

Caribbean Region RECON Data Report: U.S. Virgin Islands/St. Croix

Posted—December 2004

Introduction:

The Ocean Conservancy's Reef Condition (RECON) Monitoring Program is a low-tech, rapid monitoring protocol for assessing the health of coral reef ecosystems at selected survey sites in the tropical Western Atlantic (Wider Caribbean region). Volunteer divers are trained to record each of the following: the effects of regionally important stressors including conspicuous diseases or overgrowth by algae in reef-building stony corals; cover of live stony corals and macroalgae; relative abundance of different algal groups; and the densities of long-spined sea urchins (*Diadema antillarum*)—a key herbivore, exploited invertebrates such as queen conch (*Strombus gigas*) and spiny lobsters (*Panulirus spp.*), and human-deposited debris and trash. The RECON program also serves as a firm foundation for introducing concepts of threats to reef health, marine conservation, and climate change to students and the public. Resource managers and scientists cannot hope to monitor reef ecosystems with sufficient frequency to provide more than scattered early warning and diagnostic capabilities. Good volunteer monitoring programs help to fill this information gap, and facilitate outreach conservation education.

Survey Sites:

Experienced RECON divers choose survey sites. Sites are classified by reef type, orientation, and structural complexity to allow comparison of the data from similar sites. Certified RECON divers can work in teams as small as a single buddy pair, although repeat dives, or several buddy pairs, are needed to provide sufficient data for statistical analysis. The potential exists for multiple surveys on selected reefs at frequent time intervals, with rapid reporting of findings to reef managers or scientists, in the RECON program.

RECON Monitoring Sites on Long Reef (USVI-St. Croix)

Blue Chute: 17° 45.388N / 64° 42.175W, mid-shelf, fringing reef at 35-45 feet on a gentle (< 30°) slope.

Corals for individual assessment:

1st choice = mountainous star (*Montastraea faveolata*);

2nd choice = brain corals (species of *Diploria* and *Colpophyllia*).

Eagle Ray: 17° 45.409N / 64° 41.550W, mid-shelf, fringing reef at 30-40 feet on a gentle (< 30°) slope.

Corals for individual assessment:

1st choice = mountainous star (*Montastraea faveolata*);

2nd choice = brain corals (species of *Diploria* and *Colpophyllia*).

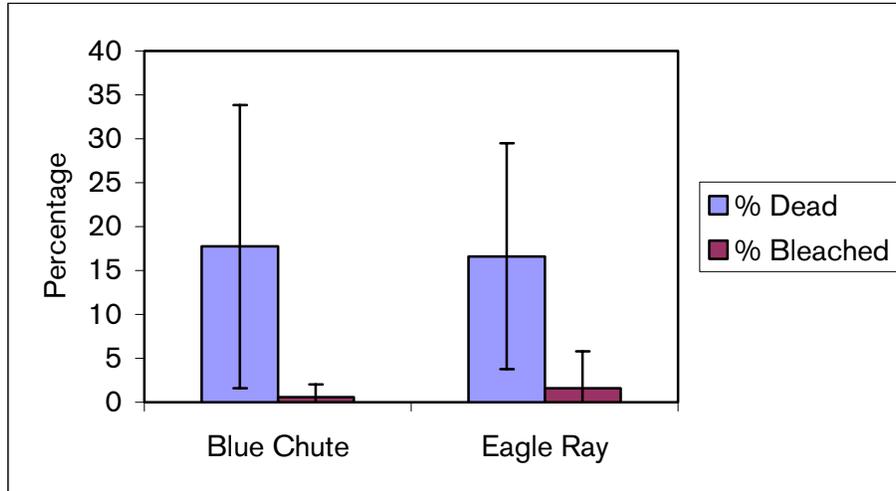


Both RECON sites are on the north side of the island, just off Christiansted. Survey site descriptions are available online at www.RECONdiver.org for access by RECON divers and instructors and other interested parties.

U.S. Virgin Islands/St. Croix Initial Data Report (September 2004)

Coral Health:

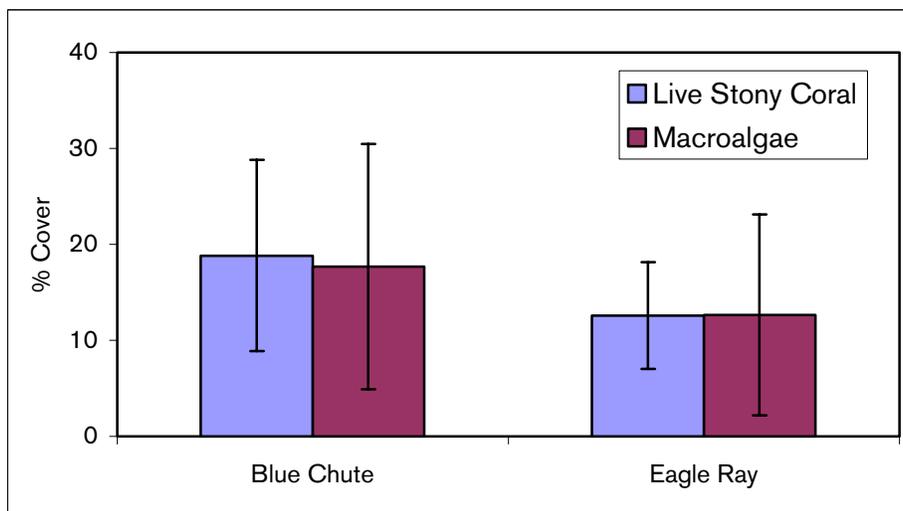
Coral health is assessed by measuring the size, percent partial mortality and percent bleached for the outward surfaces of large (at least 25-cm diameter), haphazardly selected colonies of certain massive stony corals.



Average values for percent partial-colony mortality (dead) in the mountainous star coral (*Montastraea faveolata*) were nearly identical at approximately 18% (Blue Chute; n = 94 colonies) and 17% (Eagle Ray; n = 58 colonies), respectively. As the surveys were not conducted during a mass-bleaching event, the corresponding percentages of bleached surfaces were low (less than 1% to 2%).

Benthic Cover:

Live stony coral and macroalgal cover is measured in replicate, 10-m line transects.

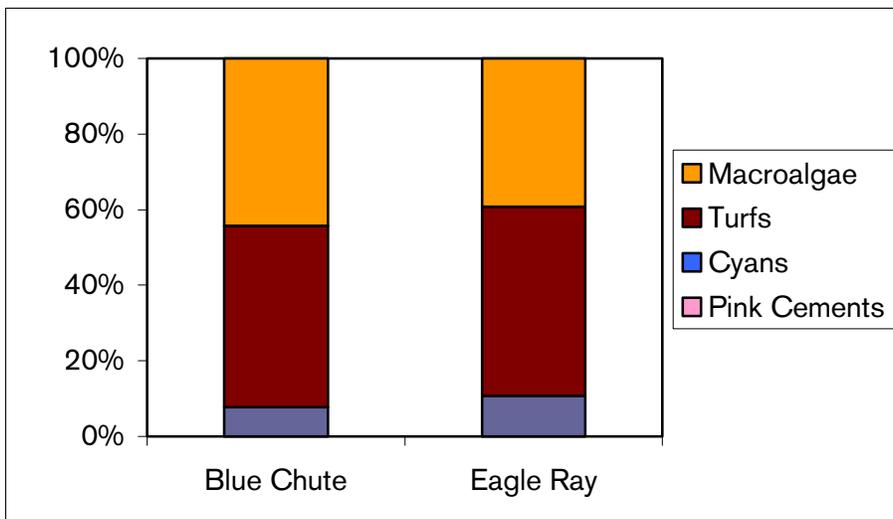


Live stony coral cover at Blue Chute (approx. 19%; n = 26 transects) and at Eagle Ray (approx. 13%, n = 18 transects) were similar and overlap the average value ($16 \pm 3.5\%$) assessed by researchers at a nearby site on Long Reef in October 1999 (R. S. Nemeth et al., 2003, pp. 544-565 in J.C. Lang, ed., *Status of Coral Reefs in the Western Atlantic: Results of Initial Surveys, Atlantic and Gulf Rapid Reef*

Assessment (AGRRA) Program, Atoll Research Bulletin 496). Cover of macroalgae also averaged slightly higher at Blue Chute than at Eagle Ray (approx. 18% versus 13%).

Algal Abundance:

The relative abundance of major algal functional groups, and the identities of common macroalgal genera, are estimated in replicate 2-m x 10-m belt transects.



Algal turfs were relatively the most abundant group at both sites (48-50%; n = 26 transects at Blue Chute and 18 at Eagle Ray). Macroalgae were second in relative abundance (39-44%), with *Lobophora* being the most common species. The relative abundance of cyans (cyanobacteria) was 8-11%, with no pink cements (= crustose coralline algae) reported at either site. The lack of crustose corallines and the high abundance of macroalgae (e.g. *Lobophora*) are indications of reduced grazing by *Diadema* and large herbivorous fishes and of potential nutrient enrichment from human activities on land.

Local RECON-affiliated Dive Shops supporting monitoring activities for this report:

<i>Dive Experience</i>	www.DiveExp.com
<i>St. Croix Ultimate Bluewater Adventures (S.C.U.B.A.)</i>	www.StCroixScuba.com
<i>Scubawest</i>	www.DiveScubawest.com



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