

Hawaii

- Agencies Interviewed
 - HI Division of Aquatic Resources
 - Papahānaumokuākea MNM (NOAA)
 - Environmental Protection Agency
 - National Park Service
 - Castle Foundation
 - The Nature Conservancy
 - Community Conservation Network
 - Hawaii Institute of Marine Biology
 - Western Pacific Regional Fishery Management Council
 - USFWS (not interview on Hawaii specific issues)

Hawaii Context

- Largest jurisdiction in terms of human population (and coral reef habitat)?
- Significant differences in management regime, level of habitation, and primary threats between Main Hawaiian Islands and Northwestern Hawaiian Islands
- Geographic isolation – high levels of endemism, fewer numbers of reef species

Issue 1: Fisheries Management: Background

- Decline in fisheries
 - Lack of basic information to determine status and sustainability of fish stocks
 - Known decline of certain target species
 - Unknown response of resource to fisheries management actions
 - Unknown extent of fishing pressure (e.g. recreational)

Issue 1: Fisheries Management: Information Needs

- Broad scale status and trend data on fish resources, target fish and reef [habitat] condition
- Stock assessments, life history information
- Fishery independent and fishery dependent data – recognize shifting baselines
- Monitoring fishing activities within management area boundaries (e.g. National Parks)
- How effective are MPAs, gill net bans, etc.
- Monitoring information to designate closed areas
- Effectiveness of DOCARE (and other responsible agencies) in enforcing regulations
- Economics, creel surveys
- Algorithms for estimating predator biomass
- PMNM – fishing pressure is decreasing (but opportunity to look at potential recovery)
- Link between fisheries and reef health (Managing herbivores)
- Understanding natural variability (MHI and NWHI)

Issue 2: Water Quality/LBSP: Background

- Down-stream effects of land use on reefs
- Sources of freshwater and pollutant
- Control of pollutants
- Thresholds for permitting to protect marine resources
- Watershed prioritization
- Largely not an issue in PMNM

Issue 2: Water Quality/LBSP: Information Needs

- Condition of water-quality statewide
- Ability to rank/rate different coral reefs in terms of health and value and use that to influence management decisions.
- Providing threshold values for water quality management.
- Biocriteria
- Sea/Landscape view of water quality and related problems.
- Historical information about presence of wetlands, coral cover (drainage, accumulation patterns)
- Understanding cumulative impacts
- Mapping of freshwater sources

Issue 3: Invasive Species: Background

- Invasive species (including algae) overgrowing coral in locations around MHI
- Lack of understanding about where new invasions (existing or new species) might occur, where existing ones might spread
- Understanding the sources/causes/drivers

Issue 3: Invasive Species: Information Needs

- Range of alien species
- Rapid response – monitor ship harbors to guard against spread
- Early warning tool for alien species, based on biological indicators
- Information on the causes and drivers
- Effective management options

Issue 4: Climate Change: Background

- Threats to habitat, protected species
- Questions about what can be done at local level

Issue 4: Climate Change: Information Needs

- Models for sea level rise, climate change
- Ecological forecasting for ocean acidification
- What are the effective management options at the local level
- Effects of climate change on endangered species, economy, and ecosystem services
- Basic parameters of nearshore waters, threshold values
- Heat stress
- Storm frequency

Issue 5 - Natural Variability/Ecosystem Health

- Natural levels of disease
- Reef health and biodiversity
- Understanding ecosystem function and structure
- Species recruitment
- Connectivity

Cross-cutting

- Management questions guide mapping and monitoring rather than inverse
- Monitoring to get at causal links
- Monitoring to assess results of management actions and increase political will with credible data
- Lack of basic information (life history of reef resources, water-quality throughout state)
- Monitoring at fine scale (especially nearshore) to understand, effect change, get involvement at community level
- Monitoring at large scale to understand threats, impacts to local initiatives
- Easy, digestible, discoverable access to data/analysis/results
- Coral Disease

Focus Issues

- Understanding ecosystem function, structure and natural variability
 - Fish population
 - Water quality
 - GCC
- Causes of local decline in marine ecosystems (site based)
- Role of water quality on reef ecosystem health sources; cumulative impacts of land-use on marine ecosystems
- How is GCC going to change community structure? (related to first bullet)