

# Marine Debris

## Marine Debris Stresses on Coral and Coordinated Actions towards “Stress Reduction”



Coral Reef Task Force Meeting

Caribbean Region Highlights Special Session

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# Marine Debris

## Coral Impacts from Marine Debris

- Marine debris can scour, break, entangle, smother, and otherwise damage coral reefs. Most impacts result from derelict fishing nets, monofilament, and traps/pots.
  - *Nets: Since 1996, 640 metric tons of derelict nets were recovered from the NWHI*
    - Nets recovered had 20% of their weight attributable to broken coral fragments (Boland, unpub. data)
  - *Monofilament: Oahu fishing site study area showed 65% coral colonies had monofilament on the surface, and positively correlated with % dead coral (Yoshikawa, T. and K. Asoh, 2004).*

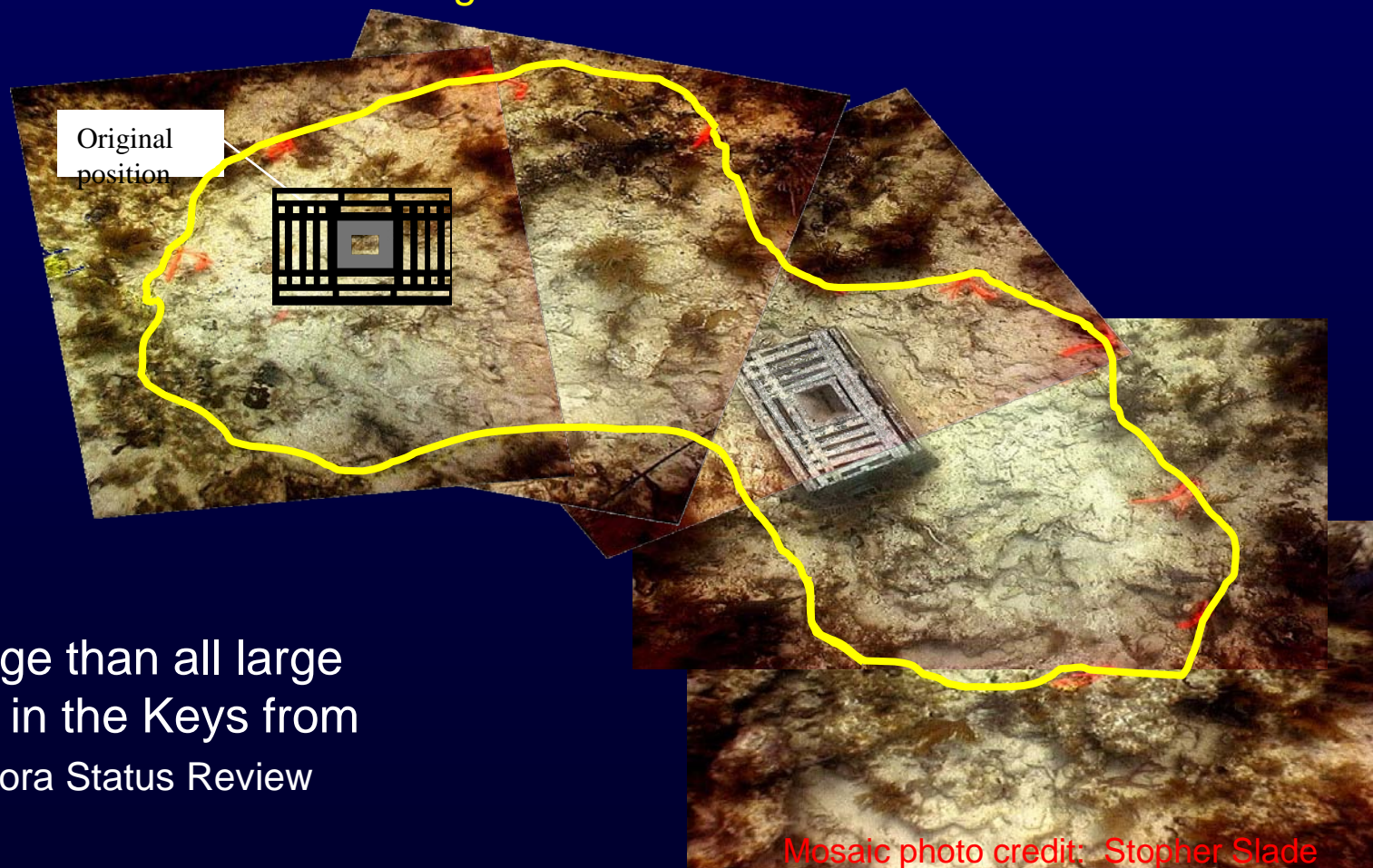




# Marine Debris

## Coral Impacts from Marine Debris cont.

- Traps/Pots: Florida
  - Lobster fishery ~100,000 traps lost annually
  - Each trap moves during wind events (winds >17 knots for  $\geq 3$  days) resulting in  $3.4\text{meters}^2$  (Lewis et al., 2009 and Pers comm. Tom Matthews)
  - ~340,000  $\text{meters}^2$  of habitat of damaged each wind event



10x more habitat damage than all large ship vessel groundings in the Keys from 1973-2004 (Atlantic Acropora Status Review Document, 2005)



# Marine Debris

## Coral Impacts from Marine Debris cont.

- Secondary impacts from abandoned derelict vessels
  - Remote tropical coral ecosystems are iron-limited
  - Iron leaching from wrecks acts as a nutrient
  - Causes an ecosystem “phase shift”
  - System shifts from reef building corals to algae or other organism



Photo credit: USFWS



Photo credit: USFWS



Work TM, Aeby GS, Maragos JE (2008) Phase Shift from a Coral to a Corallimorph-Dominated Reef Associated with a Shipwreck on Palmyra Atoll. PLoS ONE 3(8): e2989. doi:10.1371/journal.pone.0002989



# Marine Debris

## Research & Assessment Activities

- Derelict fishing gear workshop, FKNMS, July 2007
  - Highlighted the need for an assessment of DFG in the Caribbean
- Derelict fishing gear assessment, September 2009
  - 14 states and territories participated in survey assessment
  - Fishermen and academics highlighted the issue
  - Most resource managers and the public are not aware of the problem or impacts of DFG



Photo credit: Tom Matthews



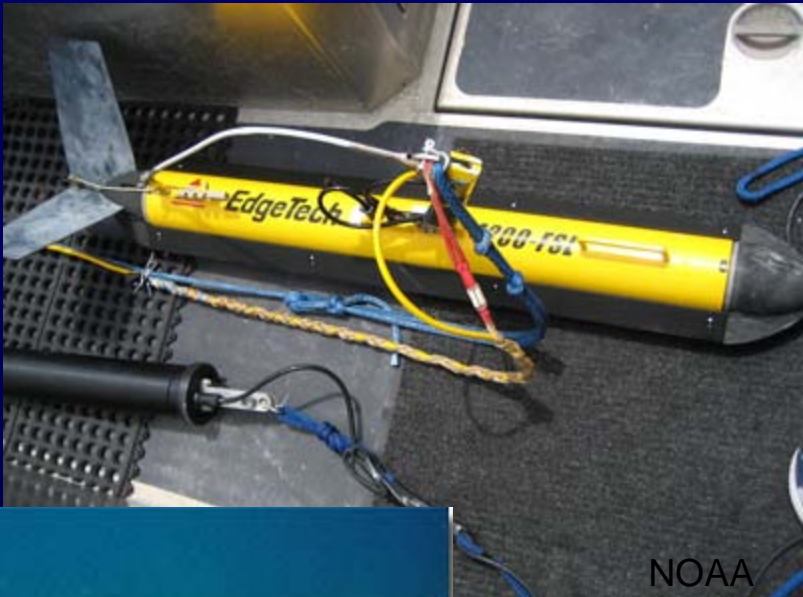
Photo credit NOAA



# Marine Debris

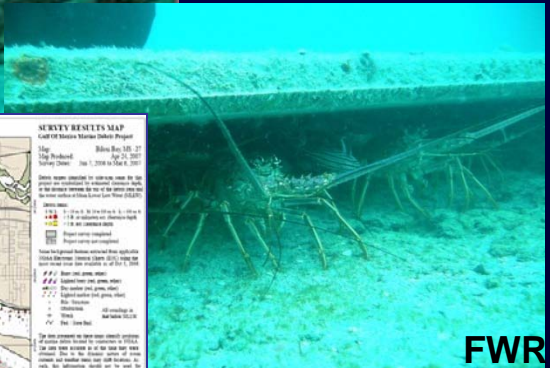
## Assessment & Removal Activities

- Survey / impact assessment of DFTs
  - Cooperative project between NOAA, VI Dept of Planning and Nat. Resource, St. Thomas Fisherman's Assoc.
  - Survey areas of high lost trap rates (St. Thomas and St. John)
  - UVI – Trap degradation, ghost-fishing , habitat destruction studies

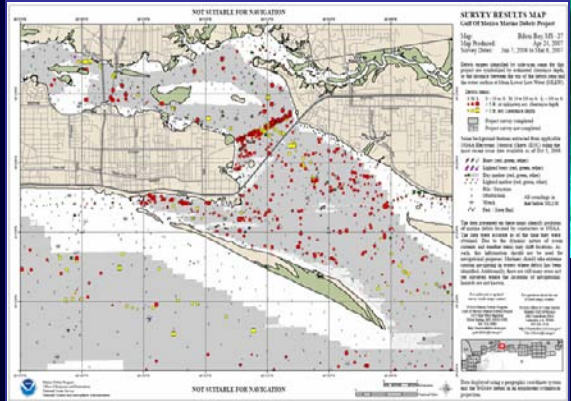


NOAA

- Marine debris removal efforts
  - Multi partner, large and small scale
  - Debris types vary (nets, traps/casitas, vessels, storm debris, etc.)
  - Location diverse
    - USVI: St. Thomas
    - Puerto Rico: Tres Palmas
    - Florida: Keys, Tampa, Fort Lauderdale
    - Gulf of Mexico Marine Debris Project



FWRI



# Marine Debris

## Management Action Plans and Legal Frameworks

- Regional Action Plan for the Sustainable Management of Marine Litter (RAPMaLi)
  - Addresses the complex and interconnected nature of the marine litter problem in five thematic areas
  - Work will begin to develop greater appreciation and personal responsibility for waste management using the Caribbean Marine Protected Areas Managers Network
- Florida Emergency Trap and Debris Removal Plan
  - New rules were developed and implemented to facilitate the removal of trap debris on Florida's shorelines and waters. Effective October 15, 2007

[http://myfwc.com/RULESANDREGS/SaltwaterTraps\\_index.htm](http://myfwc.com/RULESANDREGS/SaltwaterTraps_index.htm)

The screenshot shows a web browser window displaying the FWC website. The page title is "Derelict Trap Retrieval and Debris Removal Program". It features a navigation menu with links for Boating, Fishing, Hunting, Licenses/Permits, Viewing, and Ask FWC. The main content area includes a photograph of a group of people standing outdoors, a map of Florida highlighting the Blue Crab Closure Area, and a "Warning" icon. The text below the map states: "Lost and abandoned spiny lobster, stone crab and blue crab traps have been identified as a problem in Florida's marine environment by various stakeholder groups, including the commercial fishing industry. Once traps become lost or abandoned, they may spark user conflicts, 'ghost fish' (continue to trap marine organisms until traps degrade enough to allow escape), visually pollute, may cause damage to sensitive habitats, and also become hazards to navigation."

The cover of the report features a background image of marine litter. At the top left, there are logos for UNEP and the Caribbean Environment Programme. The title "Marine litter in the Wider Caribbean Region" is prominently displayed in the center. Below the title is a photograph of a sunset over the ocean. At the bottom right, there are logos for Regional Seas and GPA. On the left side, the text "UNITED NATIONS ENVIRONMENT PROGRAMME" is written vertically.



# Marine Debris

## Education / Outreach / Awareness

- Educational programs
  - University of Puerto Rico at Aguadilla Caribbean Center for reduction of aquatic debris through behavioral changes
  - Hey! Don't litter my house, by Tita the Whale, Puerto Rico
- Outreach: fishing community
  - Marine debris mitigation for Navassa Island National Wildlife Refuge through outreach to Haitian fishers
  - Promote monofilament recycling (UPR CCRAD)
- Awareness: general public
  - USVI Careening Cove Cleanup for purpose of opening to visitation





A background image showing a pile of marine debris, including ropes, nets, and other discarded items, resting on a rocky shore. The text 'Marine Debris' is overlaid in a large, blue, serif font.

# Marine Debris

## USCRTF Engagement in Marine Debris Efforts

- Increased awareness
  - Maintain understanding of impacts
  - Keep formal marine debris updates on future agendas
  - This is a stressor that can be reduced
- Take proactive measures to protect corals from marine debris
  - Better connections to IMDCC – use committee as a resource
  - Include debris strategies and research in on-the-ground coral efforts, where warranted
  - Seek to build partnerships (research, removal, education campaigns)
- Lessons learned
  - Marine debris knows no political boundaries - is it an international problem which needs international solutions
  - When dealing with DFG – engage the fishing community early in the process
    - Councils
    - Fishermen Associations
    - Management
    - Regulatory entities
  - Develop long term marine debris abatement programs that are sustainable



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**Questions?**