

MPA Coral Data - Gaps & Needs

1. Does your MPA have historic and recent coral reef survey data? (locations, years, methods)?
2. If your MPA does not have any sites with survey data – what are priority areas (#, location)?
3. If your MPA has sites to be surveyed, do you staff, equipment, funding?
4. Are there reef health indicators that you currently don't have data for?

Key metrics include coral cover, fleshy macroalgae, herbivorous fish (parrot/surgeon) density and biomass, commercial fish (snapper and grouper) density and biomass, fish size (especially for parrots, and various grouper, snapper or other harvested species), *Diadema*, reef structure, coral recruits, coral health, other key species like lobster, conch, etc.

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Status of reef health indicators

1. Is reef structure intact and expected to maintain integrity (e.g., coral cover, reef structure and low macroalgae, more promoters than detractors, no bleaching or disease)?
2. Are herbivorous fish populations healthy (density, biomass, fish size – esp parrotfish).
3. Are commercial fish populations healthy (density, biomass, fish size, enough mature fish)?
4. Are other fishery species healthy and managed (e.g., lobster, conch, sea cucumber)?

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Potential Management Actions

1. Reef monitoring plans (ideally every 2 years unless disturbance event like hurricanes, bleaching, disease then survey after event).
2. Review zoning of MPA (are there sensitive areas that would benefit from more protection (shallow reefs, spags, nursery areas)?
3. Review regulations and enforcement (are there areas for improvement?)
4. Minimize human impacts (land-based pollution, boat damage, coastal development or erosion, etc).
5. Active restoration (are there areas that would benefit from intervention –seagrass/mangrove restoration, coral enhancement, shoreline rebuilding)?

(what are priorities for next 1 and 2 years?)

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Maturity size of fish

Species	Common Name	Maturity Size	What is average size of fish in your MPA?
<i>Mycteroperca bonaci</i>	Black Grouper	67.7	Are they getting large enough to reach maturity?
<i>Cephalopholis fulva</i>	Coney	14.7	
<i>Lutjanus cyanopterus</i>	Cubera Snapper	65	
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<i>Lutjanus jocu</i>	Dog Snapper	31	
<i>Lutjanus griseus</i>	Gray Snapper	21	
<i>Cephalopholis cruentata</i>	Graysby	16	
<i>Lutjanus synagris</i>	Lane Snapper	16	
<i>Lutjanus mahogoni</i>	Mahogany Snapper	14	
<i>Lutjanus analis</i>	Mutton Snapper	28	
<i>Epinephelus striatus</i>	Nassau Grouper	48	
<i>Epinephelus guttatus</i>	Red Hind	25	
<i>Epinephelus adscensionis</i>	Rock Hind	25	
<i>Lutjanus apodus</i>	Schoolmaster	25	
<i>Mycteroperca tigris</i>	Tiger Grouper	46	
<i>Mycteroperca venenosa</i>	Yellowfin Grouper	51	
<i>Mycteroperca interstitialis</i>	Yellowmouth Grouper	42	
<i>Ocyurus chrysurus</i>	Yellowtail Snapper	15	

Maturity size of fish data are from Courtney Cox (RAIE) and Healthy Reefs Initiative

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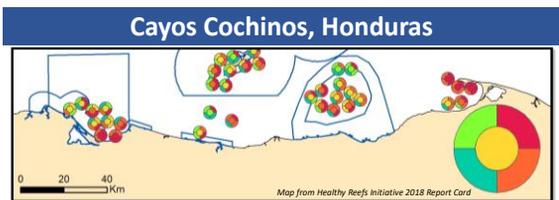
Site Summary

11 sites
Most recent data-2016
Historic data – 2006, 2010, 2014
(data being collected 2018)

2016 Site Names

Cayo Culebra	Cordero
Caballeros 1	Atkins Bight
Caballeros 2	Cayo Mayor
Tariaguagu	Lion's Paw / Pelican 4
Voitague	Roatan Banks 1
Cayo	Roatan Banks 2

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Status of reef health indicators

- Live coral cover was highest at 3 sites : Roatan Banks 1 Roatan Banks 2 and Lions Paw; but poor to fair at all other sites. The high coral cover sites also had some of the tallest reef structure (nearly 1m in height).
- Only two sites had more reef promoters than reef detractors (Roatan Banks 1 & 2).
- Fleshy macroalgae was high (poor rating) at all sites with critically high macroalgae at 3 sites Caballeros 1, Caballeros 2, and Tariaguagu. This is surprising since herbivorous fish biomass was high and some *Diadema* urchins were present.
- Herbivorous fish biomass was good at all sites but one which was fair (Cayo Cordero).
- Parrotfish had higher biomass than surgeonfish, although most parrotfish were small in size except at two sites (Roatan Banks 1 & 2).
- Commercial fish biomass was critical at 4 sites (Caballeros 1, Tariaguagu, Voitague, Cayo Cordero). Some sites had no snappers. Roatan Banks had high commercial fish biomass.

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