



Caribbean Marine Science

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Contents

Association News	1
Profiles	6
General Interest	7
Meetings/Conferences	10
New Books	12
Courses Offered	13
Change of Address Form	15
Dues/Membership Form	16
AMLC Background & Goals	16
AMLC Officers	17

Association News

Notes from the Editors

We would like recognize the Institute of Marine Affairs of Trinidad and Tobago and the members of AMLC Executive Board who have been collaborating with the organization of the 31st Scientific Meeting of the Association, which will be held in Port of Spain, Trinidad & Tobago, 14-18 July. Judging for the number and quality of abstracts submitted, this will be an excellent meeting and another step forward for the AMLC. During the meeting, the Association will recognize four long-time collaborators and friends of the AMLC: Ernest and Lucy Williams, Ray Hayes and Ivan Goodbody.

Two new Student Achievement Awards will be presented for the first time at the Trinidad meeting. The first is the new Bert & Lucy Williams Award for the best student oral paper presented at the

conference. The winner of this award will be presented with a certificate of achievement and a U.S. \$500 honorarium. The second award is the Ivan Goodbody Award, which will be presented for the best student poster presentation, and this award will carry a U.S. \$250 honorarium. It is expected that these awards will be presented at all future AMLC Scientific Meetings. Ernest and Lucy Williams and d Ivan Goodbody are planning to be at the meeting for the first presentations of the awards named for them.

The meeting organization is on schedule and the details for the preparation of the oral presentations, posters and the manuscripts for the proceedings are presented below. Please, follow these instructions carefully to facilitate the work of the organizers and Proceeding editors.

This issue includes last minute information and helpful tips for the AMLC Scientific meeting in Trinidad next month and a summarized version of the Profile of the Institute of Marine Affairs, host to the July meeting, is included in the Profile section. Two interesting articles are presented in the general interest section. The first one is about Glover's Atoll Reef, the southernmost coral reef atoll in the Belize barrier reef, which was declared a Marine Reserve by the Government of Belize in 1993 and was designated as part of the Belize Barrier Reef World Heritage site in 1996. The second describes an intensive worldwide monitoring program of sea surface temperatures. NOAA Satellite and Information Services is the USA's primary source of space-based meteorological and climate data.

Speakers Scheduled for the Trinidad Meeting

We are looking forward to an especially interesting and informative presentation from our Keynote

Speaker, Dr. William J. Brennan, Deputy Assistant Secretary for International Affairs at the U.S. National Oceanic & Atmospheric Administration (NOAA). Dr. Brennan will speak to several issues, but notably he will address the new White Water to Blue Water (WW2BW) initiative that will be of great interest to our membership.

WW2BW is a U.S. government initiative aiming to establish cross-sectoral ecosystem management to support healthy marine and coastal ecosystems, thereby improving the foundations for vibrant and secure economies in coastal nations. The initiative is supported by numerous other countries, including as a few examples the United Kingdom, France, Spain, and the Wider Caribbean states; many NGOs such as the IUCN, the Ocean Conservancy and others; international organizations such as UNEP, GPA, IOC-Caribbean, and IMO; and even by entities from private enterprise.

Of particular interest to AMLC members is that WW2BW will begin as a pilot program in the Wider Caribbean. Similar programs may expand to Africa and the South Pacific in coming years, which will be influenced by lessons learned in the Caribbean Region.

This is an ambitious program, intended to help implement numerous international commitments, including the Barbados Programme of Action, the Montreal Declaration of the Global Program of Action, the Jakarta Mandate of the Convention on Biological Diversity, UNCLOS, the Cartagena Convention and its three protocols, the International Coral Reef Initiative, the FAO Compliance Agreement, the 1995 FAO Code of Conduct for Responsible Fisheries, the 1995 U.N. Fish Stocks Agreement, and the 2000 Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean.

Dr. Brennan will speak at our first session on Monday morning to kick-start our meeting with information of great interest to all of us.

This start will be complemented by our Thursday evening banquet speaker, Fernando Miguel Bretos, the Ocean Conservancy's Project Manager for Caribbean Conservation, which you will note is one

of the key supporters of the WW2BW initiative. Mr. Bretos will present a bit of background about the Ocean Conservancy, and will discuss how partnering arrangements between the Conservancy and other institutions are conceived and implemented. He will present examples of programs already underway in Cuba and elsewhere – including Buccoo Reef in Tobago where they have partnered with our own meeting host, the Institute of Marine Affairs! We wonder where future partnerships can take our member institutions.

Eastern Caribbean States Regional Initiative meeting in conjunction with AMLC

In an effort to enhance cooperation among the independent nations of the eastern Caribbean, an international partnership was created to promote long-term sustainable use and conservation of marine resources in the eastern Caribbean nations of Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines. The Organization of the Eastern Caribbean States and Barbados, the U.S. National Oceanic and Atmospheric Administration (NOAA), the U.S. Agency for International Development (USAID), and the U.S. Department of State Environmental Diplomacy Fund (EDF) collaborated to assist countries in the region to promote conservation, expand eco-tourism in the marine environment, and encourage economic diversification. One of the priorities of this project is to assist marine resource management agencies in assessing marine habitats and identifying potential coral reef marine protected areas. The goal of a regional approach is to develop a comprehensive database including metadata, GIS baseline information and maps on coral reef community structure, habitat types, coastal zone use, fisheries harvest, relative abundance and distribution of fishes and invertebrates, and protected areas within the ECS.

The Steering Committee guiding this effort will be meeting in Port of Spain in conjunction with the AMLC Scientific Meeting, providing a helpful opportunity for our members to become better informed about this initiative and perhaps even to conceive and begin development of extensions of this

program's successes. A presentation about this program will be made on Thursday morning, during our session on Biodiversity, MPAs and Conservation

Last minute information for the Scientific Meeting of the Association in Trinidad and Tobago – July 14 – 18, 2003.

The objectives of the AMLC scientific meetings are to provide an opportunity for all members, researchers, and students in the Greater Caribbean Region to share their research interests and results, and to promote regional cooperation on common problems and/or questions. These meetings also provide members and invited speakers with an opportunity to meet people from the host institution and to visit research facilities and marine communities in diverse areas of the Caribbean.

The host institution for this meeting is the Institute of Marine Affairs in Trinidad & Tobago. This year's AMLC President, is Ms. Hazel McShine, the Director of the IMA. Questions about the meeting, therefore, may be sent to Hazel at:

*Institute of Marine Affairs
P.O. Box 3160, Carenage
Trinidad and Tobago
Tel: 1-868-634-4291/2/3/4
Fax: 1-868-634-4433
E-mail: director@ima.gov.tt
URL: <http://www.ima.gov.tt>*

Venue

The venue hotel will be the Crowne Plaza in Port of Spain, Trinidad. The negotiated rates are very favorable, but only if we can fill a minimum number of rooms, so we strongly encourage everyone to stay at the venue. We look forward to seeing you all there.

The negotiated room rates are U.S. \$82.00/night for single occupancy, and U.S. \$90.00/night for double occupancy. These rates include taxes AND a buffet breakfast. Please, make your hotel reservations as soon as you can (now if possible) so we can track progress.

To make your hotel reservations, contact Mr. Jerome Dinzey, Sales Manager at the Crowne Plaza Trinidad, Wrightson Road, Port of Spain, Trinidad, West

Indies. Telephone: 1-868-625-3366. Fax: 1-868-625-4166. E-mail: eoffice@crowneplaza.co.tt.

Please note that your room reservations will quote the higher, normal room rates, and not the negotiated AMLC rates. Once we pass the minimum number of rooms (we are very close and expect to pass it at any moment) you will be charged the negotiated rates.

Mr. Dinzey will want to know the dates you need your room(s), the number of people per room, and the number of a credit card you want to use to guarantee the reservation. You should probably use the fax number to send the credit card number, as this is a more secure mode of communication.

Executive Board Meeting and General Assembly

The Annual Executive Board Meeting will take place at 9:00 on the morning of Sunday, July 13 in the conference room of the venue hotel. All members of the AMLC Executive Board are asked to attend and should plan to arrive Saturday. The Sunday meeting will probably last most of the day. The General Assembly for all members will take place on Thursday afternoon. All members are requested to assist so we can all get to participate in the future planning and the improvement of the AMLC.

Authors Guide for Manuscripts and Posters

The following guidelines apply to reports presented in open sessions at AMLC's 31st Scientific Meeting in Trinidad, 14-18 July, 2003. They DO NOT apply to poster presentations, which will be represented in the published Proceedings by abstracts only. The Proceedings will contain full papers with abstracts for verbal presentations, and abstracts only for poster presentations. Research notes and other communications will not be included in the Proceedings volume.

Authors are requested to provide manuscripts of their paper(s) no later than September 30th, but they may be submitted at the meeting in Trinidad to enable efficient and timely publication of the Proceedings. One hard printed copy and one electronic copy are both required. Please provide the electronic copy in Microsoft Word. Manuscripts may be written in English or in Spanish.

Manuscripts not submitted at the meeting should be

submitted Steve LeGore (slegore@mindspring.com). Please make submissions as attachments to your e-mail message, and if you have the capability, please ZIP the attachments before mailing. Indicate in the Subject line: "AMLC MSS."

General - Manuscripts must be double-spaced, with 1.0 inch (or 2.5 cm) margins on all sides, and arranged as follows: cover page, abstract, text, acknowledgments, literature cited, tables, figure legends, and figures. Please number all the pages. Provide the manuscript in Microsoft Word, using the Times New Roman 12-point font.

Cover Page - The cover page must include the title of the paper, authors' names, each author's postal address, and the e-mail address for every author. The cover page should also indicate the names and contact information for three (3) specialists qualified to review the manuscript.

Abstract - An informative abstract shorter than 250 words must be included with articles. Informative abstracts include the purpose of the research, the main methods used, the most important results, and the most significant conclusions. If you have the capability, it will be appreciated if you also include a translation of the abstract into English if your paper is in Spanish, or in Spanish if your paper is in English.

Text - Main headings (Introduction, Materials and Methods, Results, Conclusions, etc.) should be centered and capitalized. **Do not use bold text or headlines.** Use italics instead of underlining for scientific names. Use the international metric system for all units and measurements. Cite references by author and year. In the Literature Cited section, list all authors for papers with up to three authors, and list the first author followed by *et al.* for articles with four or more authors. All references included in the Literature Cited section must be cited in the text and *vice versa*. Use the following style:

- For an article: Jackson, G. C. 1997. Frances W. Horne- Illustrator of Puerto Rico's Plants and Birds. *Carib. J. Sci.* 33(3-4): 125-141.
- For an article in a book: Armstrong, J. and J. Crawford. 1998. Convention of International Trade in Endangered Species of Wild Fauna and Flora. In Hatzios, M.E., A.J. Hooten,

and M. Fodor (Eds.) *Coral Reefs Challenges and Opportunities for Sustainable Management*, Proc. Of an Associated Event of the Fifth Annual World Bank Conference on Environmentally and Socially Sustainable Development, Oct. 9-11, 1997 in Washington, DC, pp. 65-67. The World Bank, Washington, DC.

- For a book: Bobrick, B. 1992. *East of the Sun*. Poseidon Press, New York, London, 542 pp.
- For a Web document: Kendall, M.S. *et al.* 2001. *Methods Used to Map the Benthic Habitats of Puerto Rico and the U.S. Virgin Islands*. <http://biogeo.noa.gov/projects/mapping/caribbean/startup.htm>

The text should be precise, clear, and concise. Avoid verbiage, excessive citations of the literature (especially to support well-known statements), discussions marginally relevant to the paper, and other information adding length but little substance to the paper. All tables and figures should be relevant and necessary; do not present the same data in tables and figures, and do not use short tables for information that can be easily presented using text.

Tables - Tables should have no vertical lines and only three horizontal lines (under the title, under the headings of the columns, and at the end of the table). Fill blank spaces with dashes and explain the meaning of the dashes at the end of the title or in a footnote.

Illustrations - High quality digital figures and/or hardcopies are required before the manuscript may be accepted for publication. The figures will be evaluated during the editorial reading of the article and if necessary instructions will be provided for the submission of adequate illustrations. Similar figures should be arranged into plates whenever possible; leave very little space between adjoining illustrations or separate them with a thin line. Color illustrations cannot be used. Photographs will be published in grayscale only.

Reprints: The AMLC does not provide free copies of the Proceedings or reprints. Copies of the Proceedings will be distributed to meeting attendees

and others as per AMLC policies currently in force. Additional copies may be purchased as long as they are available. Papers published in the Proceedings may be freely photocopied.

Poster Guidelines

Posters should be the standard size (4 x 3 feet) (48" x 36") and formatted for scientific meetings (Abstract, Introduction, Results and Discussion, Conclusions and reference list. Tables and figures should have clear legends) with large fonts that allow viewers to read from a meter away. The Organizers will provide poster stands, boards or wall space to place your poster. Posters will be organized by sessions and numbered for each author. Bring any unusual material you need to fix, attach, glue, etc., your poster to the board. Organizers will provide tape, tags and "Velcro".

Oral presentations

Sessions are organized so that each author has 20 minutes for presentation, which allows 2 minutes for handover (introduction), 15 minutes for the presentation, and 3 minutes for questions and answers. We ask that you practice and time your presentations before coming to the conference, because the schedule is rather tight to accommodate the number of good papers submitted, and session monitors will be asked to enforce time limitations so that we may stay reasonably on schedule. Remember to speak slowly and clearly during your presentation.

Visual Aids

Projection equipment supplied at the conference will include a carousel slide projector for 35 mm slides, an overhead projector for overhead transparencies, and an LCD projector for Power Point presentations. Although you may want to bring your own laptop to support your presentation, we encourage you to use the supplied computer. The time required to switch computers impacts the time available for presentations, and sometimes other computers fail to work exactly as planned! For those of you using Power Point, please bring your presentation on one of the following media: a 3.25" diskette, a CD-ROM, or a 100mb ZIP disk. You are **strongly** encouraged to bring a backup set of overhead transparencies to use in the event of projection equipment failure.

Meeting program

The program for the meeting with scheduled oral

presentations and other activities can be found in the AMLC web page.

New AMLC List Servers

We now have two list servers dedicated to our members. The first one is for all AMLC members (including graduate students) and the second is reserved for use by AMLC student members. The purpose of these list servers is to facilitate communication and foster collaboration between and among our members. We hope that everyone will take advantage of this new AMLC service. We would like to thank Laurie Richardson and others involved in this program at Florida International University for their work and support. The list server addresses are:

amlcmembers@clio.fiu.edu (all members)

amlcstudents@clio.fiu.edu (AMLC graduate students only)

Only AMLC members who are on the list can post to the list. Any posting is first routed to the host computer at Florida International University. If it is not from a subscribed member it will not be sent to the list. Current members are automatically subscribed, and new members are added when they join AMLC.

Proceedings of the Puerto Rico Meeting

We know that authors of papers submitted for publication in the proceedings are growing impatient because of publication delays. The Proceedings are NOW in press -- we know this because we have seen the first copies! We hope to avoid such delays in the future, and your Executive Board is looking into alternatives for publishing future proceedings of our scientific meetings.

Future Meetings of the AMLC

One of our newest members, the Department of Marine Biology at St. George's University in Grenada, has graciously and enthusiastically volunteered to host our next AMLC Executive Board Meeting in 2004. One of our oldest members, the Bermuda Biological Station for

Research, has offered with equal grace and enthusiasm to host the 2006 Executive Board Meeting. Three candidates are being considered for the next Scientific Meeting in 2005, and we will let you all know soon where it will be.

- Fisheries and Aquaculture
- Environmental Research
- Legal Research
- Marine Chemistry
- Technical Advisory Services

Web site address: <http://amlc.uvi.edu>

Fields of Activity

The inter-program research work of the IMA focuses on the marine and coastal environment and covers the following fields:

Profiles

Institute of Marine Affairs (IMA). Trinidad and Tobago.

The Institute of Marine Affairs (IMA) is a multi-disciplinary, marine and environmental-related research institution, located in the western peninsula of Trinidad, at Hilltop Lane, Chaguaramas. The IMA was established, incorporated and administered in accordance with the provisions of an Act of Parliament, Ch. 37:01 in the Revised Laws of the Republic of Trinidad and Tobago as amended by Act No. 13 of 1990. The Institute is a statutory agency under the purview of the Ministry of Planning and Development.

IMA Mission

To conduct fundamental and applied research in marine affairs to ensure the sustainable use of the natural resources of Trinidad and Tobago. To make the results of such research available to the Government for the formulation of coherent and consistent policies in the conservation and management of the country's marine and related resources. To respond to general needs for information and collaboration with all sectors of Trinidad and Tobago and the wider Caribbean

Research at IMA

Research at the IMA is conducted under the following programs which reflect specific tasks and activities related to the systematic investigations of coastal zones, inland waterways and rivers, near-shore waters, and the Exclusive Economic Zone (EEZ):

- Marine Fisheries
- Aquaculture
- Marine Geology / Sedimentology
- Environmental Impact Assessment (EIA)
- Economic / Financial Assessment
- Pollution Monitoring
- Marine and Wetlands Ecology
- Physical Oceanography
- Taxonomy
- Satellite Remote Sensing
- Geographic Information Systems
- Marine Environmental Policy and Law
- Environmental Management Planning
- Public Education and Awareness
- Information Management

Technical services

The IMA, through its Technical Advisory Services department, responds to technical inquiries from Government Ministries / Agencies and the private sector, and makes recommendations on matters falling within its purview. Criteria and policy guidelines for marine and coastal resource planning and management, which can contribute to the economic growth of the country, are also provided.

The Information Centre

The Information Centre manages the IMA's information resources for the benefit of its staff and provides information and education services to a wider user community locally, regionally and internationally. In addition to these, the Information Centre also coordinates the Caribbean Community Ocean Sciences Network (CCOSNET) and Caribbean Marine Studies, Journal of the Institute of Marine Affairs.

Vessels

The Institute owns and operates a 14m research vessel, the R.V. Kanawa, which is specially designed to accommodate instrumentation for near-shore oceanographic work. Smaller vessels are also used. The IMA maintains a fleet of vehicles for land-based logistic support activities comprising four-wheel drive vehicles, a panel van, a passenger bus and a tractor.

Library

The IMA Library was established in 1984 upon completion of the new premises. It forms part of the Institute of Marine Affairs' Information Centre. Its function is to provide up-to-date information on marine affairs and related topics, and to assist IMA professional staff in the performance of their duties. The Library can also be used for reference by the public. The library catalogue, which includes books, reports and articles indexed from journals, is computerized, utilizing CDS/ISIS software. The IMA is a depository for the Intergovernmental Oceanographic Commission (IOC). Some publications are received from the Food and Agriculture Organization – Fisheries (FAO) and the United Nations Educational, Scientific and Cultural Organization's (UNESCO) Division of Marine Science. For a small fee, photocopies of certain materials may be made.

The Marine Education Centre

The Marine Education Centre, an on-site facility for public education and awareness on the marine environment, is open Wednesdays and Thursdays between the hours of 9:00 a.m. and 3:00 p.m. Bookings to visit this facility should be made two weeks in advance, through the Information Centre.

Inquires may be addressed to:

Director

Institute of Marine Affairs

P.O. Box 3160, Carenage

Trinidad and Tobago

Telephone : (868) 634-4291/2/3/4

Telefax : (868) 634-4433

E-mail : director@ima.gov.tt

Internet : <http://www.ima.gov.tt>

General Interest

Glover's Reef – Conservation and Research on a Remote Caribbean Atoll.

The Belize Barrier Reef is the largest barrier reef in the northern hemisphere, and the second longest in the World. Three offshore atolls, hundreds of sand cays and patch reefs, mangrove forests, coastal lagoons, and estuaries combine to make up this habitat which supports one of the world's largest populations of West Indian manatee (*Trichechus manatus*), as well as 500 species of fish, 134 bird species, and three species of nesting sea turtles. Despite its conservation and scientific importance, the reef has come under increasing human pressure, including over-fishing, coral bleaching, diseases, fleshy algal dominance, and increase in tourism damage.

Lying 45 km off the mainland of Belize, Glover's Reef Atoll is the most southerly of the Belizean atolls. The elongate 13,200 hectare atoll has some of the best developed reef growth and some of the greatest variety of reef types in the Caribbean. The atoll boasts six sandy cays linked by an emergent reef crest. The reef is broken in three places by channels, where water flows in and out of the lagoon. The lagoon itself contains approximately 700 patch reefs of variable size and these patches are excellent sites for experiments requiring whole reef replication. The central lagoon of Glover's Reef Atoll averages 6 – 18 m in depth and is deeper than the lagoons of the two other Belizean atolls. Just a short distance from the atoll's rim off the eastern side the sea floor drops to a precipitous 1000 m, making the atoll a crossroads between the open marine environment and the protected shallow waters of the lagoon.

Glover's Reef Atoll was declared a Marine Reserve by the Government of Belize in 1993 and was designated as part of the Belize Barrier Reef World Heritage site in 1996. In a broad sense, the Glover's Reef Marine Reserve was established to maintain ecological processes, and preserve genetic diversity and sustainable yields through informed management of species and their habitats. The reserve maintains natural areas for education and research, and provides

social and economic benefits through ecologically sensitive tourism and recreation. The reserve has three management zones: a small wilderness zone, a larger conservation zone which is a no-take reserve allowing non-extractive uses but banning fishing, and the general use zones where fishing is allowed.

The Glover's Reef Marine Station has supported a wide variety of research and conservation activities since it was established in 1993. Studies have shown that populations of commercially important species are more abundant and larger inside the reserve compared with populations outside the reserve. Lower numbers of predatory fishes in the general use zone has led to higher grazing by the sea urchin *Echinometra viridis*. The Nassau grouper (*Epinephelus striatus*) aggregates each year in the northern tip of the atoll and this area has been made a temporary closure area at the discretion of the Belize Fisheries Department. Recent research suggests that the numbers of grouper aggregating at this site are ten times lower than they were before the area was fished. Continued protection of the reserve and grouper aggregation sites is important to ensure long-term conservation is a success.

A wide range of conservation science is developing at Glover's reef. In the lagoon, studies of the spiny lobster *Panulirus argus* found movements between patch reefs depend on the surrounding habitat. Seagrass provides a much better corridor between patches than rubble and sand. "Wildlife corridors" can have a strong influence on population sizes and these findings have important implications for managing lobsters and other species that use patchily distributed habitats. Other studies found increasing fleshy algae on the patch reefs and show that where erect fleshy algae dominates, a number of coral reef fishes are suppressed.

In the early 1970s hard coral dominated the patch reefs, and three ecological zones existed, delineated by the dominant coral species, *Porites*, *Acropora*, and *Montastraea*. But coral cover has been lost, and these zones have largely disappeared. The fact that coral cover decreased in all the zones suggests that it was not simply the loss of *Acropora* from white-band disease that caused this change to algal dominance. Rather, reduced herbivory is the most likely factor as *Porites* and *Montastrea* zones show equal losses in

hard coral cover and increases in erect algae. Disturbance and recovery patterns from hurricanes were originally suggested to be the cause of the ecological zonation, and hurricanes do hit the Belizean coast about every ten years. But when Hurricane Mitch passed near the atoll in 1998 the storm caused severe damage to the windward edge of the atoll but very little damage to the patch reefs or leeward side of the atoll. Unless hurricanes pass directly over the reef, the effect on patch reefs is likely to be minor. These topics deserve further investigation, and studies of reef recovery from fishing, hurricanes, and diseases will be a priority for future investigations at the research station.

Not all the research at Glover's Reef Atoll investigates the sea. Anthropologists working on the island have discovered Mayan activity on Middle Cay from 900 BP as well as evidence Spanish and British settlers living on the island in the 1700s. Birds and plants have also been investigated. As well as doing research, the Station's staff work with the other atoll stakeholders group, including fishermen and tourism operators, to develop and support management programs designed to meet the needs of the many different people using the atoll. The Wildlife Conservation Society has also established a small internship program with the University College of Belize to help train local staff to protect and manage the reef system.

The Wildlife Conservation Society is eager to bring interested researchers to Glover's Reef Marine Research Station to help support the long-term stewardship of this international marine treasure. The society invites researchers and occasionally provides limited support for applied, conservation-relevant investigations of coral reef systems, reef fish and invertebrates, and other aspects of marine conservation. The station can house eight researchers and is staffed by a full-time manager, cook, dive-master, and experienced coxswains. There are several small skiffs and dinghies available, as well as a larger 28-foot vessel for studies further at sea. The laboratory building has workspace, running freshwater, refrigeration, and some scientific equipment. A weather station next door provides continuous meteorological data. Room, board and boat fees are reasonable (see www.wcs.org/glover for current rates). If you are interested in doing research

at Glover's Reef you can apply to the WCS Glover's Reef Marine Research Station Manager, P.O. Box 272, Dangriga, Belize or by email to glover@btl.net.

Liz Lauck

Assistant Director of Marine Programs

Wildlife Conservation Society

llauck@wcs.org

Satellite data to monitor heat stress on coral reefs – NOAA.

Scientists at the National Oceanographic and Atmospheric Agency (NOAA) are using satellite data to monitor the long-term effects of heat stresses on several coral reefs throughout the world. While the scientists have been monitoring the stresses for some time, the *NOAA National Environmental Satellite, Data, and Information Service* is now providing an operational product called "Degree Heating Week".

"Degree Heating Weeks have been available experimentally for some time," said Dr. Alan Strong, coordinator of Coral Reef Watch at NOAA Satellite and Information Services. "Turning operational means that coral reef managers and stake holders will now have up-to-date, accurate, and reliable information on the status of their reefs and may be able to take active measures to prevent further damage if their site has a high DHW rating."

Using satellite-derived information, DHWs continuously monitor the cumulative thermal stress of several coral reefs throughout the globe, including Australia's Great Barrier Reef, Galapagos, the Bahamas and others. The extent and acuteness of thermal stress, key predictors of coral bleaching, contribute to coral reef degradation worldwide.

Coral reefs compose a large and integral part of the coastal ocean, supporting a variety of sea life and providing resources of significant economic importance. Environmental coral bleaching occurs as coral tissue expels zooxanthellae, a symbiotic algae essential to coral survival that resides within the structure of the coral. Bleaching is induced by high water temperatures and also by bacterial infection, which is triggered by high temperature.

A Degree Heating Week is designed to indicate the accumulated stress experienced by coral reefs. For example, if the current temperature of a reef site exceeds the maximum expected summertime temperature by one degree Celsius, then the site receives a rating of 1 DHW. If the current temperature at the site is two degrees Celsius above the maximum expected summertime temperature or one degree above for a period of two weeks, the site would receive a rating of 2 DHWs, and so on.

With the operational product, NOAA Satellite and Information Services will provide continuous technical support on a 24-hour, seven-day basis, and will maintain a Web site which will be updated twice a week. NOAA Satellite and Information Services is the nation's primary source of space-based meteorological and climate data. NOAA Satellite and Information Services operates the United States environmental satellites, which are used for weather and ocean observation and forecasting, climate monitoring and other environmental applications. Applications include sea-surface temperature, fire detection and ozone monitoring. This center also operates three data centers, which house global data bases in climatology, oceanography, solid earth geophysics, marine geology and geophysics, solar-terrestrial physics, and paleoclimatology.

NOAA is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and providing environmental stewardship of the US coastal and marine resources.

Relevant Web Sites

[NOAA's Degree Heating Week](#)

[NOAA Satellite and Information Services](#)

[NOAA's Coral Reef](#)

Media Contact:

[Patricia Viets, NOAA Satellite and Information Services](#), (301) 457-5005

From NOAA Magazine, 2003.

Social Science Research Strategy for MPAs

The Marine Protected Areas (MPA) Center's Science Institute has developed a comprehensive national strategy detailing priority information needs in social science research related to planning management, and evaluation of MPAs. Based on an expert workshop in 2002, the strategy highlights and prioritizes key research themes and topics, and recommends practical methods to meet those information needs through targeted research, assessment, capacity building, and leveraged funding.

The draft "Social Science Research Strategy for MPAs" is now available for public comment. Strategy is posted in PDF form for review on <http://www.mpa.gov>. Please send comments to Sarah Lyons by email (sarah.lyons@noaa.gov) or fax (831.242.2051) by July 11, 2003. If you have specific suggestions, please refer to relevant page numbers and section titles wherever possible. The final strategy will be published in August 2003.

Meetings & Conferences

X Latin American Congress of Marine Sciences - X COLACMAR. Sept. 22 – 26, 2003. Puntarenas, Costa Rica.

The Latin American Association of Marine Research (ALICMAR) and The Universidad Nacional of Costa Rica, cordially invite all researchers, students, natural resource managers, NGO's, and politicians to the X COLACMAR Meeting in Puntarenas, Costa Rica, September 22-26, 2003. For more information, please contact the Organizing Comité X COLACMAR. Universidad Nacional, Facultad de Ciencia Exactas y Naturales, Heredia, Costa Rica.

Website: <http://www.una.ac.cr/Xcolacmar/>

Phone: (506) 277 3594 / (506) 260 2546

Fax: (506) 260 2546

Email: ioicos@una.ac.cr

Simposub Cuba 2003. Santiago de Cuba, Cuba. Sep 15-18, 2003.

The Water Sports Division of Cubanacan (Cubanacan Nautica) announces its symposium on underwater activities with the watchword "In defense of the sea". Topics of Simposub: Scuba diving and the preservation of the underwater environment - Voluntary monitoring. -Teaching scuba diving - Underwater archaeology - Speleo-scuba diving - Commercial scuba diving - Scuba diving at sunken ships of Admiral Cervera's fleet - Photo exhibits and video showings (non- competitive).

The symposium will be led by Deborah Andollo, multiple record holder in apnea, with Dr. Pedro Alcolado, full researcher at the Institute of Oceanology of Cuba. The official language will be Spanish. Translations into English will be available during the plenary sessions. For more information, please contact:

Marta Arcos Rodriguez

Executive Secretary, Organizing Committee

Ph: (537) 33-7969, 33-9436, 33-6675

Fax: (537) 33-7020

E-mail: marketing@marlin.cha.cyt.cu

56th Annual Meeting of the Gulf and Caribbean Fisheries Institute. Tortola, British Virgin Islands, November 10-14, 2003.

The meeting will be held at the H. Lavity Stoutt Community College Campus on Tortola, BVI. Sessions will focus on: Biology, ecology and assessment of reef and pelagic fishes - Biology, ecology, and assessment of invertebrate marine fisheries. - Management and socio-economics of marine fisheries (special session) - Marine protected areas and ecological reserves - Essential fish habitat - Caribbean aquaculture - Recreational fisheries - Marine science education in the Caribbean and Gulf of Mexico (tentative special session). Additionally, there will be a general poster session / reception.

Abstracts for the 56th GCFI are due July 31, 2003.

Abstracts will be accepted in English, French or Spanish. French and Spanish papers should also be accompanied by a title, abstract, and key words in English. English abstracts must be accompanied with Spanish translations. For information please contact:

R. LeRoy Creswell
Executive Secretary, GCFI Inc.
8400 Picos Road, Suite 101
Ft. Pierce, Fl 34945-3045
Ph: 772-462-1660
Fax: 772-462-1510
Email: lcreswell@mail.ifas.ufl.edu
Website: <http://www.gcfi.org>

The Fourth International Symbiosis Congress. Halifax, Canada. August 17-23, 2003.

This meeting will be held at Saint Mary's University in Halifax, Nova Scotia. The Congress features an overall theme of "global threats to symbionts," and includes an opening address by Ove Hoegh-Guldberg of Queensland University. Other symposia include marine symbiosis as led by Margaret McFall-Ngai of the University of Hawaii, cyanobacterial symbiosis as led by Birgitta Bergman of Stockholm University, symbiosis in evolution as led by Lynn Margulis, University of Massachusetts, deep sea chemoautotrophic systems as led by Charles Fisher of Penn State University, horizontal gene transfer with Charles Delwiche of the University of Maryland, among others.

For more information please access the Congress web site at:

<http://people.bu.edu/dzook/>

6th Congress on Marine Sciences - Marcuba'2003. 1-5 December 2003 Havana International Conference Center, Cuba.

The National Oceanographic Committee (CON) of Cuba is pleased to announce that the 6th Congress on Marine Sciences will be held at the Havana International Conference Center, on December 1-5 2003. The meeting is expected to bring together scientists and managers involved in marine sciences, services and technologies as well as educators, sociologists, economists, businessmen, policy-makers and anyone interested in promoting and integrating marine scientific research to sustainable development.

The Scientific Committee of MarCuba'2003 will decide on the form of presentation of contributed papers, which will include keynote lectures, and oral and poster presentation.

Call for Abstracts: Paper Abstracts should be sent to the Organizing Committee, in paper and digital format, before August 31, 2003. The Abstracts should be not longer than 250-words in letter size paper, leaving 2-cm margins on all sides, written in MS Word 6.0 with Arial 12 pt. font type and 1.5 line spaced. Abstracts are to be structured as follows: Title, Author(s), and Institution, complete address, city and country. The Scientific Committee will notify authors on the acceptance of their papers and the form of presentation, without prejudice to the applicant's participation as delegate. The Organizing Committee will inform later on the possibility of publication of original full Papers to be included in the meeting's Proceedings.

More information at:

<http://www.aoceano.org.br/MARCUBA%202003.doc>

Mail and Information Requests may be addressed to: ORGANIZING COMMITTEE MarCuba'2000 - 6th Marine Sciences Congress - National Oceanographic Committee - Playa, Ciudad de La Habana, Cuba - Tel.: (537) 23 64 01 al 06

Fax: (537) 24 99 87

E-mail: marcuba@ama.cu.

The 10th International Coral Reef Symposium. Okinawa, Japan. 28 June to 2 July, 2004.

The meeting is being coordinated by International/Local Organizing committees and the Japanese Coral Reef Society. The first circular has just been issued, which announces the general information of the symposium with a pre registration card and call for proposals of mini-symposium responding to four sub-themes under the main theme "Stability and Degradation of Coral Reef Ecosystems" selected by the Organizing Committee.

The first circular is enclosed with the next issue of "Coral Reefs", and you can find the same contents at <http://www.plando.co.jp/icrs2004>.

Those who wish to convene a mini-symposium should submit the theme through this web site by 30 January 2003. Call for individual papers will be announced in the second circular (around July 2003) after the content of mini-symposiums fixes. Please visit the web site or you may contact to "icrs@plando.co.jp" for further information.

Fax: 772-462-1510

Email: Leroy.creswell@gcfi.org

RECON Summary Report for local divers in the Caribbean. October 2002.

The Ocean Conservancy in collaboration with the reef Environmental Education Foundation (REEF) and NOAA's Coastal Zone Management program has been conducting several joint monitoring workshops for local divers in the Caribbean basin. The summary report for the most recent workshop held in Cabo Rojo, PR (October 2002) can now be viewed on the REEF web site.

<http://www.reef.org/data/PR02report.pdf>

New Books

Caribbean Marine Protected Areas: practical approaches to achieve economic and conservation goals.

The Gulf and Caribbean Fisheries Institute (www.gcfi.org) is pleased to announce the most extensive peer-reviewed publication to date on MPAs in the Caribbean. The publication contains 17 articles focusing on case studies, connectivity among MPA networks, socioeconomic considerations, and other issues. These papers were presented at a MPA symposium, the largest ever in the Caribbean, held in association with the 54th annual GCFI conference in the Turk and Caicos Islands, Nov 2001. This symposium was published in cooperation with the University of Southern Mississippi and will appear as Vol 14 Number 2 (March 2003) of Gulf and Caribbean Research.

For those of you who attended and registered at the 54th GCFI, you will be receiving this publication at no additional charge along with the Proceedings from the meeting. For those who were unable to attend the meeting, copies of this publication may be obtained by sending a check or money order (no credit cards, please) in U.S. funds (30\$ U.S.; \$35 outside U.S.) made payable to GCFI at the following address. If you wish to receive both the MPA publication and the proceedings, send a check or money order (\$50 U.S.; \$55 outside of U.S.) to:

GCFI

c/o IFAS/UFL

Sea Grant College Program

8400 Picos Road, Ste. 101

Ft. Pierce, FL 34945-3045

Attn: LeRoy Creswell

Vista Nieve. The remarkable true adventures of an early twentieth century naturalist and his family in Colombia, S.A.

"Vista Nieve" is the biography of two American pioneering families the Flyes and the Carriker - whose dreams led them to the lofty Sierra Nevada de Santa Marta in northern Colombia at the turn of the last century. The story goes well beyond coffee plantations etched into the Colombian jungles. It includes the documentation of the significant contributions of my father, ornithologist Melbourne A. Carriker, Jr. who greatly enhanced the bird collections of the Smithsonian National Museum of Natural History (NMNH), and the Carnegie Museum, among others. And by his side was my mother, Carmela Flye Carriker, whose tireless spirit benefitted his bird and bird lice collecting and building and managing their coffee plantation. Carriker was an Associate of the NMNH for many years and lived out his life in Colombia.

The book is available in two editions: a) an English Edition, through my email address carriker@udel.edu, amazon.com, and ebay.com, and b) a Spanish Edition from Mr. Hector F. Ospina: HF.Ospina@cafedecolombia.com.

Melbourne R. Carriker

23 Hoornkill Avenue, Lewes, Delaware 19958 USA.

Tel. 302-645-4274.

Courses Offered

Tropical Marine Invertebrate Biology. Discovery Bay Marine Laboratory, University of the West Indies. 29 June - 14 July 2003.

Faculty: Prof. Peter F. Newell, Former Head of Dept of Biology, University of the South Pacific. Dr. Barbara L. Kojis, Division of Fish and Wildlife, Virgin Islands. Dr. Norman J. Quinn, Discovery Bay Marine Lab, University of the West Indies. Dr. George F. Warner, Center for Marine Science, University of the West Indies.

Course Aims: To increase students' knowledge of the biology and biodiversity of marine invertebrate animals and of methodologies for marine biological fieldwork through intensive, direct experience. At the end of the course the students will be able to identify marine species within a range of invertebrate phyla. They will understand aspects of the biological relationships between these species and their environments and will be able to apply field and laboratory techniques to study these relationships. They will become proficient at scientific record keeping. Instruction by a widely experienced faculty will be by extensive fieldwork, lectures, and laboratory practicals. This is a 4 credit 2nd year University of the West Indies course and may be transferable to other universities.

The course is open to undergraduates and graduates who have taken at least one year of biology - invertebrate zoology and ecology are recommended. All students must be confident of their swimming skills. Students with scuba certification are encouraged to enroll and will be able to utilize those skills in field activities. Applications should include a cover letter with a paragraph describing why you are interested in the course, transcripts, and two letters of recommendation. Applications will be reviewed on 20 April 2003. Late applications will be considered if space permits. Applications may either be sent by post or email. Scholarships are available to assist those who have trouble meeting the full tuition fees.

Facilities: The Discovery Bay Marine Laboratory is a research and teaching institution of the University of the West Indies, ideally located for studies of coral reef environments. It has easy access to a shallow-water lagoon, rocky shores, shallow and deep coral reefs and fossil Pleistocene coral reefs. Diving equipment includes scuba tanks, several boats, compressors, a double lock hyperbaric chamber, digital imaging lab, wet lab, several dry labs, library and workshops. Accommodations include a 10 room dormitory and apartment block.

Norman J. Quinn, Ph.D.
Discovery Bay Marine Laboratory
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Discovery Bay, St. Ann
Jamaica
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fax +(876) 973-3091
nquinn@uwimona.edu.jm

Advanced Courses in Tropical Marine Sciences. Mote Marine Laboratory's Center for Tropical Research. 12-20 July, 2003.

The following course is being offered for advanced undergraduates and graduate students. Working professionals desiring to gain current information in these topic areas are also encouraged to apply. The course will be limited to 12 students.

Diseases of Corals and Other Reef Organisms

Esther C. Peters, Ph.D., Tetra Tech, Inc.
Robert B. Jonas, Ph.D. George Mason University

Description: During the last two decades, the potential for severe impacts to coral reef populations and communities from the effects of various diseases has been recognized. Diseases have been described affecting corals, fish, coralline algae, and sea urchins, sometimes with wide-ranging effects. This course will introduce students to the field of pathobiology of marine organisms. The focus of lectures, dives and laboratory sessions will be on diseases affecting hard corals, but information will also be presented on diseases of other reef organisms. Methods of studying diseases will include collection

of field monitoring data and physiological, histological and microbiological techniques. The course will provide students with a state-of-the-art overview of reef pathobiology, experience with relevant techniques, and an understanding of the need for a multidisciplinary approach to its study.

Prerequisites: College level biology courses and SCUBA certification are required. Divers must meet AAUS standards for "Diver-in-Training" status. This includes medical clearance, completion of forms and acceptance by the Mote Marine Laboratory Diving Safety Officer. Divers coming from AAUS institutions will need a letter of reciprocity from their Dive Safety Officer attesting to their dive status. All divers will have an in-water check-out prior to final approval for course diving. Courses in invertebrate zoology, microbiology, ecology, chemistry, biochemistry, physiology, histology or marine sciences will be very helpful.

Credit: Mote Marine Laboratory does not offer credit, however, it may be possible to arrange credit through your home institution for directed studies, research courses, etc. Consult your faculty advisor. It is also possible to obtain 3 credit hours from George Mason University, Fairfax, VA. For information on credit requirements, contact Dr. Peters (epeters2@gmu.edu) and contact Dr. Jonas (rjonas@gmu.edu).

Registration procedures and tuition fees.

The course fee of \$1,100.00 US includes all course materials, accommodations, meals (dinner, 7/12 through breakfast on 7/20), SCUBA costs and weights. Participants should provide mask, fins and snorkel and, if diving, their own regulator, BCD and weight belt (rentals can be arranged if required).

Key dates

28 March, 2003 Application receipt deadline.
18 April, 2003 Email notification of acceptance and packets, including dive forms, mailed out.
2 May, 2003 Deposit (\$300.00) receipt date.
13 June, 2003 Last day to withdraw with deposit refund. Balance and dive forms due.
12 July, 2003 Course starts
The application form may be printed (or copied and emailed) from our Website:

Course Director - Erick Muller

email: ctr-info@mote.org

Mote Marine Laboratory

Center for Tropical Research

24244 Overseas Highway

Summerland Key, FL 33042

Tropical Marine Biology - Lee Stocking Island, Bahamas during July 21 - August 4, 2003.

We still have 3 spots left for our summer course. Students will receive 4 semester hours of transfer credit (undergraduate or graduate) as long as their home institution agrees to it. More information about the course can be found at the following web site:

http://www.bio.gasou.edu/Bio-home/Gleason/Trop_Mar_Biol/TMB_Home_Page.html

The school for Field Studies – Summer-Fall undergraduate Courses.

The School for Field Studies (SFS), an environmental field studies program, still has space in its Summer & Fall 2003 courses at out field station in the Turks and Caicos Islands, British West Indies. Financial aid is still available (you don't need to be receiving financial aid at your school to qualify). SFS is accredited through Boston University.

Project focus: ASSESSING THE ROLE OF MARINE PARKS FOR SOUTH CAICOS ISLAND
Summer session I: June 9 - July 8 (four credits)
Summer session II: July 14 - August 12 (four credits)
Fall session: Sept. 8 - December 11 (16 credits)
Specific Topics include: marine parks as a means of resource development for South Caicos; marine ecology, ecotourism, fish stock assessment and coastal zone management. Course includes lectures, field exercises (snorkel or SCUBA), research and field trips. Go to our website to read more about our unique program.

http://www.fieldstudies.org/pages/programs/br_west_indies.html

Participants: undergraduate level college students
Credit: Summer = 4 credits; Semester = 16 credits;
SFS is accredited through Boston University.
Application: deadline April 30 for Summer & Fall
2003 programs; application form is available on our
website: www.fieldstudies.org

For more information contact: Lili Folsom
(lfolsom@fieldstudies.org) or call us at
1.800.989.4418

Lili Folsom
Director of Admissions
The School for Field Studies
10 Federal Street Salem, MA 01970
978-741-3567
lfolsom@fieldstudies.org
www.fieldstudies.org

Internship Announcement

The Central Caribbean Marine Institute is announcing
available spaces in our summer internship programs
in the Cayman Islands. Internship credit is
available through Rutgers University. We are
extending the registration deadline for qualified
undergraduate and graduate applicants for our:

- 1) Structure and Diversity of Coral Reefs Internship
- 2) Coral Reef Fish Population Assessment:
Occurrence and distribution of Nassau Grouper
(*Epinephelus striatus*) and fish populations of Little
Cayman and Cayman Brac.

This is a highly selective program, to ensure the best
training possible during the research internship only a
maximum of 12 students will be able to
participate at a time. Students will collect data to be
used on a large on-going study of the coral reef
ecosystems of Little Cayman.

The goals of this program are: (1) To increase the
interest of future young scientists in coral reefs and
enhance their training, (2) To learn more about coral
reef communities and divulge this knowledge by
means of scientific publications, and (3) To provide
data that will assist in protecting these ecosystems.

For more information go to our website:
www.reefresearch.org Or contact us at:

info@reefresearch.org

Dr. Carrie Manfrino Central Caribbean Marine
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P.O. Box 1461 Princeton, NJ 08540
(609) 921-3590
CCMI – Cayman
PO Box 37 Little Cayman, Cayman Islands
(345) 948-0107

Change of Address

MOVING? To ensure that you continue to receive
Caribbean Marine Science, notification of
upcoming AMLC meetings and other AMLC
information, please fill out the following change of
address form and mail to:

Dr. Laurie Richardson
79 Marina Avenue
Key Largo, FL 33037
richardl@fiu.edu

Name & Title

Institution/Association

Address _____

Telephone _____

FAX _____

E-mail _____

Scientific Interests _____

Dues

Individual membership dues for 2003 are \$25.00 due March 31st, 2003. You may also help AMLC with a donation membership contribution if you wish; the schedule for these is presented below. Student dues are still \$5 per year. **The AMLC can now accept credit cards (Visa or Mastercard) payments for AMLC dues!** A 5% service charge will be added to credit card payments. Checks must be in U.S. dollars, from U.S. banks (or a U.S. dollars bank draft), made out to "AMLC", and sent to Laurie Richardson.

Name & Title

Institution/Association _____

New Address _____

Telephone _____

FAX _____

E-mail _____

Scientific interests _____

Membership Options: Student (US\$5.00)_____
Regular (US\$25.00)____ Sponsor(US\$30.00)_____
Sustaining Member (US\$50.00)____ and
Patron (US\$100.00)_____.

My check (bank draft) is enclosed for US\$_____ OR Please charge US\$_____ to my Visa () Mastercard () (Charge will include an additional 5% to cover handling expense)

Card # _____

Expiration Date _____

Cardholder _____

Signature _____

AMLC Background & Goals

The Association of Marine Laboratories of the Caribbean (AMLC) was founded in 1956 by marine researchers with interests in the marine science of the tropical Atlantic and Caribbean. Founded primarily as a scientific organization, the strength of the AMLC lies in the diversity of its member laboratories and the extensive expertise of its membership. Institutional, individual and student memberships are available.

Annual AMLC meetings are hosted by member institutions actively conducting marine research in the Greater Caribbean Region. The host laboratory arranges for facilities for research presentations, copies of the presented abstracts (the proceedings) and accommodations for participants. The AMLC has no designated official language so researchers are free to make their presentations in their native language.

Caribbean Marine Science, published in English and Spanish, is the biannual newsletter of the AMLC and informs members of AMLC activities, pertinent events, and relevant research.

The purpose of the AMLC is to advance common interest in the marine sciences by:

- a. Assisting and initiating cooperative research and education programs
- b. Providing for a for exchange of scientific and technical information
- c. Fostering personal and official relations among members
- d. Publishing the proceedings of scientific meetings and a newsletter
- e. Cooperating with governments and other relevant organizations
- f. Other means that may be desirable.

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Contributions to the AMLC Newsletter:

All members of the AMLC (individual and laboratory) are encouraged to send relevant news items at any time, to the newsletter. Relevant news items include, but are not limited to: new facilities, faculty/staff changes, positions available, research programs and initiatives, publications of general interest, awards, visiting scientist opportunities, and education programs. Submitted items should be sent to the AMLC newsletter office by the end of February for inclusion in the Spring issue, and by the end of September for the Fall issue.

Please send your information and comments to:

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