

Status and Trends of Puerto Rico's Coastal and Marine Spaces

...mainstreaming conservation, using best science and building resilience.



PR Coral Reef Program Meeting-Worskshop
San Juan, Puerto Rico
August 2016



Overview

- NOAA's Coral Reef Program: Coral Reef Threats
- Legal and administrative framework: Variables and tools influencing Program development
- Puerto Rico's state of the coast and marine spaces
- Development of Puerto Rico Coral Reefs Conservation Priorities ...an integrated, science-based and participative process
- Towards a new approach to develop Puerto Rico's Local Action Strategies



NOAA Coral Reef
Conservation Program

Coral Threats:

- Unsustainable fishing
- Climate Change
- Land based sources of pollution

Puerto Rico's priorities? LAS? Future projects?
Funding? Expanding partnerships?

Legal and administrative framework: Variables and tools influencing Program development

- US Coral Reef Conservation Act (2000) and relevant Federal laws and regulations
- PR Coral Reef Protection, Conservation and Management (Law 147, 1999) and relevant PR laws and regulations
- PR DNER Administrative Order 2016-01, as amended
- Puerto Rico Oversight, Management, and Economic Stability Act'' or ''PROMESA''

Caribbean Region: Facts and figures

- 75% of coral reefs across the Caribbean currently face medium or high levels of threat, (World Resources Institute, 2011).
- Coral reefs across the region on the verge of collapse, with less than 10% of the reef area showing live coral cover (World Conservation Union, IUCN, 2012).
- 70% of the beaches in the region are eroding at a significant rate, in part due to declining coral reefs.
- All major commercially important fishery species are "fully developed" or "over-exploited", and 70% of reefs across the region are threatened with overfishing (Caribbean Sea Ecosystem Assessment, 2007).

Puerto Rico's coastal facts and figures

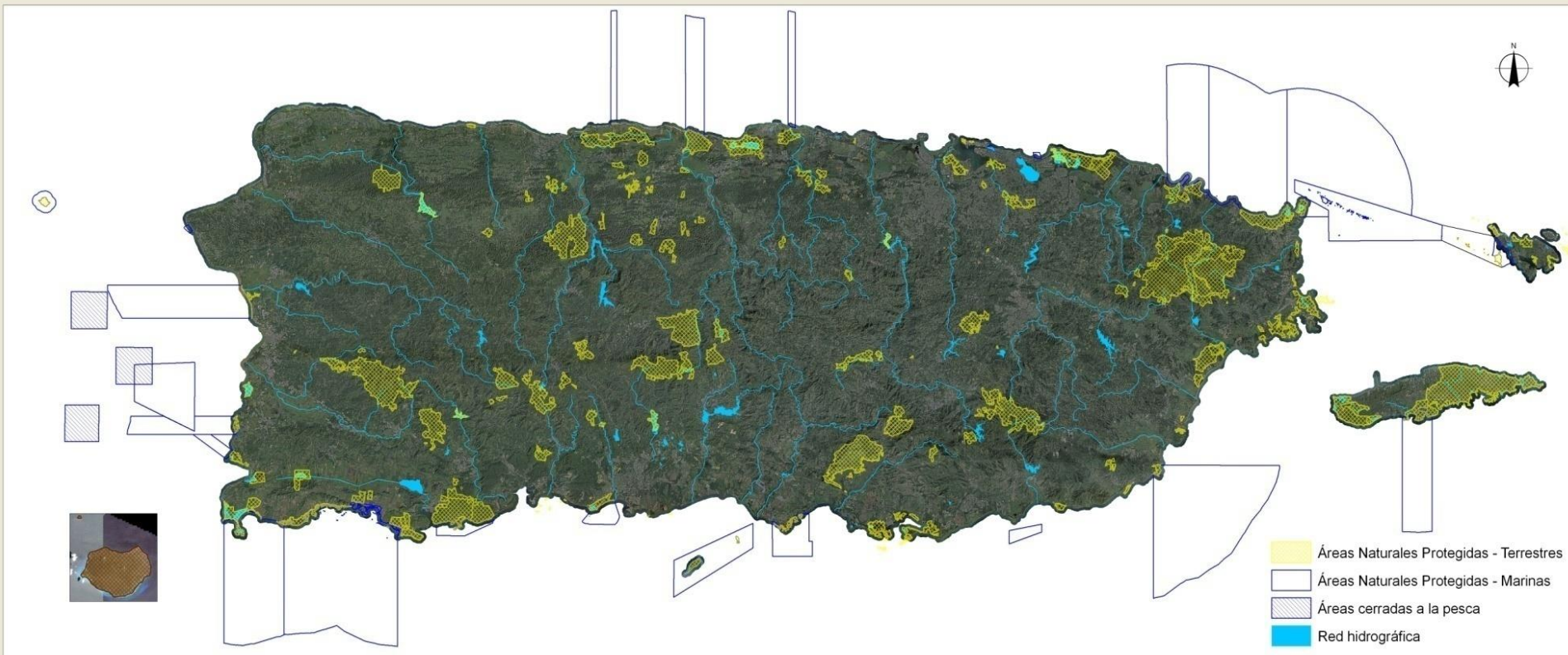


- Population: **3.5 million**
- Coastal population: **2.3 (~60%)**
- Coastal Zone : **$\geq 1\text{Km inland}$ (A=368.3 mi²)**
- Territorial waters: **9 nm (A=5,078.9 mi²)**
- Coastline: **799 mi / 1,225 beaches**
- Built up areas/coastline: **24%**
- Coastal municipalities: **44**
- GDP: **~\$65 billion/yr (45% Manufacture/10% Tourism)**
- Airports: **11**
- Ports: **12**
- Miles of primary roads: **27,982.0 Km (GDB)**
- Power plant systems: **7 (5 public and 2 private)**
- Sanitary infrastructure at coastal zone: **1,080 miles**
- Waste water treatment plants : **13 (coast)**
- Industrial parks: **81 (coast)**
- Protected Areas (Land): **8.7% (2015)***
- Protected Areas (Marine): **27.2%**
- Shallow coral reefs and associated communities designated for protection: **49%**

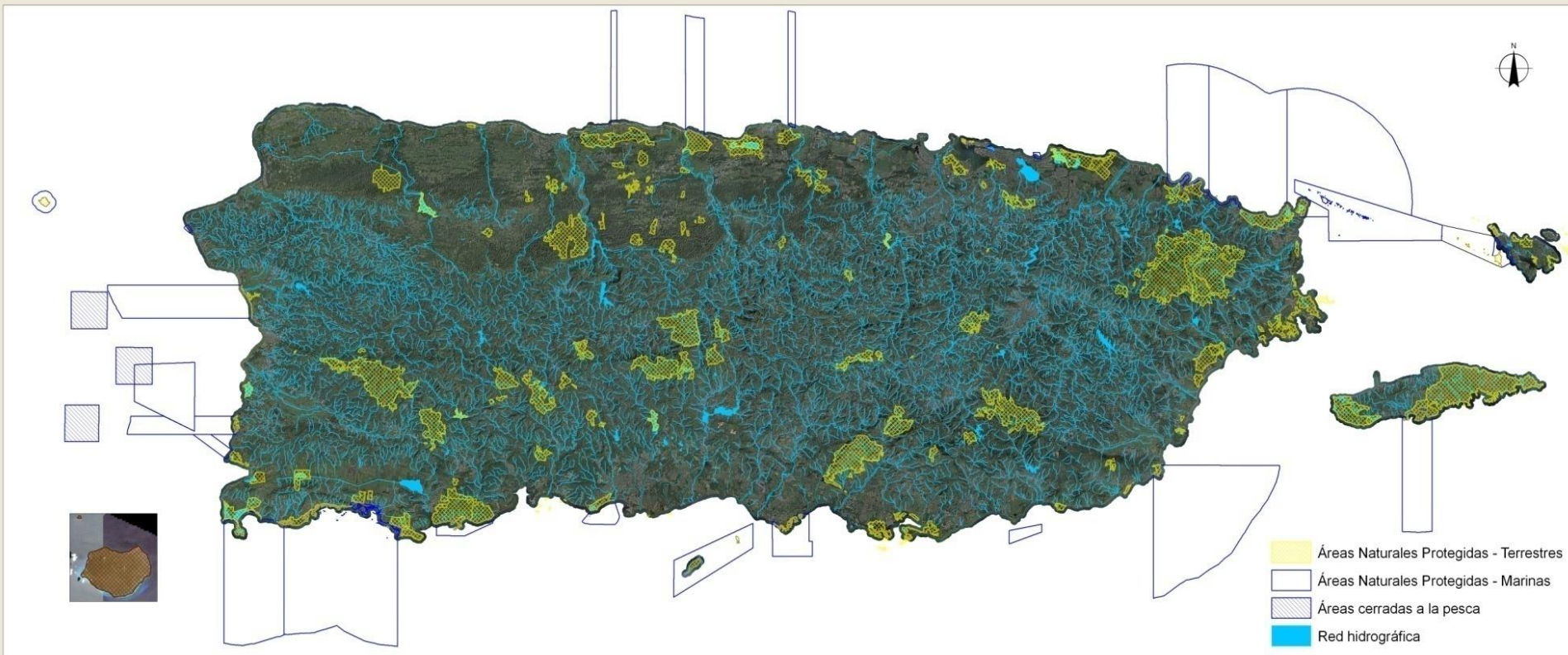
*

CLCC PA-CAT: 16% (2016)

LBS, Biodiversity, connectivity and watershed management



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Shallow water coral reefs and associated benthic communities

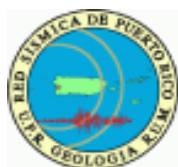


Diagnosis

- Status of Puerto Rico Coral Reefs (2002, 2005 and 2008)
- Local Action Strategies (2011 – 2015)
- Monitoring reports
- Scientists/Researchers publications
- <http://www.coris.noaa.gov/>
- MPA managers
- Commercial and Recreational Fishers
- Resource users
- Other relevant stakeholders
- Surveys, face-to-face meetings, griffin group

Coral Reefs values and services

- Biodiversity
- Fisheries
- Tourism and recreation
- Medicine
- Coastal protection



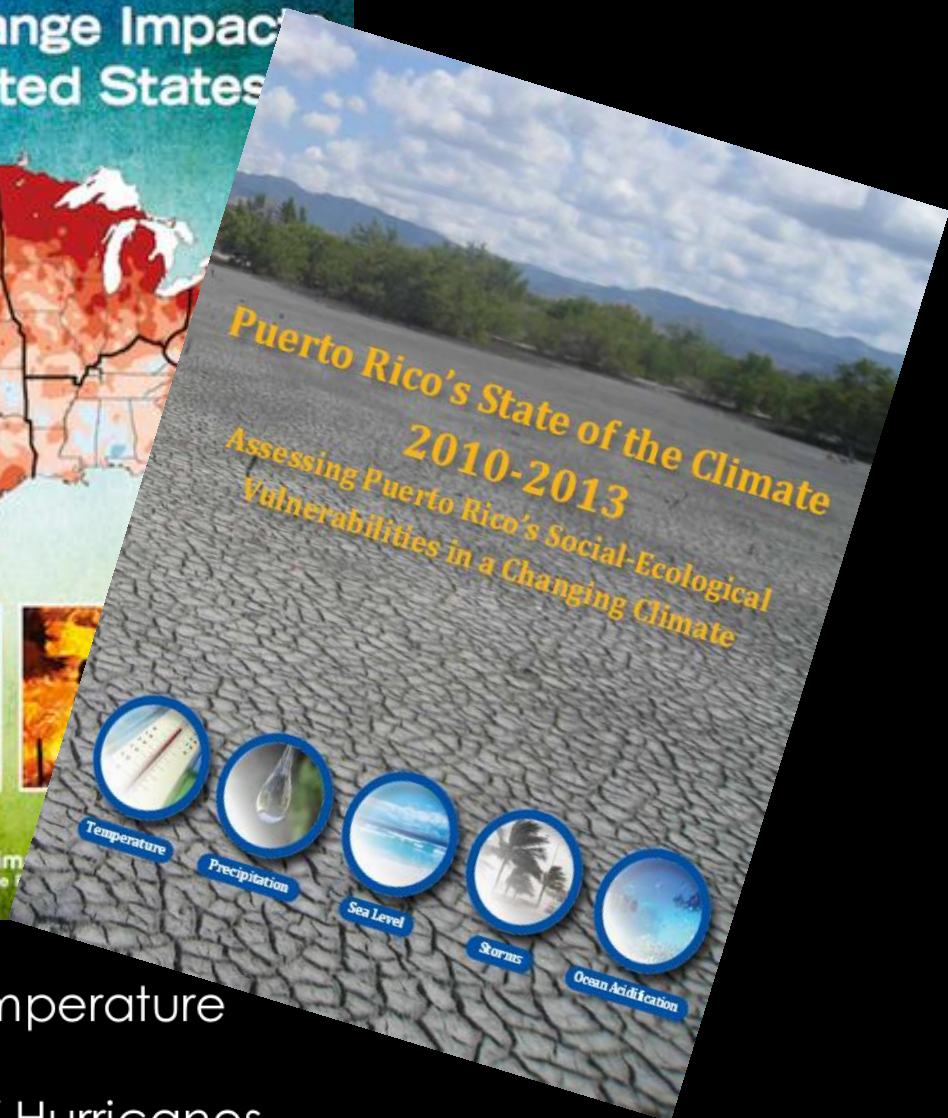
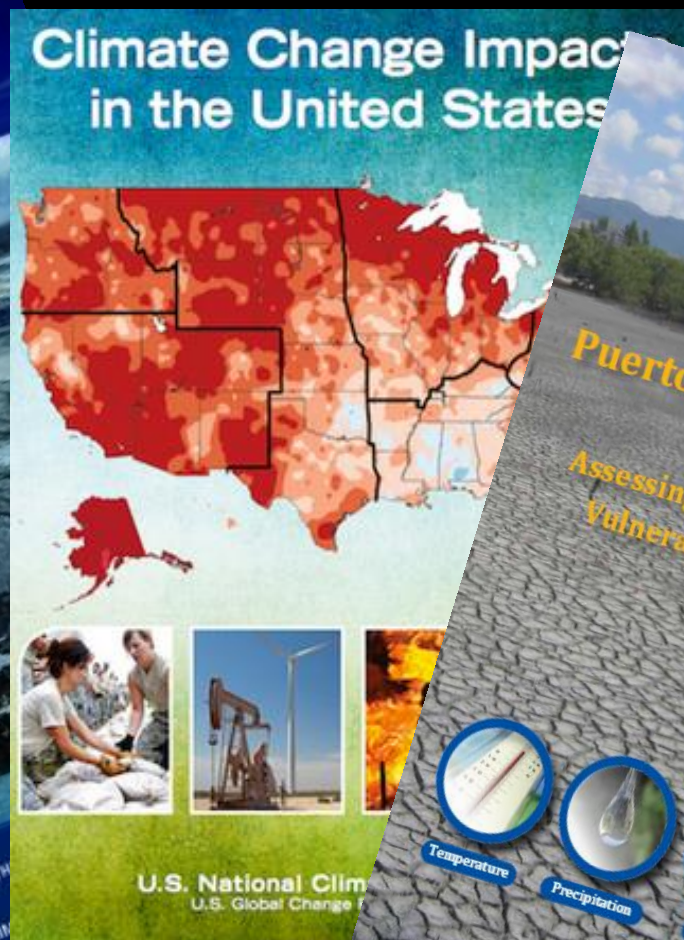
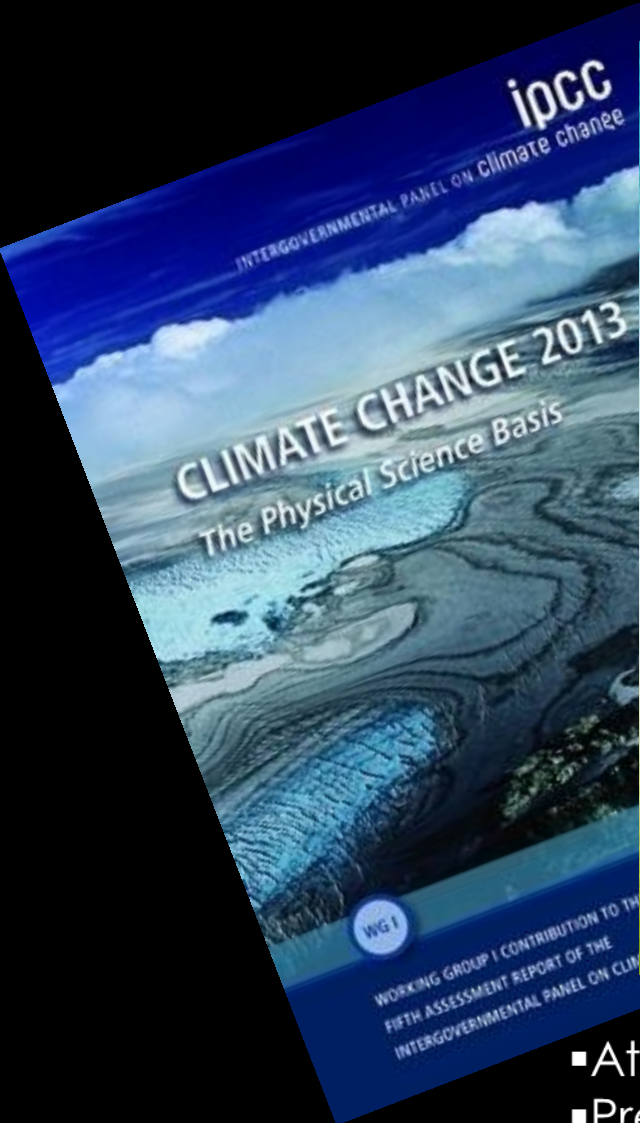
Geophysical and Chemical Scientific Knowledge

Ecology and Biodiversity

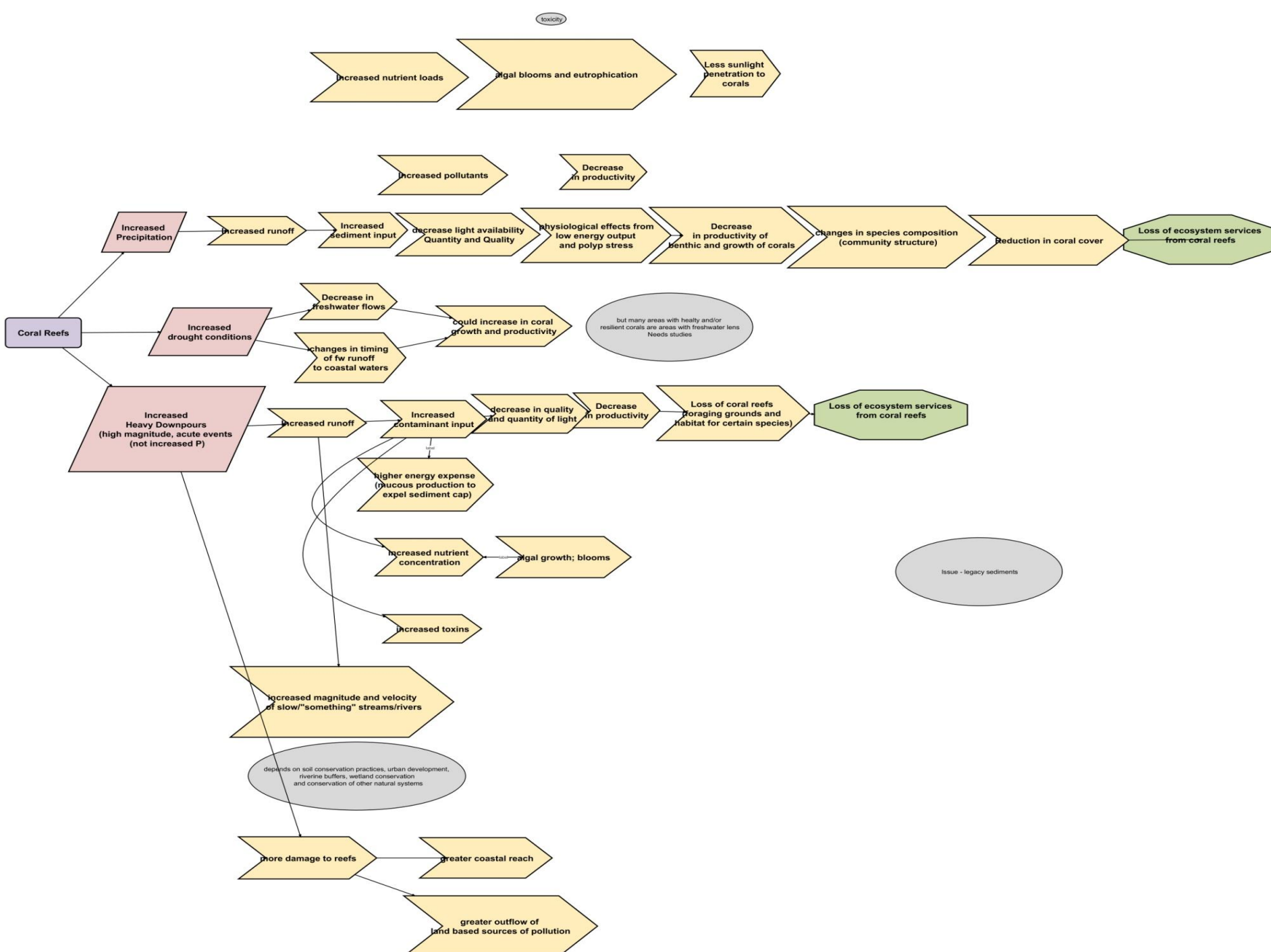
Society and Economy

Communicating Climate Change and Coastal Hazards





- Atmospheric temperature
- Precipitation
- Extreme Events / Hurricanes
- Sea Surface Temperature
- Ocean Acidification
- Sea Level Rise



Coastal Adaptation Strategies



Natural and nature-based strategies

(i.e., wetlands/dunes restoration, artificial reefs, etc.)



Non-structural

(i.e., land acquisition, planned retreat, etc.)



Nature-based / Structural

(i.e., beach restoration, living shorelines, EbA, etc.)



Structural protection

(i.e., revetments, detached breakwaters, levees, etc.)

** change traditional engineering approaches*

Guiding principles

- Understand long-term coastal evolution due to natural and anthropogenic processes
- Recognize extreme Events: flooding, erosion, and the subsequent recovery
- Expand our knowledge of the physical, biological and chemical processes impacting human and ecosystem health

Coastal-Ocean intelligence

...In-place conservation

... Build resilience !!!



PROGRAMA DE MANEJO DE LA ZONA COSTANERA DE PUERTO RICO



REUNIÓN-TALLER SOBRE PRIORIDADES Y RECOMENDACIONES DE ESTRATEGIAS DE ACCIÓN LOCAL DEL PROGRAMA DE CONSERVACIÓN Y MANEJO DE ARRECIFES DE CORAL 2016-2020

AGENDA jueves 11 de agosto de 2016

8:30 - 9:00 am	Registro
9:00 - 9:30 am	Bienvenida / El Estado de la Costa: Tendencias y Proyecciones “Una mirada a la situación actual de nuestros recursos marinos y costeros” Ernesto L. Díaz, Director, Oficina del Programa de Zona Costanera y Cambios Climáticos, DRNA
9:30 - 10:00 am	Programa de Conservación de Arrecifes de Coral de la NOAA y su apoyo al manejo de corales de Puerto Rico Dra. Antares Ramos, NOAA Coral Management Liaison and Coastal Specialist
10:00 - 10:30 am	Avance de las Prioridades del Programa para la Protección, Conservación y Manejo de Arrecifes de Coral (PPCMAC) Tania Metz, Coordinadora, PPCMAC, DRNA
10:30 - 11:00 am	Revisión de las Necesidades del Programa de Monitoreo de Arrecifes de Coral Mariana León Pérez, NOAA Coral Reef Management Fellow, PPCMAC, DRNA
11:00 - 11:30 am	Resultados del Programa de Monitoreo de Arrecifes de Coral Dr. Jorge García (Reni), Consultor
11:30 - 11:45 am	Sección de Preguntas
11:45 - 12:00 pm	Introducción a Trabajos de la Tarde — Tania Metz, Coordinadora, PPCMAC
12:00 - 1:00pm	Almuerzo (incluido)
1:00 - 4:30 pm	Taller / Grupos de Trabajo: Discusión sobre prioridades y estrategias para la conservación y manejo de los arrecifes de coral en Puerto Rico



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