

GUAM

JURISDICTION REPORT 2007

**USCRTF MEETING
AMERICAN SAMOA
20 -24 AUGUST 2007**

Guam Comprehensive Monitoring Strategy

- Inter-agency partnering effort to share limited resources and information.
- Hired a marine biologist to coordinate the inter-agency group to monitor Guam's corals and compile reports.



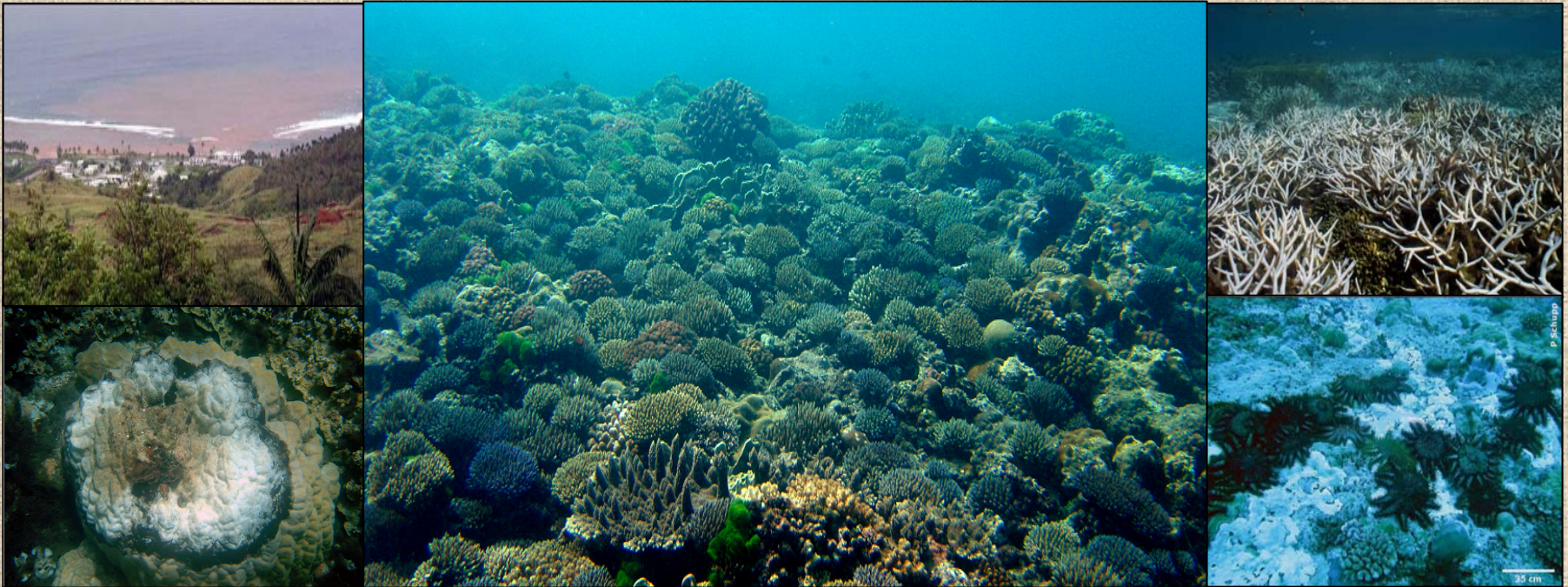
State of the Reef Report - Guam



NOAA Status of the Reefs Report – Guam: Status and Preliminary findings

Report status

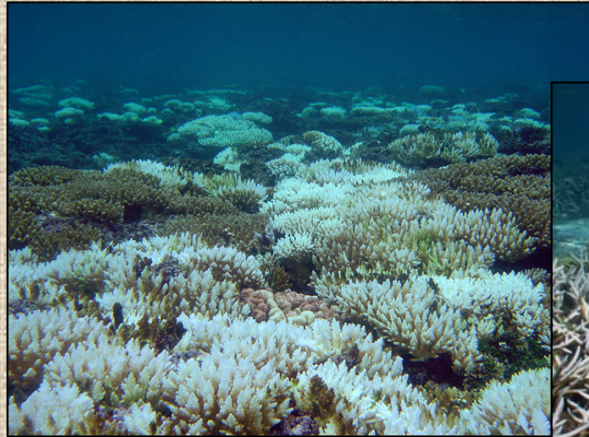
- Majority of reports from various contributors have been received; still waiting on a couple major submissions
- Working draft has been provided to contributors (and others) for review
- Will be working with reviewers over coming weeks to summarize results, provide recommendations
- The following slides provide some highlights of the upcoming report...



NOAA Status of the Reefs Report – Guam: Status and Preliminary findings

Coral bleaching

- Historically, few recorded events
- 2 events within last year: Sept./Oct. 2006 and August 2007
- Little quantitative data, but numerous species affected at locations around the island
- Some mortality observed in '06, still watching corals that are currently bleached



Reef margin at Gun Beach, Tumon MPA, Oct '06

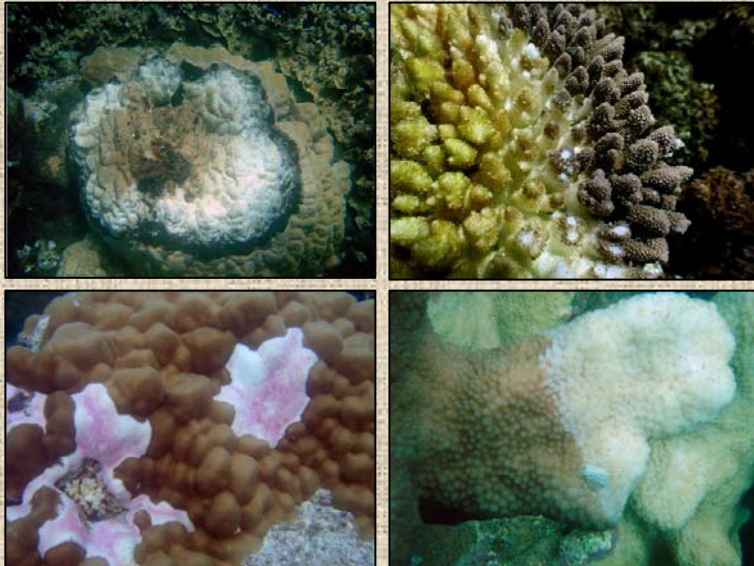


Staghorn coral at Ypao Beach, Tumon MPA, Aug '07

Coral Disease

Results of recent coral disease assessment (UOG Marine Lab):

- Numerous coral diseases found on Guam's reefs (e.g., white band, black band, brown band, ulcerative white spots, growth anomalies)
- 10-15% coral exhibited signs of disease at 6 out of 10 sites
- Results suggest that disease may be causing at least partial mortality in a significant number of colonies on these reefs



NOAA Status of the Reefs Report – Guam: Status and Preliminary findings

Coastal pollution/water quality

Nat'l Park Service sediment/coral recruitment study

- Sedimentation collection rates among highest in literature
- Low coral recruitment rates across Asan Bay (< 2 per m²)

1979: 0.53 coral recruits per plexiglass fouling panel
2004-06: 0.021

Dept. of Agriculture – Forestry data

- Average of over 700 fires have been reported annually between 1979 and 2006
- 115,000 acres have been burned during this time period

Coastal development

- Current population estimated at 173,500 - expect additional 40,000 military personnel/dependents, 10-15000 construction workers, + more
- Relatively few large projects (road construction, hotel/condo construction) in recent years, but...
- Anticipate significant increase in development associated with military expansion and continued increase in tourism



Sediment plume at Asan Bay



Gun Beach Development design

NOAA Status of the Reefs Report – Guam: Status and Preliminary findings

Fisheries

- DAWR inshore creel data indicate steep decline in the catch per unit effort between 1985-2000 (see upper graph) – more recent data not yet available

- Surveys indicate that large reef fish are conspicuously absent around island

'03 and '05 NOAA MARAMP Data – Fish tows and REA surveys

- Fish diversity and abundance were relatively low (see lower graph)

- Medium-large fish were very rare along the leeward (west) side of the island

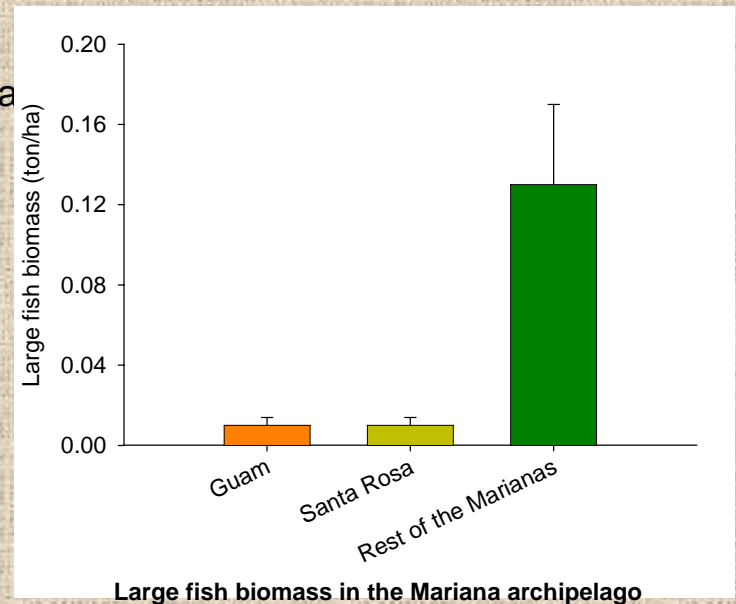
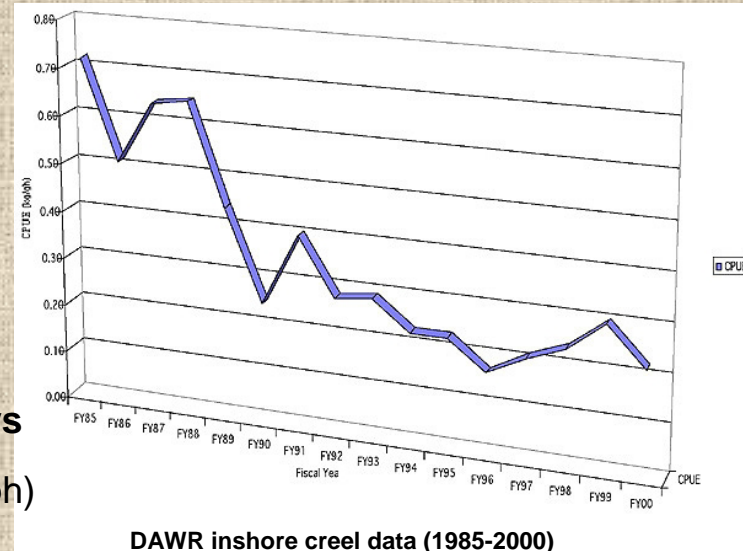
- Only two sharks were observed; no napoleon wrasse or bumphead parrotfish were observed

MPAs

- 5 marine preserves in place since 1997; not fully enforced until 2001

- Reef fish density increased by >100% in Piti Bomb Holes and Achang Reef Flat marine preserves within 3 years of protection

- Declines in density of 29% and 4%, respectively, at adjacent unprotected sites



NOAA Status of the Reefs Report – Guam: Status and Preliminary findings

Crown of Thorns

- Widespread, active outbreaks over last few years
- Report includes results of recent COT surveys by Dr. Peter Schupp and his student Ciemon Caballes
- Survey results, as well as others' observations suggest an on-going, large-scale outbreak with significant mortality at many sites



Tourism/recreational impacts

- Number of tourists grew from 910,000 visitors in 2003 to 1.23 million in 2005
- Large numbers of Intro Scuba, Discover Scuba, Snuba, Sea Walker, Scuba Bob customers (exact numbers unknown)
- Observations suggest impacts to reef (broken/worn coral heads, altered fish behavior, trampled sea grass) – but no quantitative data
- Impacts mostly concentrated at small areas within MPAs – but happen to be relatively healthy areas (at least for now)

NOAA Status of the Reefs Report – Guam: Status and Preliminary findings

The Report will also include:

- Description of current management actions
- Conclusions/Recommendations

Other highlights

- MPA adult fish spillover study (UOGML)
- Coral reef economic valuation study (UOGML)
- GCMP Study – Effectiveness of public outreach
- GEPA NPDES permits (e.g., power plant thermal discharges, water treatment plant effluent)
- GEPA PCB contamination monitoring
- Additional MARAMP data (coral, algae, invertebrates, oceanographic, mapping)
- Fouha Bay sedimentation/coral community study (Teina Rongo – UOGML)
- WERI study on algal blooms in Tumon Bay
- WERI study on impacts of Ordot dump leachate on Pago Bay marine community
- Year 1 results of new long-term monitoring program (UOGML)
- Guam Coastal Atlas



LAS BRIEFING - GUAM

Guam's Land-based sources of pollution, Lack of Awareness, Fishery Management, and Recreation Use and Mis-Use LASs are nearing completion.

The Guam CRI committee will be re-evaluating the priority of projects yet to be funded and conducting an overall review of all the LASs, in a workshop scheduled for Fall 2008.



Guam LAS Briefing contin.

- The newest LAS: coral bleaching and disease and global climate change is currently underway.



NEW INITIATIVES

- Sustainable Financing
- New LAS:

**DEPARTMENT OF DEFENSE
DEVELOPMENT AND
RELATED IMPACTS**

Example: Apra Harbor



Philippine Sea

Luminao Reef

Glass Breakwater

Apra Harbor

Commercial Port

Drydock Island

Orote Peninsula

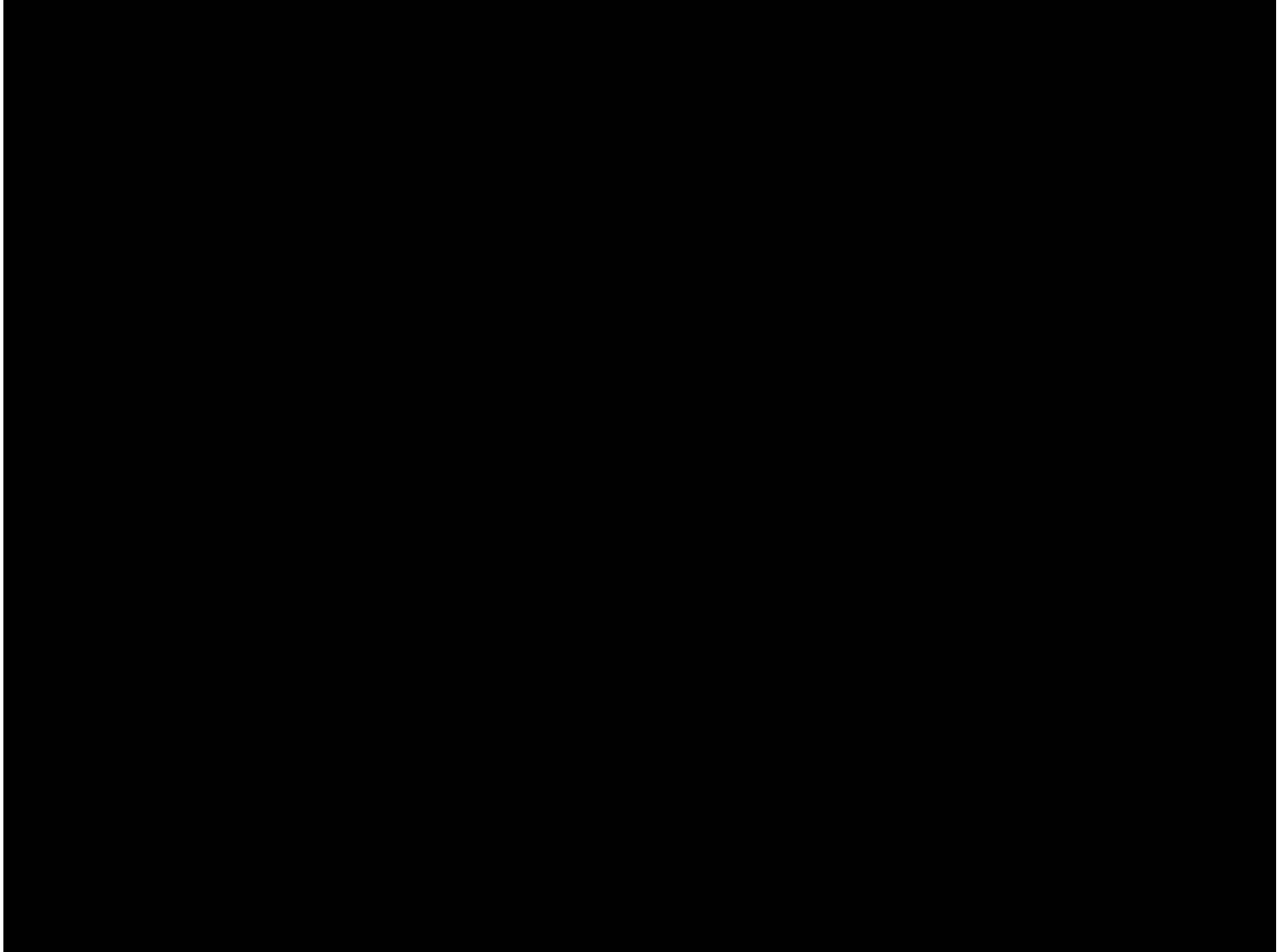
Guam Shipyard

Polaris Point

Inner Apra



DEPARTMENT OF DEFENCE
DEVELOPMENT AND RELATED
IMPACTS



Bureau of Statistics and Plans -
Guam Coastal Management Program
Guam EPA

Department of Agriculture -
Division of Aquatics & Wildlife Resources
Division of Forestry and Soils Resources

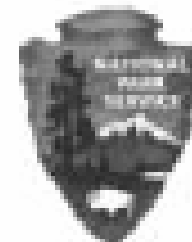
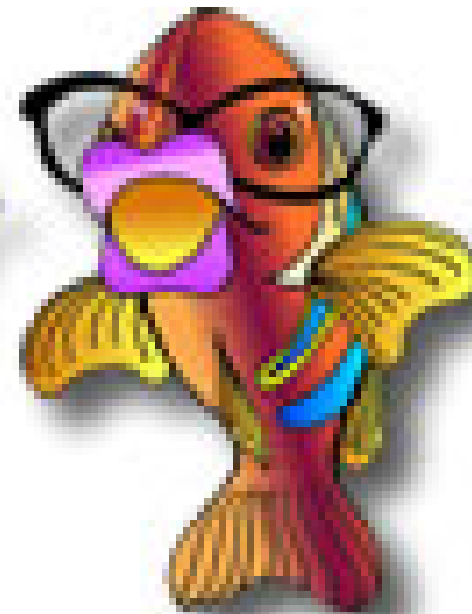
UOG Marine Laboratory
Guam Community College
The Nature Conservancy
GWHS Marine Mania
Office of the Governor
Department of Parks and Recreation
Department of Public Works
Mayors' Offices

(Tamuning, Dededo, Umatac, Agat,
Merizo, Inarajan, Umatac, Yona)

UnderWater World, Inc
Guahan Waste Control
Micronesian Divers' Association
US Coast Guard Auxillary
US Navy
Andersen Air Force Base
Foremost Crystal Clear
Balli Steel Guam
Ambros inc.

Pacific Waste Systems
Guam Visitors' Bureau
Pacific Daily News
Sunny Wholesale
Triple Star Recycling
Lagu Sanitation
Tri Vision Media
Fisheye Marine Park
Guam Cell Communications
Coca Cola Beverage Company
Trash Co.

"Our Coasts,
Our Future"



PROTECT OUR REEFS!

LEAVE NOTHING BEHIND! TUMON BAY IS ONE OF GUAM'S FIVE MARINE PROTECTED AREAS WHICH HAS BEEN SET ASIDE TO PROTECT AQUATIC ANIMALS AND CORAL REEF HABITATS.

LEARN MORE. www.bspguam.com



OUR COASTS. OUR FUTURE.



Photo: © Tim Rock. Design: MVD Studio

Si yu'us ma'ase!