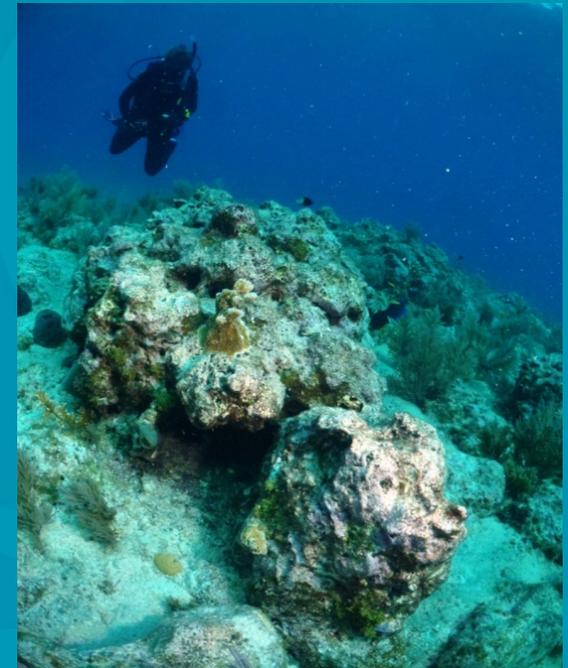




Coral Reef Ecosystem Restoration Working Group: Recommendations to FKNMS SAC



Ken Nedimyer
Sanctuary Advisory Council Lead
Working Group Chair

Working Group Membership



Sanctuary Advisory Council Members

- Dave Vaughn (WG Co-Chair), Research and Monitoring
- Clinton Barras, Tourism – Lower Keys
- Alex Brylske, Education and Outreach
- Jeff Cramer, Fishing – Commercial (Fin/Shell)
- Don Kincaid, Diving – Lower Keys
- Rob Mitchell - Diving
- Martin Moe, Education and Outreach
- Bob Smith, Diving - Lower Keys



Working Group Membership

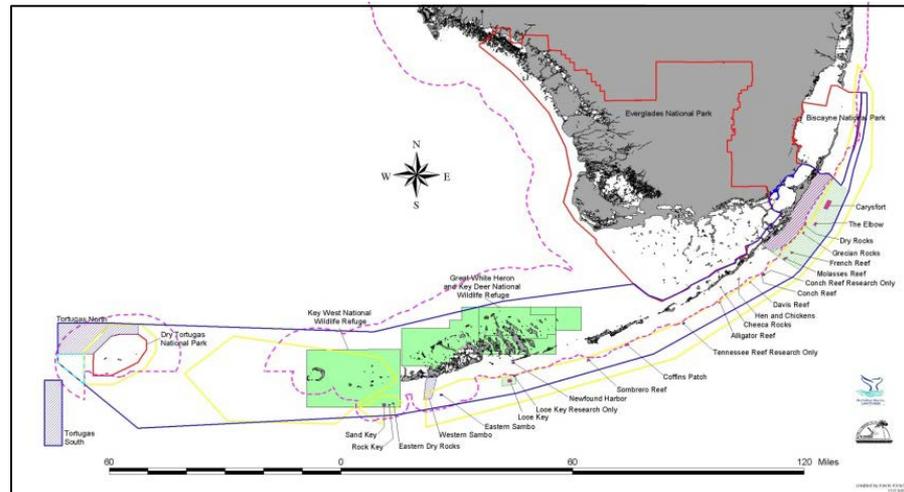


Community / Public Members

- Patti Gross, History of Diving Museum; USCG Auxillary
- Caitlin Lusic, The Nature Conservancy
- Jeff Neidlinger, A Deep Blue Dive Center
- Marius Venter, Fury Water Adventures



Coral Reef Ecosystem Restoration Objectives:



- Identify specific areas and zones for active restoration of coral reef ecosystems
- Identify regulatory impediments and appropriate permitting conditions for active restoration of coral reef ecosystem species
- Identify adaptive management measures for opening areas closed for restoration purposes

7 Working Group Meetings Over 6 Months



In Summary -

January 31: Clarified role and authority of working group; determined entire Florida Keys coral reef ecosystem would be considered in recommendation development

February 21: Identified habitats and resources to consider for active restoration; activities that may impact restoration

March 13: Identified criteria to use for developing options and recommendations; identified areas on charts to consider

April 3: Further refined selection criteria and areas to consider for recommendation as restoration areas

7 Working Group Meetings Over 6 Months



In Summary -

May 1: Reviewed individual maps for proposed coral reef ecosystem restoration and proposed additional new areas for restoration; discussed resources, purposes and intent of the sites, and activities that need to be managed.

May 22: Recommendations developed regarding streamlining permitting process, management options, area/zone marking, adaptive/flexible management and restoration research zones; reviewed and prioritized active coral reef ecosystem restoration areas

June 12: Finalized area selections and draft recommendations to SAC regarding coral reef ecosystem restoration within FKNMS

Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems



Criteria used for area/zone selection:

- Likelihood of success
- Biodiversity and habitat
- Sustainability/connectivity
- Sufficient size
- Allowable/compatible uses
- Suitability as reference areas/monitoring sites
- Facilitation of enforcement and compliance



Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems



Final restoration area/zone recommendations:

- entire FKNMS be eligible for coral reef ecosystem restoration activities
- selected a suite of 103 areas for restoration
- further prioritized those sites for a total of 37 Tier 1 (top priority) areas
- Tier 1 areas identified are general areas
- specific sites will be selected when actual restoration activities are conducted
- site size and type will be determined by the restoration goals and available funding



Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems

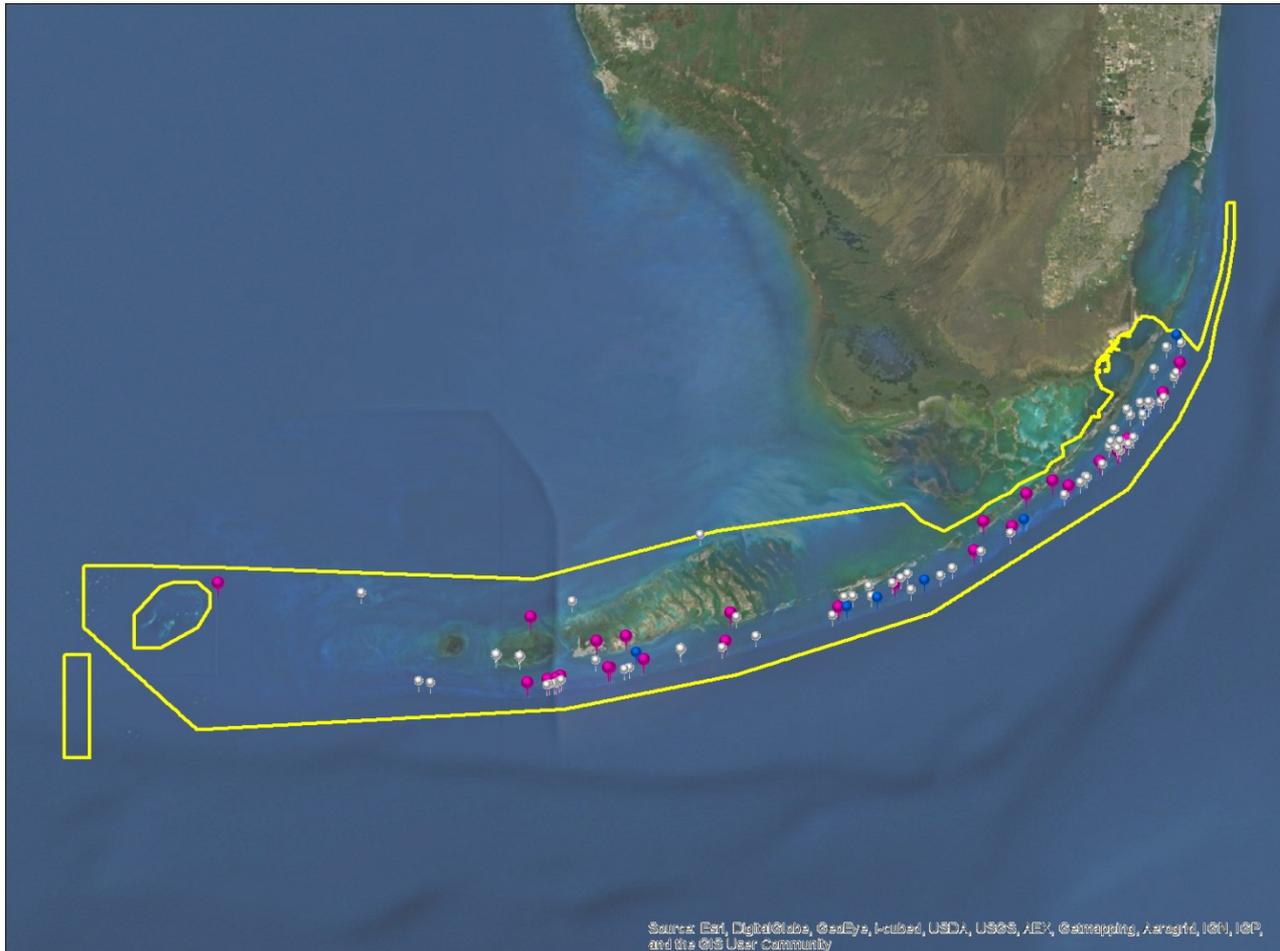


Region	Total Selected Areas	Tier 1 Areas	Coral Reef Habitat Type						Existing Management Area	Crawfish Trap Exclusion Zone
			Hardbottom	Inshore Patch Reef	Mid-Channel Reef	Offshore Patch Reef	Reef Margin / Fore Reef	Mixed / Transitional		
Upper Keys	39	8	1	0	9	5	24	0	20	32
Middle Keys	24	6	0	2	7	2	13	0	6	7
Lower Keys	27	11	1	4	2	1	12	7	11	12
Marquesas	10	4	1	2	1	0	4	2	0	0
Dry Tortugas	3	2	0	0	0	0	0	3	2	2
TOTAL	103	37	3	8	19	8	53	12	39	53

Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems



All Recommended Areas within FKNMS



Tier 1 Areas



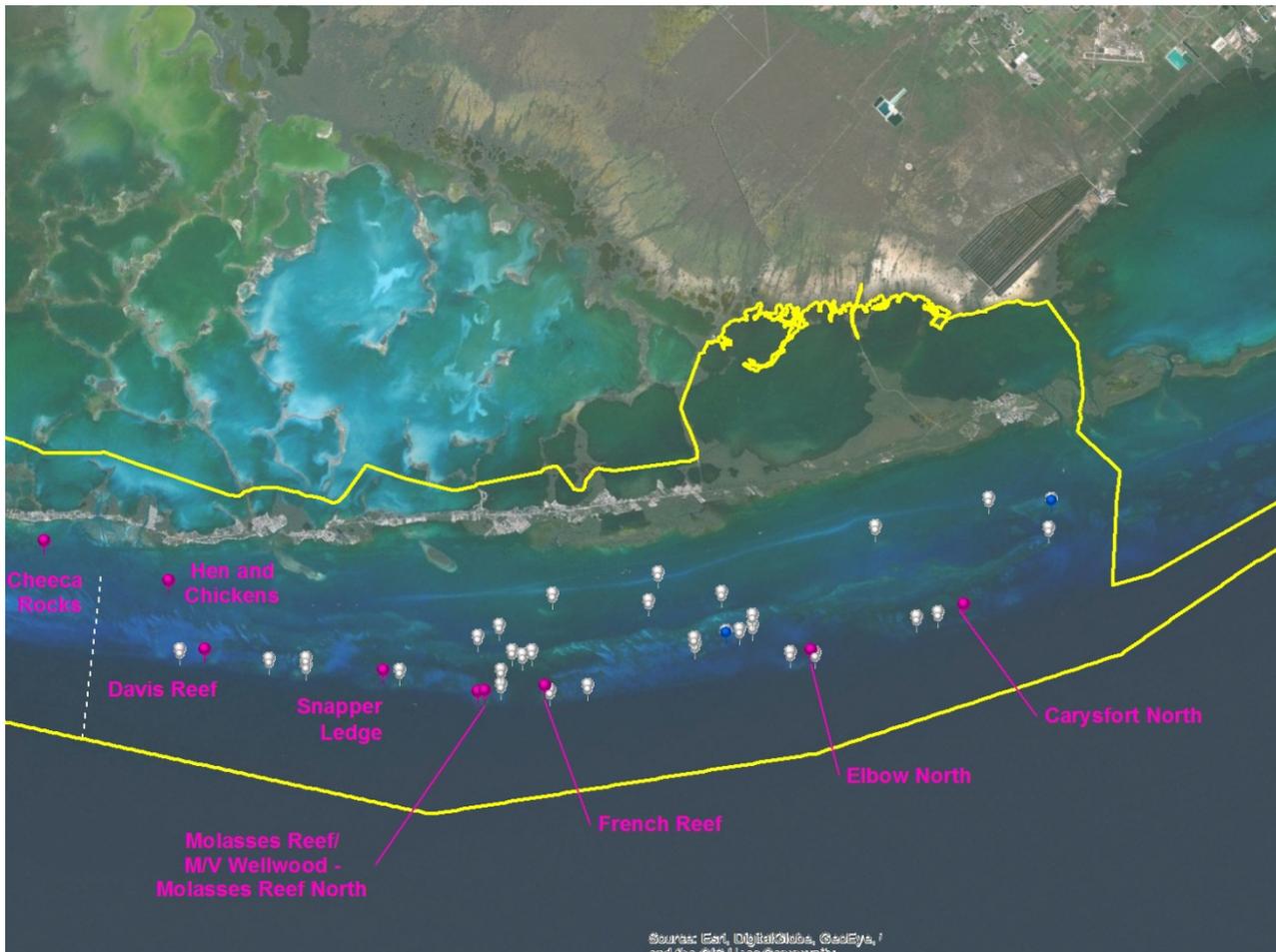
Other Recommended Areas

- These are areas identified as high value sites that would benefit from active coral restoration work.

Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems



Upper Keys Region



Tier 1 Areas



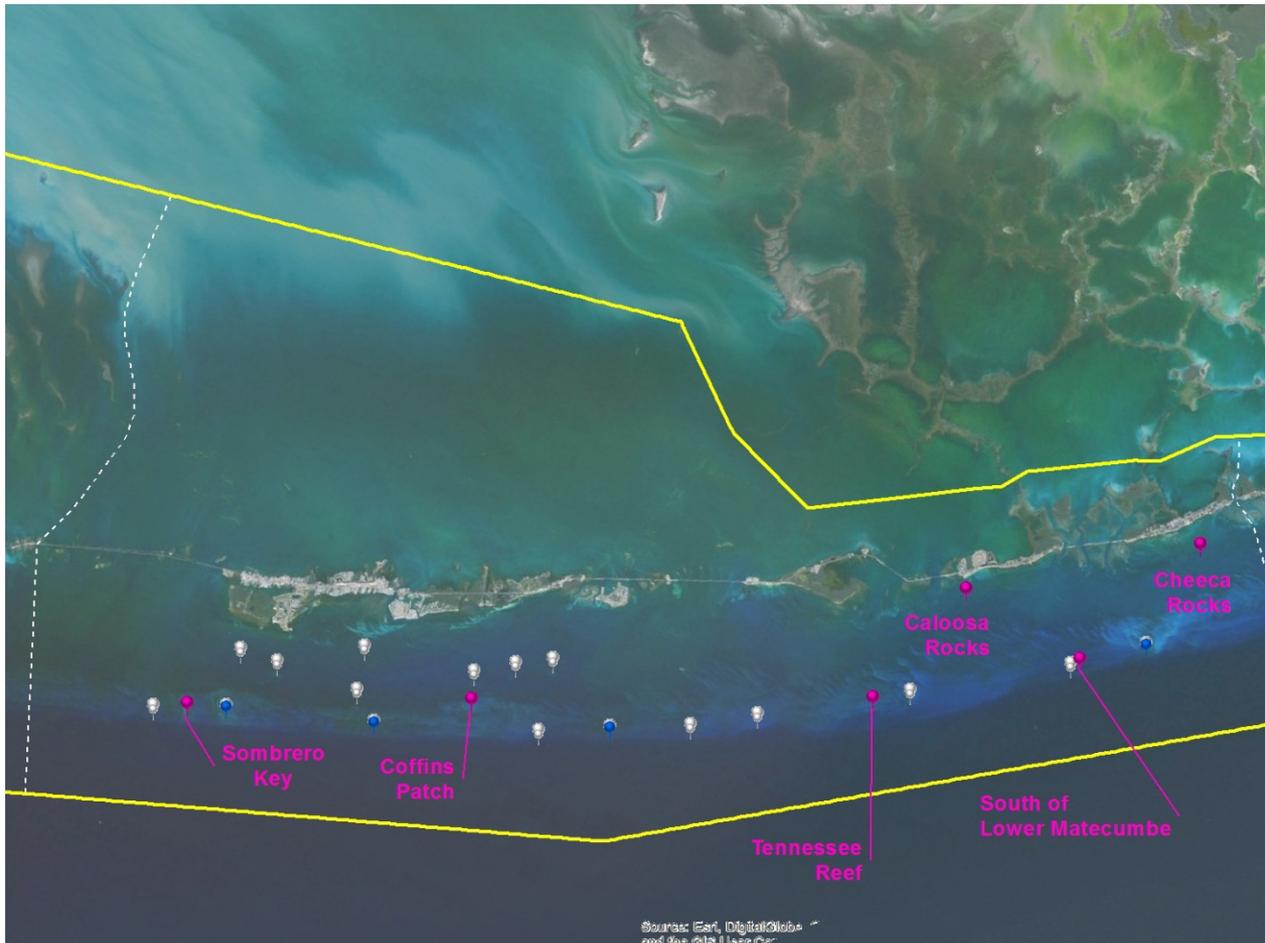
Other Recommended Areas

- Tier 1 areas are considered top priority areas for restoration work.
- Restoration work is not restricted to Tier 1 or “Other Areas”

Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems



Middle Keys Region



Tier 1 Areas



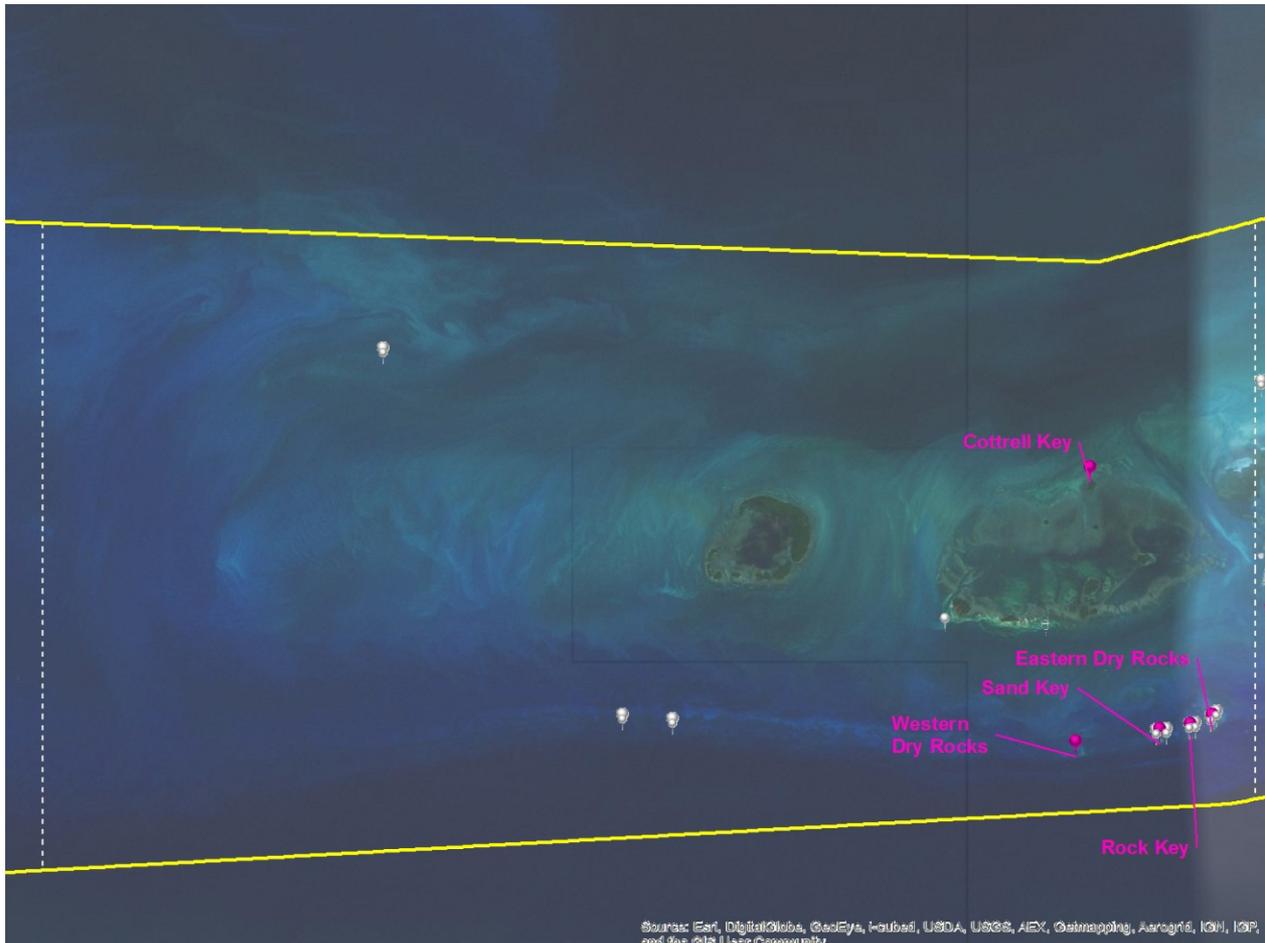
Other Recommended Areas

- Tier 1 areas are considered top priority areas for restoration work.
- Restoration work is not restricted to Tier 1 or “Other Areas”

Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems



The Marquesas



Tier 1 Areas



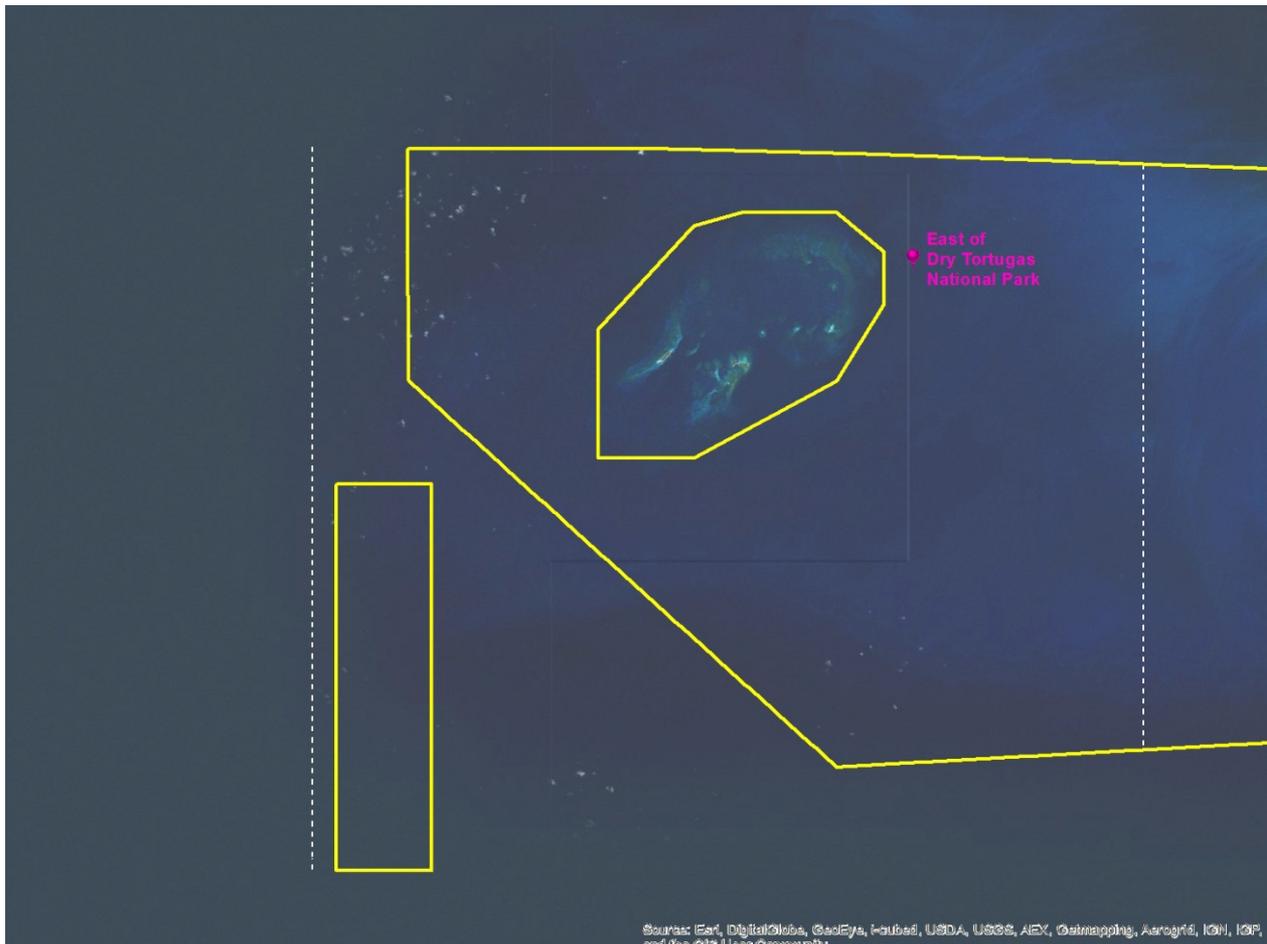
Other Recommended Areas

- Tier 1 areas are considered top priority areas for restoration work.
- Restoration work is not restricted to Tier 1 or “Other Areas”

Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems



The Dry Tortugas



Tier 1 Areas



Other Recommended Areas

- Tier 1 areas are considered top priority areas for restoration work.
- Restoration work is not restricted to Tier 1 or “Other Areas”

Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems



Restoration activities within selected areas will include:

- active coral transplanting and stock enhancement - to recreate, initiate, accelerate, or augment the recovery of an ecosystem that has been degraded
- manipulative experiments - strategic science and manipulative experiments to advance the science of restoration



Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems



Management and access options could include

- open demonstration sites -
 - ✓ innovative partnerships
 - ✓ sponsorships (incentive sites)
- managed access sites -
 - ✓ managed activities within the site
- closed for research sites—
 - ✓ restricted access for research and control sites
 - ✓ closed to visitation



Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems



Develop incentive (sponsored) sites –

- may apply to all management/access options
- to promote a sense of ownership and stewardship
- to provide funding support for active restoration activities
 - ✓ donations
 - ✓ user fees
 - ✓ mooring buoy sponsorship
 - ✓ reef sponsorships



Objective 1: Identify Specific Areas and Zones for Active Restoration of Coral Reef Ecosystems



Marking and mooring at coral reef ecosystem restoration areas could include:

- Site marker buoys –
 - ✓ link access restrictions to specific marker buoys used rather than specific locations
 - ✓ areas/sites can easily be moved as activities are shifted
- Manage the mooring buoys –
 - ✓ no mooring buoys in areas that are closed to visitation
 - ✓ limited number for incentive funding entities to utilize
 - ✓ subsurface buoys for researchers/restoration practitioners and incentive access users



Objective 2: Identify Regulatory Impediments and Appropriate Permitting Conditions for Active Restoration of Coral Reef Ecosystem Species



NOAA NATIONAL MARINE SANCTUARIES
PERMIT APPLICATION

NOAA-16-000-011
Revised: 12/01/2011
12/08

Refer to "Instructions for Submitting Applications for National Marine Sanctuary Permits and Authorizations" for
guidance on how to properly complete the application. Applicants are responsible for ensuring the information in
their entries is correct and all application requirements are met.

How do you submit this application? This application can be submitted. Check the instructions and the Office
of National Marine Sanctuaries (ONMS) Permit Application prior to completing and submitting this application to one of
the following for your proposed activity.

Section A - General	
<input type="checkbox"/> General Permit	<input type="checkbox"/> Single Visit
<input type="checkbox"/> Coastal Study	<input type="checkbox"/> Staff of the Institution
<input type="checkbox"/> Research Permit	<input type="checkbox"/> Research Vessel
<input type="checkbox"/> Permit Day	<input type="checkbox"/> Offshore Boat
<input type="checkbox"/> Permit (Other Use)	<input type="checkbox"/> Other
<input type="checkbox"/> Other (Specify)	<input type="checkbox"/> Other (Specify)

Section B - Applicant Information	
Mr. <input type="checkbox"/> Ms. <input type="checkbox"/> Other <input type="checkbox"/>	Dr. <input type="checkbox"/> Ms. <input type="checkbox"/> Other <input type="checkbox"/>
Address (Street, P.O. Box #20007)	Phone: 305-761-8400 Ext. 111
City: Tampa, FL	Fax: 305-761-8399
State: Florida	E-mail: nms@noaa.gov
Zip Code: 33602	

Section C - Project Information	
Project Name (Maximum 50 characters)	Project Number (Maximum 50 characters)
Project Description (Maximum 2000 characters)	

Page 1 of 4

- streamline the permit process
- allow for simple modifications
- develop an on-line permitting system that would allow all involved agencies to review applications
- create and utilize an interdisciplinary advisory committee to review permit applications
- consider use of the FKNMS permit through which “qualified” practitioners could operate (possibly under a manager’s or blanket permit)
- permitting should allow for development of innovative/ adaptive restoration techniques



Objective 3: Identify Adaptive Management Measures and Criteria for Opening Areas Closed for Restoration Purposes



Adaptive management:

- systematic process for improving environmental management policies/practices
- emphasizes the need to change with the environment and to learn from doing
- will be applied to managing active coral reef ecosystem restoration areas within FKNMS
- used to change the status of existing areas/add new areas
- based on clear goals, objectives and adaptive management triggers



Objective 3: Identify Adaptive Management Measures and Criteria for Opening Areas Closed for Restoration Purposes



Restoration/research goals & objectives:

- restoration areas will have clear goals and objectives
- goals and objectives are specific to each area and/or site
- intended to provide guidance for managing restoration areas and changing the management and access restrictions as appropriate



Objective 3: Identify Adaptive Management Measures and Criteria for Opening Areas Closed for Restoration Purposes



Adaptive management triggers and criteria:

- development of new nursery and restoration technologies may allow more species to be restored and/or new types of restoration activities to be employed
- change in the listing of species under the Endangered Species Act (ESA)
- changes in the condition of the coral reef ecosystem
- measurable goals/objectives met
- restoration fails/site becomes unsuitable for further restoration



Objective 3: Identify Adaptive Management Measures and Criteria for Opening Areas Closed for Restoration Purposes



Possible adaptive management responses to triggers:

- Re-evaluate activities that could impact success of restoration activities
- restrict access during times of restoration effort
- restrict access to allow for undisturbed monitoring sites for research
- lift restrictions
- monitor restoration areas to understand contribution of various stresses to restored natural resources



Working Group Resources



Florida Keys National Marine Sanctuary Marine Zoning and Regulatory Review: floridakeys.noaa.gov

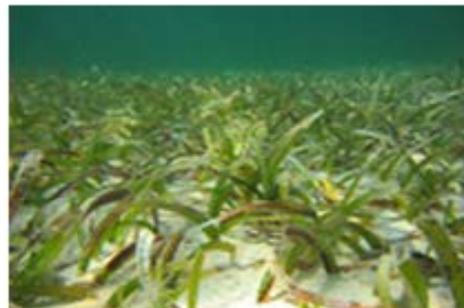


Marine Zoning & Regulatory Review

Maps, Data, and GIS Resources: http://ocean.floridamarine.org/fknms_zone_review



Coral Reef Ecosystem Restoration Working Group
Coral health in the sanctuary has declined over the past several



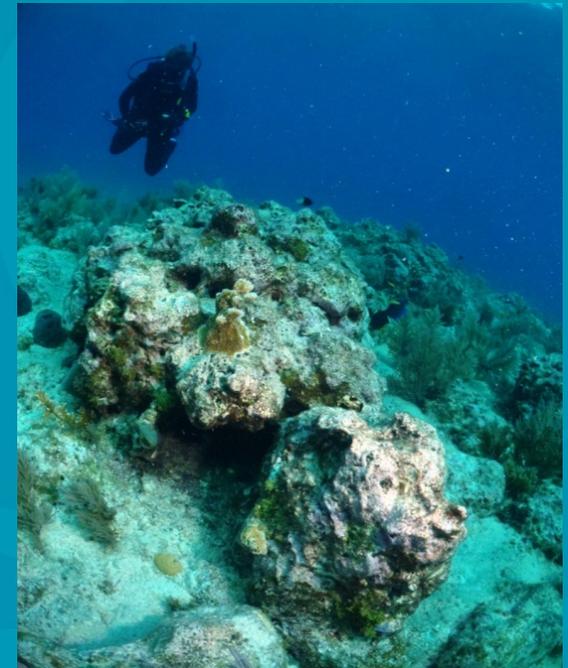
Shallow Water Wildlife and Habitat Protection Working Group
Hardbottom communities and



Ecosystem Protection: Ecological Reserves, Preservation Areas and Wildlife Protection Working Group



Coral Reef Ecosystem Restoration Working Group: Recommendations to FKNMS SAC



Ken Nedimyer
Sanctuary Advisory Council Lead
Working Group Chair