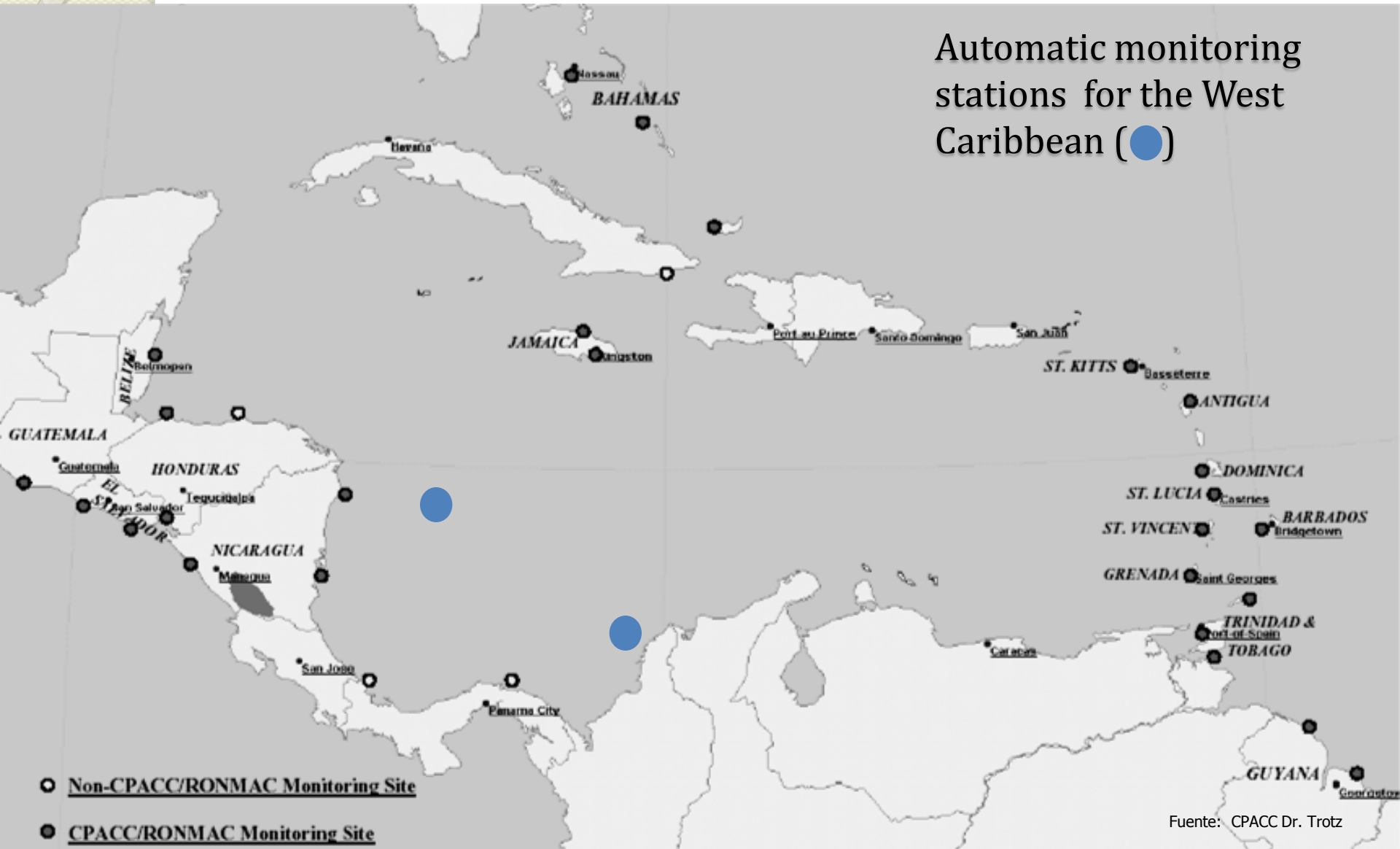
Colombian Ecosystem map

COLOMBIA
100%



Global Ocean Observing System – GOOS – West Caribbean

Automatic monitoring stations for the West Caribbean (●)





Global Ocean Observing System – GOOS – West Caribbean

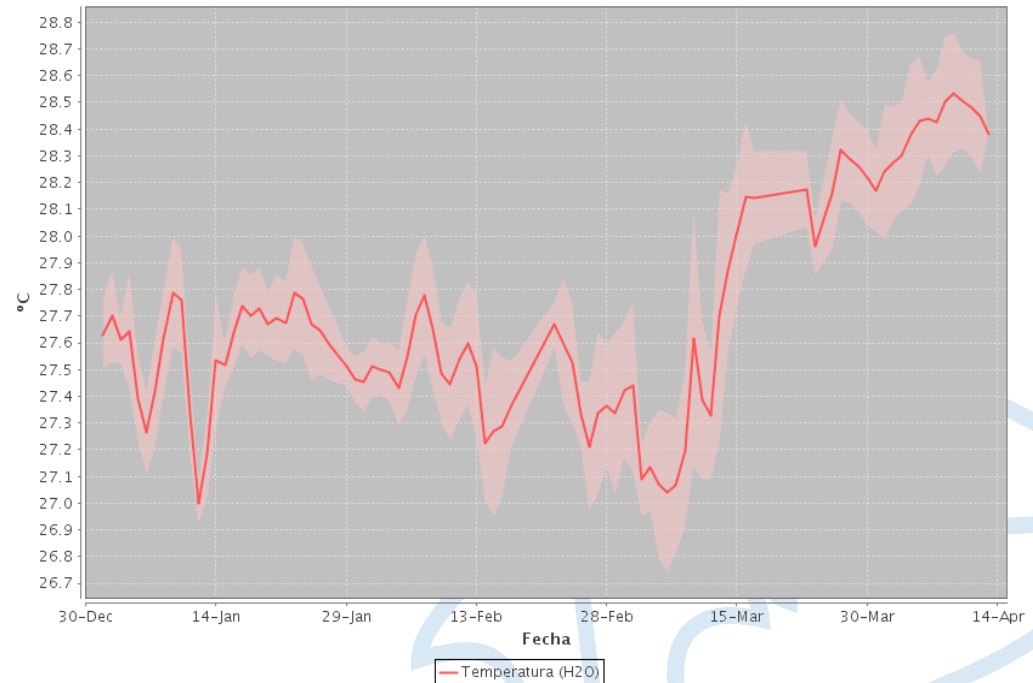
Oceanographic

- Chlorophyll-a
- Conductivity
- Salinity
- Dissolved oxygen
- pH
- Sea surface temperature
- Turbidity
- Sea level

Meteorological

- Precipitation
- Wind Speed Direction
- Humidity
- Air temperature
- Global solar radiation
- Air pressure

Promedios de los valores registrados



Global Ocean Observing System – GOOS – West Caribbean



**Estaciones de
Monitoreo**



**Variables
Monitoreadas**



**Módulo de
Estadísticas**



**Acceso a datos
primarios**



**Documentos
relacionados**

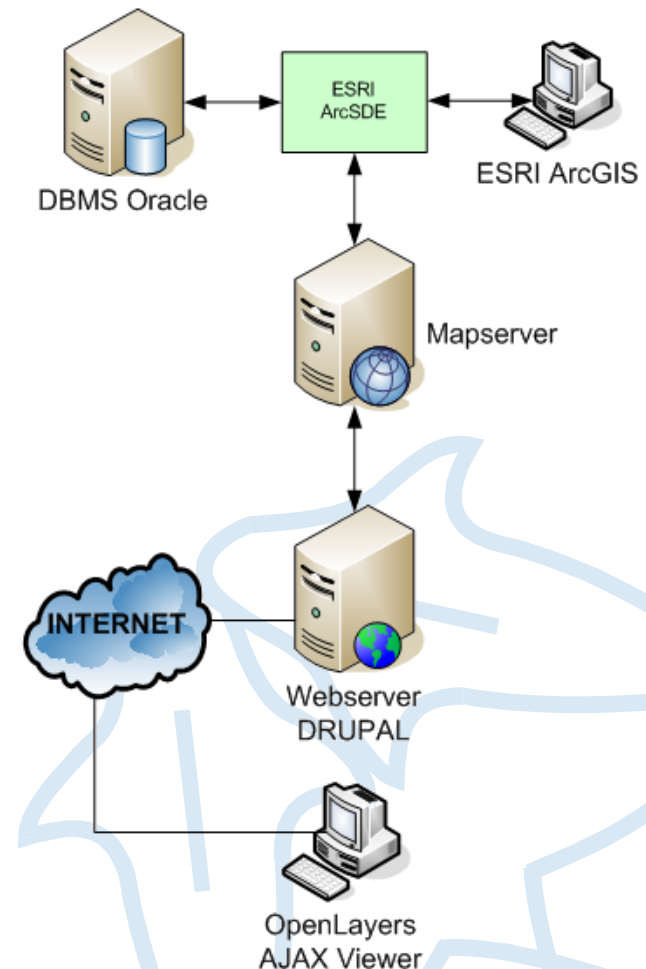


**Metadatos
INAP**

- Integrating information and software tools for the treatment of meteorological and oceanographic data from various sources
- Supports the definition and implementation of specific pilot adaptation measures and policy options for forecasting climate change impacts.

Geoservices

- They offer a tool for geographic information **visualization** open access environment
- **Metadata** catalog for cartographic and remote sensing data
- Standards and **WMS** available in the system and open access
- Area **downloading** pdf's and data tables accessible to the general public.
- **Geotools** to answer specific queries
- Basic and thematic cartography: marine ecosystems, MPA, etc





ACTION LINES





Decision Support System for Marine Protected Area (Caribe and Pacifico)

MarineMAP Decision Support Tool

Data Layers Login Help

32° 54.989', -121° 34.482'

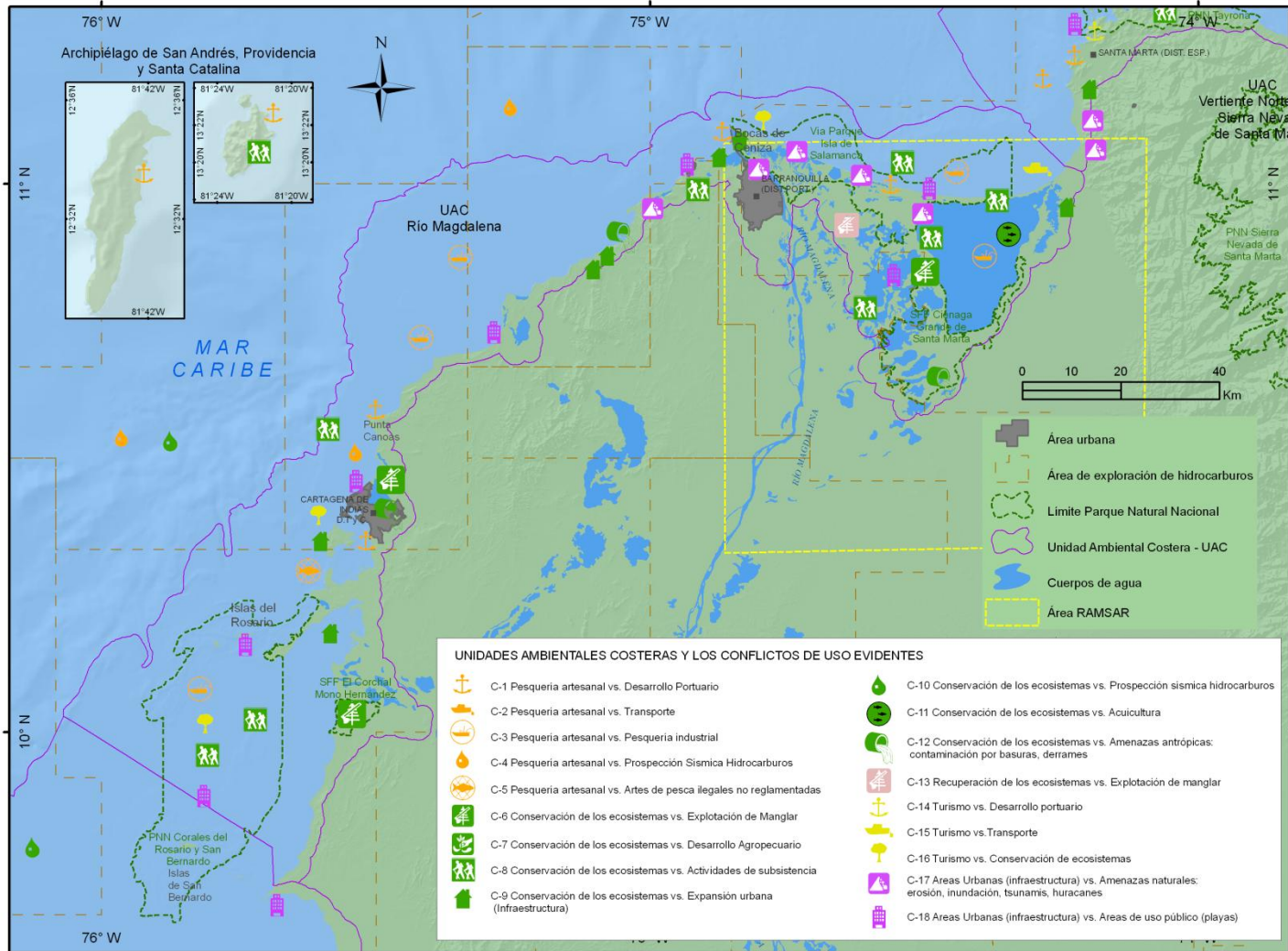
Data Layers

	Name	Category
<input type="checkbox"/>	Satellite/Aerial Imagery	Base
<input type="checkbox"/>	Bathymetry	Base
<input type="checkbox"/>	Nautical Charts	Base
<input checked="" type="checkbox"/>	Study Region	Base
<input type="checkbox"/>	Graticules	Base
<input type="checkbox"/>	Isobaths	Base
<input type="checkbox"/>	Bioregions	Base
<input type="checkbox"/>	Marine Mammals	Biological
<input type="checkbox"/>	Sea Bird Diversity	Biological
<input type="checkbox"/>	Recreational Fishing	Consumptive
<input type="checkbox"/>	Halibut Trawl Grounds	Consumptive
<input type="checkbox"/>	Place Names	Cultural
<input type="checkbox"/>	Surfing Locations	Cultural
<input type="checkbox"/>	Estuaries	Habitat
<input type="checkbox"/>	Nearshore Habitats	Habitat
<input type="checkbox"/>	Hard and Soft Substrata	Habitat
<input type="checkbox"/>	Interim Draft Substrata	Habitat

POWERED BY Google

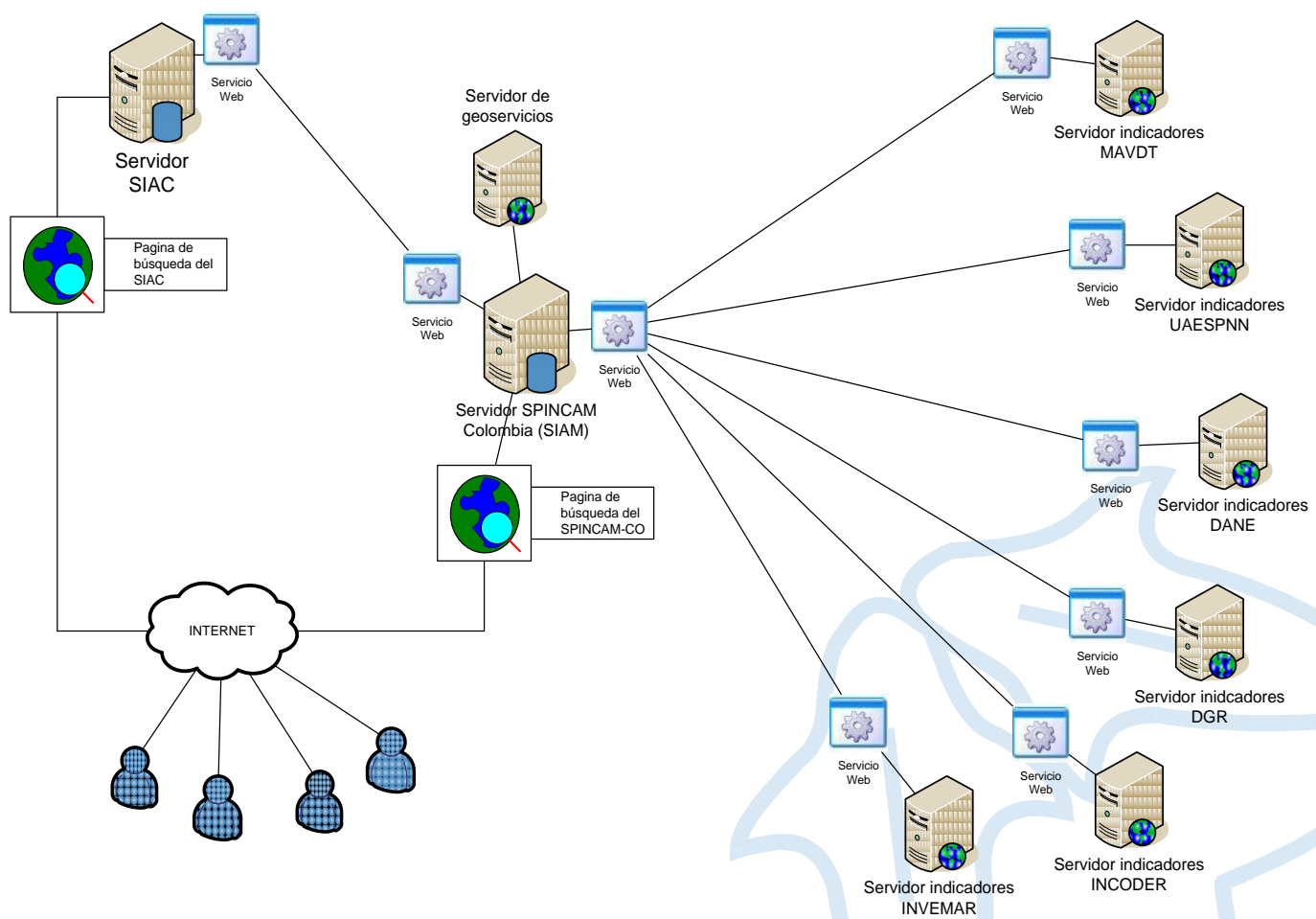
Map data ©2009 Tele Atlas - Terms of Use

Marine and coastal conflict use mapping

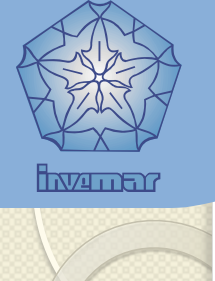




Distributed information systems for environmental and management indicators

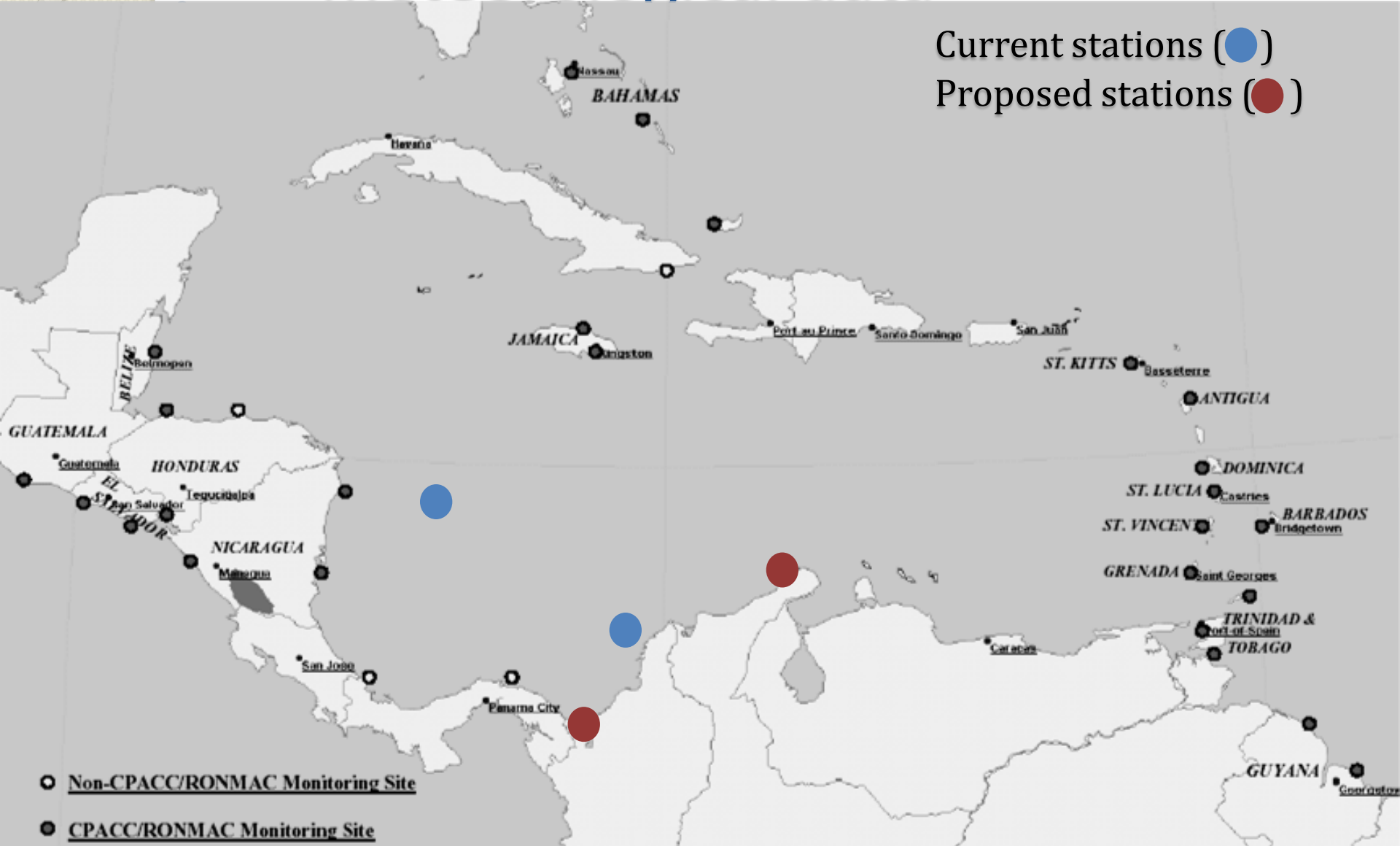


SPINCAM
Panamá, Chile, Ecuador, Perú, Chile y Colombia



Sharing oceanographic and meteorological data

Current stations (●)
Proposed stations (●)



MUCHAS GRACIAS POR SU ATENCIÓN

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