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EDITORIAL

The CMS Newsletter has been absent for some time now but in the New Year we expect to resume regular publication to keep you informed about the activities of the Centre. In this 19th installment we have highlighted just some of the projects, programmes and achievements of 2007. We thank you for your continued interest in the activities of the CMS and wish you all the best for 2008.

I would like to express my gratitude to all the persons who contributed material to this newsletter. These include Dr Mona Webber, Dr Karl Aiken, Dr Judith Mendes, Dr Dale Webber, Pamela Housen, Peter Gayle, Camillo Trench and Rachel D'Silva. Your efforts are greatly appreciated.

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Port Royal: Biodiversity Hot-Spot

The EFJ funded project “The Mangrove Ecosystem as a Biodiversity Hot-Spot” conducted at the Port Royal Marine Laboratory (PRML) was brought to completion in 2007. The overall goal of the project was to contribute to the preservation of mangrove areas through a series of activities that included the documentation of the biodiversity associated with mangrove areas, training in the identification of mangrove species and habitats and educating the public about mangroves, their biodiversity and value.

The documentation of the biodiversity and production of **field guides** and other material for use in public education has been achieved. Copies of the 7-volume field guide can be obtained on waterproof paper as well as in interactive CD-Rom format.



Posters and curated material viewed by visitors to the Port Royal Marine Lab.

The species included in the documents have been curated and are held in reference collections at the PRML as well as in the Aquatic Sciences Lab at the University of the West Indies Life Sciences Department. A live display of mangrove lagoon communities has been mounted at the PRML in aquaria and these are used for public education along with the mangrove boat tours. Dr Mona Webber supervised this project.

Discovery Bay Marine Lab gets a facelift



Flats refurbished and dorms given a new look at the Discovery Bay Marine Laboratory.

During the period June to December there was much activity related to the general upgrading of the facility. This included extensive repairs carried out on the roofs of some buildings and the acquisition of additional laboratory equipment. The dorms were also given a face-lift and additional beds were installed.

ECOST – Modeling the reef fishery-based ecosystem

Since the last time we reported in the CMS Newsletter we have continued to work on modeling the reef fishery-based ecosystem first in Jamaica, but recently also, the reef fisheries of the Dominican Republic and of Trinidad & Tobago. What we are focusing on is the evaluation of food chains and relationships in each ecosystem, and the estimation of food consumption by fishes via experiments and gut content analyses. We have been using specialized software called **Ecopath** with **Ecosim** (EwE).

What EwE produces is a static mass-balanced “snapshot” of the ecosystem, while Ecosim gives a time dynamic

simulation module for fisheries policy exploration. A further component called **Ecospace**, allows exploration of impact and placement of protected areas.



Karl Aiken and Stephen Smikle participate in ECOST meeting in China

In summary, since January 2007, the CMS/DLS ECOST team of **Stephen Smikle**, doctoral candidate supervised by other team member **Dr. Karl Aiken**, attended a EwE training workshop in Sete in the south of France and the Third Regular Meeting in Guangzhou (formerly Canton), China.

In February 2008, the ECOST office will host the Second ECOST Caribbean Regional Meeting in Montego Bay, where progress to that date will be discussed.

DBML News

Discovery Bay Marine Laboratory

CREWS Station Installation Complete

A new NOAA/AOML CREWS (Coral Reef Early Warning System) station was established at West Foreereef, Discovery Bay, Jamaica on June 7, 2007 and is presently transmitting data. CREWS stations are part of the Integrated Coral Observing Network (ICON) of *in situ* and virtual environmental monitoring stations/sites (currently over 120). These ICON stations will provide data to establish long-term environmental trends. Parameters measured at Discovery Bay include wind speed and direction, precipitation, barometric pressure, air temperature, photosynthetically available radiation above and below the water, ultraviolet light above and below the water, sea temperature,

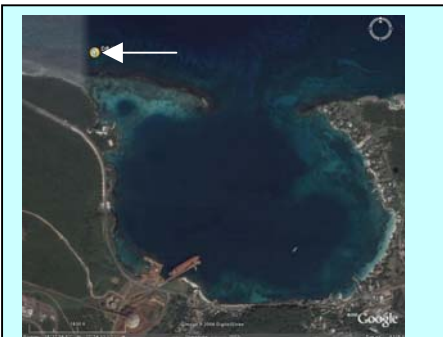
salinity and partial pressure of carbon dioxide. The Discovery Bay data are available here -

http://www.coral.noaa.gov/crw/crw_data_dbjm1_Web_12.html



Peter Gayle congratulates his team member on the completion of the installation of the CREWS station.

This project has been supported through the MACC project, the Caribbean Community Climate Change Centre, World Bank/GEF, CARICOM, the University of the West Indies, NOAA and University of Miami/Rosenstiel School for Marine and Atmospheric Sciences.



Satellite image showing the location of the CREWS station at Discovery Bay.

Establishment of Midwater Coral Nurseries in Discovery Bay.

A project conducted in association with the National Institute of Oceanography in Israel

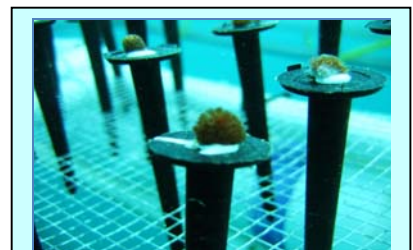
Coral nurseries are a tool in active reef restoration that provide source material for the rehabilitation of denuded reefs. The floating mid-water coral nursery was first developed in Israel. This project is adapting the mid-water floating nursery concept to Caribbean conditions and Caribbean coral species. The three mid-water floating nurseries that have been constructed in Discovery Bay are the first coral nurseries of this

kind in the Caribbean. Each nursery is self-floating, made from 3 inch PVC pressure pipe, and can be lowered to allow for the passage of hurricane-generated waves. Two nurseries (Annabell and Tinkerbelle) are located on the foreereef at a depth of 10m and between 14-15m off the seafloor. The third nursery is at a depth of 3m and 12m above the seafloor in the backreef.



Annabelle in silhouette from underneath

We are testing the suitability of 10 Caribbean coral species and one colonial hydroid for culturing under nursery conditions (*Porites porites*, *P. divaricata*, *P. astreoides*, *Madracis mirabilis*, *Montastraea annularis*, *M. cavernosa*, *Eusmilia fastigiata*, *Agaricia agaricites*, *Acropora cervicornis*, *A. palmata*, and the hydroid *Millepora complanata*). To date, differences in growth rate have been observed between species as well as between fore and backreef nursery locations. On the foreereef, *P. porites* polyp number increased 383.1% and *M. mirabilis* 121.3% over an 87 day period, while in the backreef, *P. porites* and *M. mirabilis* (taken from the same parent colonies as those on the foreereef) showed and increase in polyp number of 243% and 49.3% respectively. Remarkably two species, *P. divaricata* and *M. cavernosa*, had a faster rate of growth on the nurseries than was found in their parent colonies.



Newly made *P. divaricata* nubbin

PRML News
Port Royal Marine
Laboratory

Sea horses - hooked on Port Royal



Sea horse in Port Royal mangroves

Have you ever seen a sea horse? The Palisades Port Royal Protected Area has some to offer. These shy and mysterious creatures inhabit the waters of the Port Royal mangroves and can even be found along the docksides in the town of Port Royal. It was therefore fitting that the residents of this historic town chose this fascinating fish (yes fish) to be the mascot of the protected area, topping out the bottle nose dolphin, brown pelican (old joe), dildo cactus and red mangrove as possible contenders. The sea horse-*Hippocampus riedi*, is featured on posters, bumper stickers, buttons and maps of the protected area education campaign.

These fish are approximately 4 inches in length and often show great camouflage in sea grass, and between algae and mangrove prop roots to disguise themselves from predators. The sea horse also exhibits an interesting role reversal with the males in the population collecting the eggs from the female, development of the embryos and transporting the young (ponies; 50 – 1000!!) before they are “shot” from his abdomen at maturity. This display was recently witnessed by students at the PRML which houses a mangrove display with sea horses and many other organisms found in Port Royal mangroves.

CCDC News

Caribbean Coastal Data Centre
Jamaica Coral Reef Monitoring Network (JCRMN)

The JCRMN stakeholder workshop was held on February 8, 2007 at the Discovery Bay Marine Laboratory, the site of the inaugural meeting held July 2003. Nineteen individuals representing 14 organizations and institutions involved in coral reef monitoring in Jamaica attended the workshop. The participants reviewed the accomplishments of the JCRMN and identified future actions for implementation. During 2007 monitoring was conducted at Green Castles in St Mary, Navy Island in Portland and sites within the Montego Marine Park. Post Hurricane Dean monitoring was also carried out at existing sites at Negril and Discovery Bay.

Eighth Session of the Open-ended Informal Consultative Process on Oceans and the Law of the Sea. UN HQ, New York June 25-29, 2007



M. Creary presenting on marine genetic resources, challenges and opportunities.

Marcia Creary was invited by the Jamaica’s Permanent Mission to the United Nations to be a panelist at the *Eighth Session of the Open-ended Informal Consultative Process on Oceans and the Law of the Sea*. The focus of this session was marine genetic resources (MGR). Her presentation entitled “Jamaica’s marine genetic resources: challenges and opportunities”, gave a brief overview of the some of the MGR programmes taking place in Jamaica. She discussed the challenges faced in the management and development of

these resources and also stressed the need for Small Island Developing States to establish controlled access, prior informed consent, participation in research, and mechanisms to share proceeds from MGR activities.

Coral Reef Monitoring in the OECS and Tobago – MACC/CMS



Participants receive video monitoring equipment in St Lucia.

The CMS under a MOU with the Mainstreaming Adaptation to Climate Change (MACC) Project are coordinating the expansion of the CPACC coral reef monitoring programme to the OCS and Tobago. Sixteen participants from seven countries (Antigua & Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, St. Vincent & the Grenadines and Trinidad & Tobago) were trained in the CPACC video-monitoring protocol during training sessions conducted in St Lucia in September. Each country was provided with video monitoring equipment that was used to carry out coral reef monitoring, (under the supervision of the CMS) during the period September to November. Data processing, analysis and report preparation are underway.



Monitoring in St Kitts

Publications

Ranston E.R, D.F. Webber & J. Larson. 2007. The first description of the potentially toxic dinoflagellate, *Alexandrium minutum* in Hunts Bay, Kingston Harbour, Jamaica. *Harmful Algae* Vol.6: 27-47.

Azan, S.A. & **D.F. Webber.** 2007. The characterization and classification of the Black River Upper Morass using the 3-parameter test of vegetation, soils and hydrology. *Aquatic Conservation*. Vol.17 (1): 5-23.

Conferences, Workshops and Meetings

Creary, M., L. Jones Smith. 2007. *Jamaica Coral Reef Monitoring Network Stakeholders Workshop Report*. Feb 8, 2007. Centre for Marine Sciences, UWI

Campbell, C., **D. Narinesingh, D. Webber.** 2007. *Seagrass replanting, an environmental success in coastal habitat rehabilitation*. Jamaica Institute of Environmental Professionals. 3rd Conference on the Environment. "Business and sound environmental management in the Caribbean- What makes it work"? Jamaica Pegasus, June 15-17, 2007

Gayle, P. & M. McNaught. 2007. *Reefs and their dependents – the benefits of environmental stewardship*. Jamaica Institute of Environmental Professionals. 3rd Conference on the Environment. "Business and sound environmental management in the Caribbean- What makes it work"? Jamaica Pegasus, June 15-17, 2007

Creary, M. L Jones Smith 2007. *Impact of climate change on coral reefs in the Caribbean*. Caribbean Climate Change Conference. June 15-17, 2007. Dept of Economics, UWI and the Caribbean Community Climate Change Centre.

Creary, M. 2007. *Jamaica's marine genetic resources: challenges and opportunities*. Report on the work of the United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea at its eighth meeting (UN Headquarters, New York 25-29 June 2007). A/62/69 www.un.org/.

Creary, M. 2007 *Monitoring and Assessment: the Caribbean Coastal Data Centre*. Workshop 1: Data Collection and Analysis for Information & Knowledge Management. 3rd International Tropical Marine Ecosystems Management Symposium (ITMEMS 3). Oct 16-20.2006 Cozumel, Mexico. www.itmems.org.

Graduate Degrees Awarded

Four persons were awarded graduate degrees in 2007. **Gale Persad** (PhD – secondary plankton production), **David Narinesingh** (PhD – oceanography), **Gillian Young** (PhD - Artemia) and **Stacy-Ann Moses** (MPhil – artificial reefs).

Staff Matters

Personnel

Mr. Hugh Small joined the CMS in March as Scientific Officer replacing **Marlon Hibbert** who took up a position in the Turks and Caicos Islands.

Ms Loureene Jones the Data Analyst in the CCDC left to take up a position at NEPA in October 2007.

During the year, three persons joined the DBML staff, **Paulina Plunkett, Simone Clarke** and **Peta-Gaye McKenzie**. Both Miss Plunkett and Clarke are attached to the Administrative Team and Miss McKenzie works with the Scientific Team.

Training & Development

Anthony Downes - Health and Occupational Safety Procedures

David Clarke - Plumbing and Basic Refrigeration and Air Conditioning

Paulina Plunkett, Simone Clarke and **Pamela Housen** - Quick Books accounting software

Peter Gayle - Hyperbaric Safety Director Training Course, Texas.

Lorna Brown is pursuing the Level 111 Certificate Hospitality Management Course at the Runaway Bay HEART Training Institution

Hugh Small and **Peter Gayle** - CREWS workshop held at DBML to review station damage repair, post hurricane assessment and biological assessment of surrounding reef.

Outreach Activities

The DBML participated in the Environmental Conservation Fair held 24th October by UDC/SADCO at the Green Grotto Caves and the Safety Health & Environment Fair held 15th November at the Runaway Bay HEART Training Institution.

Up Coming Events

UWI 60th Anniversary

The UWI celebrates the 60th anniversary of its founding. Various commemorative events and activities on each campus and in the UWI-12 countries are scheduled throughout the anniversary year, from January 1 to December 31, 2008.

International Year of the Reef (IYOR) 2008

NEPA is the Jamaican focal point for IYOR and has planned activities to take place throughout the year. Information can be obtained from Ainsly Henry at AHenry@nepa.gov.jm.

11th International Coral Reef Symposium (ICRS) 2008

The theme is REEFS FOR THE FUTURE, and convenes in Ft. Lauderdale, Florida, July 7-11, 2008.

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