

Jamaica Coral Reef Monitoring Network (JCRMN) Reef Check Training Workshop and Data Collection in the Negril Marine Park

The Jamaica Coral Reef Monitoring Network (JCRMN), led by the Caribbean Coastal Data Centre (CCDC), Centre for Marine Sciences, University of the West Indies, completed a successful Reef Check training workshop in Negril, 6-7 September, 2003. This workshop is one of a number of planned activities geared at increasing monitoring of Jamaica's coral reefs, particularly along the south coast, and falls within the regional mandate of the CCDC to improve available information on the status of reefs in the Global Coral Reef Monitoring Network (GCRMN) Northern Caribbean and Atlantic node countries. Through a grant from the International Coral Reef Action Network (ICRAN) project of the United Nations Environment Programme, Caribbean Environment Programme (UNEP-CEP), the CCDC's capacity has been strengthened to coordinate collection of and reporting on data and information on coral reef status in node countries.

A total of 17 individuals participated in the training with Malden Miller of ICRAN, UNEP as the team leader and trainer. The enthusiastic group was first introduced to Reef Check in a classroom session on Thursday the 4th, where they were led through the Reef Check fish and invertebrates and reef substrate survey methods. In partnership with rangers from the Negril Coral Reef Preservation Society (NCRPS) monitoring was conducted September 6-7. Through the efforts of Carl Hanson, Project Manager, NCRPS, and the generosity of hotel managers at Riu Tropical Bay, Rondel Village Ltd., Coco La Palm, Mariner's Negril Beach Club, Hedonism II and Merrill's One Beach Resort, the team members were accommodated for the duration of the survey. Participants included:

- Malden Miller Team Leader/Trainer, UNEP-CEP
- Krishna Desai National Environment Planning Agency (NEPA)
- Peter Edwards Centre for Marine Sciences (CMS), UWI
- Peter Gayle Discovery Bay Marine Lab. (DBML), UWI
- Dave Guinness University Sub-Aqua Club (USAC)
- Brandon Hay Caribbean Coastal Area Management (CCAM) Foundation
- Marlon Hibbert University Sub-Aqua Club (USAC)
- Kimberly John The Nature Conservancy (TNC)
- Jahsen Levy University Sub-Aqua Club (USAC)
- Dana & Bryan Murray Caribbean Coastal Area Management (CCAM) Foundation
- Tadaomi Nakai Japanese Volunteer, Montego Park Marine Park (MBMP)
- Jenny Pearce Peace Volunteer, Negril area Environmental Protection Trust (NEPT)
- Clayton Powell Montego Park Marine Park (MBMP)
- Ann Sutton The Nature Conservancy (TNC)
- George Warner Team Scientist, Centre for Marine Sciences (CMS), UWI
- Fitz Williams Montego Park Marine Park (MBMP)
- Nathalie Zenny The Nature Conservancy (TNC)



Reef Check workshop participants assemble in front of the offices of the NCRPS prior to the start of monitoring exercises

On Saturday, the 6th, the group met outside the office of the NCRPS where they were briefed and assigned to 3 teams. Three of the four NCRPS survey sites, Bloody Bay, Ireland Pen, and Little Bay were surveyed on Saturday and El Punto Negrilo on Sunday the 7th. Both shallow (2-6 m) and deep (8-13 m) reef sites were surveyed for fish,



Divers conducting the Reef Check protocol

invertebrates and benthic substrate.

These trained individuals will form a core group of divers who will support future monitoring activities of the JCRMN.

Preliminary Data Analyses

Analysis of substrate data indicated a range of percent cover by hard corals from a low of 4.2% at the Ireland Pen shallow site to a high of 28% at El Punto Negrilo deep site (Table 1). Generally shallow sites had lower percent cover by hard corals than the deeper sites, averaging 15.9% compared to 21.5% at deeper sites. Ireland Pen appeared to be the site with the lowest coral cover – an overall average of

7.2%, compared to 20% at El Punto Negrilo, 21.5% at Little Bay and 26% at Bloody Bay. All sites, with the exception of Ireland Pen, recorded increases in percent cover by coral from the 2002 survey. Nutrient Indicating Algae (NIA) was relatively high at most sites, averaging 77.3% at Ireland Pen, 43.6% at Little Bay and 21.3% at Bloody Bay. El Punto Negrilo had exceptionally low measures of NIA 0% at 10 m depth and negligible (approx. 1%) at 3 m.

Fish and invertebrate data confirm that fish continue to be a scarce resource at reef sites in Negril. The highest fish density was observed at Bloody Bay, 6.75 and 3.25 fish/100 sq m at the 10 m and 3 m sites respectively. The lowest fish density was at Ireland Pen, 0.5 fish/100 sq m at 10 m and 1 fish/100 sq m at 3 m depth. Gorgonian and diadema densities were generally higher at the 10 m depth than at 3 m depth (Table 2). The highest densities of diadema, 200 individuals/100 sq m at 10 m and 87.5 individuals/100 sq m at 3 m, were observed at El Punto Negrilo and may account for the exceptionally low algal cover at that site, reinforcing the important role played by diadema in control of fleshy algae on reefs. Bloody Bay also had high diadema densities, 97.3 and 58.8 individuals/100 sq m at 10 m and 3 m respectively and had the second lowest measure of Nutrient Indicating Algae, averaging 8.3% and 34.3% at 10 and 3 m respectively. The Ireland Pen site appeared to be an exception, in that, while recording reasonably high densities of diadema, 42.3 and 14 urchins/100 sq m at 10 and 3 m depths respectively, it still had very high percent cover of NIA averaging 72.3% and 82.2% at 10 and 3 m respectively. This was much higher than the Little Bay site which averaged 43.5% NIA and had the lowest diadema densities of all the sites, 1.3 and 0.5 urchins/100 sq m.



Coral reef scene from the El Punto Negrilo site

Table 1: Mean benthic substrate percent cover at reef sites in the Negril Marine Park

| Site | Depth (m) | Hard coral | Overall Hard Coral | Nutrient Indicating Algae | Overall Nutrient Indicating Algae | Other | Recently Killed Coral | Rock | Rubble | Silt/Clay | Soft Coral | Sponge |
|------------------|-----------|------------|--------------------|---------------------------|-----------------------------------|-------|-----------------------|-------|--------|-----------|------------|--------|
| Bloody Bay | 3 | 27.53 | 25.95 | 34.34 | 21.32 | 0.00 | 10.91 | 23.32 | 0.00 | 0.00 | 3.91 | 0.00 |
| Bloody Bay | 10 | 24.38 | | 8.30 | | 11.66 | 2.21 | 48.30 | 0.83 | 0.00 | 1.38 | 2.95 |
| El Punto Negrilo | 3 | 12.27 | 20.14 | 0.89 | 0.45 | 36.58 | 0.00 | 30.76 | 18.18 | 0.00 | 1.32 | 0.00 |
| El Punto Negrilo | 10 | 28.01 | | 0.00 | | 7.15 | 0.00 | 54.61 | 1.00 | 0.00 | 9.23 | 0.00 |
| Ireland Pen | 3 | 4.22 | 7.16 | 82.21 | 77.26 | 0.00 | 0.69 | 7.94 | 0.00 | 0.00 | 0.69 | 4.24 |
| Ireland Pen | 10 | 10.10 | | 72.30 | | 7.78 | 1.25 | 5.27 | 0.00 | 1.96 | 0.63 | 0.71 |
| Little Bay | 3 | 19.53 | 21.51 | 30.59 | 43.55 | 5.50 | 0.74 | 9.99 | 30.64 | 0.00 | 0.00 | 3.01 |
| Little Bay | 10 | 23.49 | | 56.50 | | 0.00 | 0.00 | 7.84 | 7.54 | 0.00 | 4.63 | 0.00 |

Table 2: Mean densities (per 100 sq m) of various fish and invertebrates at reef sites in the Negril Marine Park

| Site | Depth (m) | Gorgonians | Flamingo Tongue | Diadema | Pencil Urchin | Tripneutes | Butterfly Fish | Grunts | Parrot Fish | Snappers | Moray Eel | Nassau Grouper | Other Grouper | Lobster | Banded Coral Shrimp | Triton |
|------------------|-----------|------------|-----------------|---------|---------------|------------|----------------|--------|-------------|----------|-----------|----------------|---------------|---------|---------------------|--------|
| Bloody Bay | 3 | 123.0 | 0.0 | 58.8 | 2.8 | 5.8 | 2.3 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Bloody Bay | 10 | 17.8 | 0.3 | 97.3 | 1.3 | 3.5 | 0.0 | 6.5 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| El Punto Negrilo | 3 | 38.5 | 2.3 | 87.5 | 2.3 | 0.5 | 0.8 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 |
| El Punto Negrilo | 10 | 61.8 | 0.8 | 200.0 | 0.3 | 0.8 | 3.3 | 2.3 | 0.0 | 0.0 | 0.3 | 0.0 | 0.3 | 0.0 | 0.0 | 0.0 |
| Ireland Pen | 3 | 44.5 | 0.8 | 14.0 | 3.8 | 0.8 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Ireland Pen | 10 | 93.3 | 0.3 | 42.3 | 1.5 | 0.3 | 0.0 | 0.0 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 0.0 |
| Little Bay | 3 | 14.0 | 0.3 | 0.5 | 0.3 | 4.3 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Little Bay | 10 | 25.3 | 0.0 | 1.3 | 1.5 | 7.0 | 0.0 | 0.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |