CNMI Monitoring and Mapping Needs

November 18-20, 2008
Honolulu, HI

CNMI Coral Reef Initiative Program

- Coastal Resources Management Office

- Division of Environmental Quality

- Division of Fish and Wildlife

Overview

- Issues

    -Land-based Pollution & Development

    - Fisheries Management

- Overarching Gaps
- Mapping and Monitoring Gaps
- Management Priorities and Questions

Scope

- Fourteen widely separated islands with diverse habitats requiring differing needs
- Limited access to 9 of 14 islands (volcanic and limestone)

ISSUE 1: Land Based Sources of Pollution / Development

- Non-point source:
  - Vegetation to concrete land-use changes
    - Urban runoff
    - Permitted and unpermitted development
  - Agriculture (sediment and pesticides)
  - Septic systems and sewer collection systems (failure)
  - Unpaved secondary roads
  - Feral animals
  - Burning
  - Removal of wetlands
- Point source:
  - Outfalls with insufficient treatment and improper discharge location (i.e. lagoon contamination, overflows in critical habitat-mangroves)
  - Sewage collection system concerns
  - Confined animal facilities

ISSUE 1: Land Based Sources of Pollution / Development
Overarching Gaps

- Agreement needed on priorities, questions and methods that drive science (NOAA, other federal agencies, and jurisdiction).
- Fund science that jurisdictional and federal partners need at equitable levels
- Data visualization and training for managers.
- Training for enhanced use of decision support tools. (Outputs of LAS/CAPs, big picture?); How do they lead to additional funding?
- Clarify access issues for data (i.e., format, time)

ISSUE 1: Land Based Sources of Pollution / Development <u>Mapping Gaps</u>

- Refine benthic habitat maps, with close coordination with CNMI agencies, 0-20 m. Integrate with local data and bathymetry.

- Nearshore surface currents (vectors at improved spatial resolution).

- Gather, create new, and enhance existing watershed GIS layers in a central location.

- Intensive site specific projects: need mapping to look at successes (e.g. revegetation, sewage discharges, etc.)

- Repetitive acquisition of appropriate remote sensing imagery (hyperspectral) to track land use/cover, lagoon vegetation, and water quality (change analysis)

ISSUE 1: Land Based Sources of Pollution / Development Monitoring Gaps

- Project-specific monitoring tied to priority projects addressing non-point source pollution – current monitoring $ spread thin

- Watershed data: flow, quantity and quality of water, sources along drainages, zone of influence of specific drainages on coral reefs.

- Basic water quality data – CTD, turbidity/TSS, DO, chlorophyll (varying spatial and temporal resolution)

- Surface current and wave data (combined with mapping products)

ISSUE 1: Land Based Sources of Pollution / Development Monitoring Gaps

- Assessment of management, policy, and BMP (database)
- Models: rates of erosion from unpaved roads, pollutant discharge, rain events (surface currents, development & ground-truthing)
- All data at a scale relevant to management needs in an appropriately accessible format

ISSUE 2: Fisheries Management Goal

- Determine sustainable harvest levels of fishery resources including fish and invertebrates.
- Increased effectiveness of the enforcement of CNMI fisheries regulations and laws.
- Determine what fishing and harvest methods provide the best opportunity for achieving sustainability.
- Examine the variability in fish and invertebrate harvesting between the various ethnic groups living in the CNMI
- Evaluate the potential impacts to fisheries resources and limitations to fishing access of increased military usage in the CNMI

ISSUE 2: Fisheries Management
Data Gaps

- Life history data for use in generating fishery stock assessments on important commercial and recreational fish and invertebrates in determining Annual Catch Limits (ACLs). Need research cruises and/or financial support to collect data such as:
    - Age & Growth
    - Size at Maturity
    - Seasonality of Spawning
    - Stock delineation

ISSUE 2: Fisheries Management
Data Gaps

- Expand scope of RAMP cruises or provide other research platform(s) or financial support to include fisheries independent surveys of primary coral reef food fish species to obtain estimates of standing stock biomass
- Expand creel survey to all 3 islands (Saipan, Tinian, Rota); provide dedicated staff to oversee and collect the data
- Funding for data collection and management of fisheries not captured by creel surveys

ISSUE 2: Fisheries Management
Data Gaps

- Elucidation of the functional ecological relationships of coral reef fish
- Elucidation of the impacts of harvest on ecosystem function and community structure
- Provide training and funding to improve quality of law enforcement of laws and regulations governing the management of coral reef resources

Management Priorities/Questions

- Extent of Watershed -terrestrial influence in marine environment (quantity/quality)

   -What is the relationship between land based pollution and reefs?

   -What are the priority watersheds to focus on?

- Fish and Coral Population (connectivity)

   -Where would the most effective areas be

   to support enhanced conservation?

- Ecosystem Link between trophic groups

   (understanding life history and stock assessment)

   -If functional groups are removed, how does

   it impact the whole system?