Caribbean Marine Science

January 2009 Official Newsletter of the AMLC Published Spring and Fall

Contents

Association News

From the Editors' desk

We encourage our members and collaborators to continue their support to the Association and to participate actively in our future development. Congratulations to the newly elected and re-elected officers. Dr. Paul Sammarco has now officially taken the helm of the Association as Executive Director. Dr. Steve LeGore was elected Vice-President after Dr. Ernesto Weil stepped down. Dr. Rachel Collins is the current President, who is now busy organizing the next Executive Board Meeting in Panamá this coming May. Dr. Laurie Richardson was re-elected as Treasury Officer and Dr. Aldo Croquer is our new Membership Director. You can find the contact information at the end of the newsletter.

We would like to congratulate Sascha and his collaborators for another successful Scientific Meeting of the AMLC in Dominica. There were 93 participants representing 12 countries (Barbados, Bermuda, Canada, Costa Rica, Denmark, Dominica, Grenada, Jamaica, Panama, Trinidad and Tobago, USA and Venezuela) and two territories, Puerto Rico and the US Virgin Islands. There were 54 oral presentations and 41 poster presentations. The best student oral presentation award went to Damien Willete ($ 500.00) from the University of California and a student of Sascha Steiner. The best poster presentation award was a tie between Pascal Menge from the Depart. of Biology, University of Puerto Rico and Claudia Ruiz Diaz from the Depart. of Mathematics, University of Puerto Rico ($ 125.00 each). Official certificates of award signed by our Executive Director were also sent to the winners. Congratulations!

Letter from our Executive Director

Dear colleagues,

Firstly, let me say that it is an honor and a privilege to serve you as Executive Director. The AMLC has such a long and respectable history. It has had its peaks and lived through its valleys - and has come such a long way. Steve Legore has done a great job of bringing you through to 2009. It's an honor to follow him, and I hope to build us to even greater heights.

This year has been such an interesting one. The 2009 AMLC Conference in Dominica was a great success. A week of excellent talks, posters, field activities, networking, and socializing. Indeed, as much is accomplished through networking and socializing, as is accomplished or learned from the talks and posters. And what a beautiful island. Sascha Steiner, our last President, and his Organizing Committee are to be commended for their excellent on organizing the

meeting. How fortunate we are to be able to travel around the Caribbean to meet each other once every year or two and learn about the progress of our science. And the international flavor of our meetings is to be envied. Do you realize that we cover an area spanning from as far north as Bermuda to Venezuela, including the island states and the continent? And with the new resolution passed by the Board last year, we can include member labs outside of our region as Affiliates, to expand our representation even further.

We have a number of matters pending for consideration by the Board. One of them is what I have tentatively termed "AMLC-COGI", or the AMLC Caribbean Ocean Governance Initiative." My vision for this is for the AMLC to play a role in providing scientific information to the governments in our region, particularly where there are issues that overlap political boundaries, and also make recommendations for action, based on that scientific information. It would be my hope that the governments would consider taking action on those initiatives or at least be willing to consider them further and adjust them to their immediate needs. Being that we are a non-government organization (NGO), there is no obligation on the part of those governments to respond, of course; but I do think that such could help them. In addition, it would put us in a position where we could be recognized as a center to be consulted for scientific information when such is needed. With 30 labs from 20 countries and several hundred scientific members, we have a great deal of expertise to offer.

We will be considering this initiative in a workshop at our regular Board meeting in Panama this May. May I encourage as many of our Board members as possible to attend. Our Board meetings are, of course, open; thus, any other members or other interested parties that wish to attend are welcome to do so.

Have a good year, and I look forward to seeing you soon. Best Wishes,

Paul

Paul W. Sammarco
Executive Director

Future Meetings of the AMLC

The next Executive Board meeting will be hosted by our new President, Dr. Rachel Collin at the Smithsonian Tropical Research Institute in Bocas del Toro, Panamá in May of 2010. The next Scientific Meeting will be hosted by the University of Costa Rica in the summer of 2011. The next President and Conference Organizer will be Dr. Jorge Cortes

AMLC List Server

The purpose of the AMLC list server is to facilitate communication and foster collaboration between and among our members. We hope all AMLC members will take advantage of this service – if you have any news, requests, or questions to distribute to the membership, just send a message to the email address below. On-line discussions among members concerning Caribbean marine issues are encouraged. Don't be shy! The list server address is: members@lists.amlc-carib.org

Only AMLC members in good standing can post to the list. Messages not from a subscribed member will not be accepted. Current AMLC members are automatically subscribed with the list controlled by Dr. Aldo Croquer (croquereef@gmail.com), AMLC's Membership Director, and new members are added as they join AMLC.

We request contributions for the Newsletter from our members and readers. Your Newsletter is an efficient way of sharing information about your projects, or even better, finding help or cooperation from other members of the Association.

Editors: Ernesto Weil and Isabel Urreiztieta.

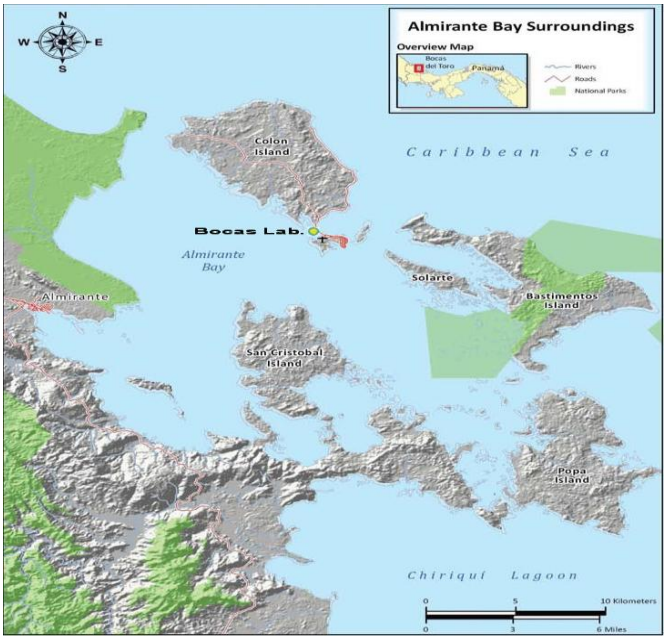
Profile

The Smithsonian Bocas del Toro Research Station

The Bocas del Toro Research Station (BRS), a field station of the Smithsonian Tropical Research Institute (STRI) on Panama's western Caribbean coast, is an ideal platform for both marine and terrestrial research.

The station hosts a diverse group of Smithsonian staff scientists, visiting scientists and students. Activities at the station focus on the Smithsonian Institution's primary mission: the increase and diffusion of knowledge. BRS visitors are engaged in research on the biodiversity, ecology, paleontology, archaeology and sustainable development of the Bocas del Toro region. Educational and outreach activities include K-12 school group visits to the station, development workshops for local teachers and advanced training in biodiversity research for graduate students. Founded in 1998, the BRS is among the preeminent field stations in the Caribbean. The campus provides field accommodations, a fully operational research laboratory, SCUBA facilities and a fleet of small boats to more than 300 visiting scientists each year. A new dormitory is planned to accommodate the growing number of researchers.

Biologically rich marine and terrestrial habitats in the province of Bocas del Toro, on the Western Caribbean coast of Panama, provide BRS visitors with a wealth of field opportunities. The complex geography of the region contributes to its unique biodiversity and easy access to many habitat types. Mangrove-fringed mainland peninsulas and islands, sea grass beds, and patch reefs delimit two distinct bays: the Bahía Almirante and the Laguna de Chiriquí. Reefs are best-developed in the Bahía Almirante.



The Laguna de Chiriquí, which receives most of the terrestrial run-off, is dominated by seagrass and mangrove ecosystems. The Bocas del Toro mainland is covered by montane and lowland humid tropical forest and banana plantations. There are large expanses of peat-swamp forest along the coast of the Bahía Almirante. Deforestation is common on the islands of the archipelago, which are primarily covered by secondary forest, pasture, and teak plantations. Despite this, some old-growth forest still remains on Isla Colon and Isla Bastimentos. Bocas del Toro holds vast fossil deposits. Fossil reefs and other outcrops from the last 18 million years are common throughout the area. Fossil molluscs, foraminifera, bryozoans, and corals are especially well studied. Easy access from the BRS to these numerous habitats and rich outcrops has enabled a diversity of studies aimed at understanding the environmental changes associated with the rise of the Isthmus of Panama, subsequent environmental changes, and the resulting evolutionary divergences between the Pacific and Caribbean biotas.

More information of the Activities and facilities at the BRS can be found at: www.stri.org/Bocas

General Interest

Fishing, Climate Change not Double Trouble for Corals

Do fishing and climate change act synergistically on coral reef ecosystems, meaning the combined impact is greater than the sum of each acting individually?

Conservation practitioners have expressed this concern, but synergism in ecosystems has been challenging to prove scientifically. A new study in Kenya reassuringly finds that warming ocean temperatures and fishing have not acted synergistically with respect to a recent large-scale coral bleaching episode. Unfortunately this suggests that marine reserves, which restrict fishing, may not make coral reefs more resilient to climate change.

Emily Darling from the Tropical Marine Ecology Lab at Simon Fraser University and fellow researchers used data from an unusual episode of warm sea temperatures to assess the combined impact of fishing and climatic stress on corals. In general, there are three possible ways that human impacts can interact: (1) The interaction can be additive (total impact equal to sum of individual impacts), (2) synergistic (total impact greater than sum), or (3) antagonistic (total impact less than sum). Some scientists have hypothesized that fishing pressure reduces the resilience of coral reefs to global warming creating a synergistic effect between the two stressors. This could happen for a number of reasons. For example, fishing could reduce herbivore numbers leading to an increase in algae, which in turn could make corals more susceptible to bleaching. In 1998, the Indian Ocean became unusually warm, causing a massive bleaching episode in which many corals died after expelling their colorful zooxanthellae. Because the warm episode happened on regional scale, it affected all of Kenya's coral reefs, those subject to fishing and those in no-take reserves.

The researchers recognized this as a scientific opportunity to compare the effect of climate change on fished and un-fished areas. By a stroke of luck scientists happened to be conducting coral surveys in and out of marine reserves in that area from 1987 to 1998. In 1997, one year before the temperature anomaly, un-fished areas had approximately 40% coral cover, while fished areas had 20% coral cover. One year after the temperature anomaly, coral cover had declined tremendously in those fished and un-fished areas. Surprisingly, however, the coral decline was more pronounced in marine reserves, so that in 1999 the fished and un-fished areas both had coral cover of approximately 10%. According to the study authors, "While both stressors decreased coral cover, fishing by 51% and bleaching by 74%, they did not interact synergistically. Instead, their combined effect was antagonistic or weakly additive." Interestingly, another recent study of fishing and climate change in Tasmania came to the opposite conclusion, finding a synergistic impact on kelp beds. The reason for the lack of synergism in the case of the Kenya study is not known, but the authors speculate that it may be due to the fact that bleaching acts as a dominant impact. In addition, fishing pressure may select against corals that are susceptible to bleaching.

The findings in Kenya have immediate implications for conservation and management because some experts have suggested that establishing marine reserves to reduce fishing pressure could help coral reefs withstand a warming climate. But according to Darling and her colleagues, "Our results…suggest that marine reserves are not enough to protect Kenyan corals in a changing climate. This conclusion challenges the commonly held belief that managing local stressors, such as fishing, will mitigate global stressors, such as climate change."

Source: *Conservation Letter DOI: 10.1111/j.1755-263x.2009.00089.x*
Reviewed by Peter Taylor in Research Briefs Jan 27, 2010.

Nereus Reaches Deepest Part of the Ocean

A new type of deep-sea robotic vehicle called Nereus has successfully reached the deepest part of the world's ocean, reports a team of U.S. engineers and scientists aboard the research vessel Kilo Moana. The dive to 10,902 meters (6.8 miles) occurred on May 31, 2009, at the Challenger Deep in the Mariana Trench in the western Pacific Ocean. The dive makes Nereus the world's deepest-diving vehicle and the first vehicle to explore the Mariana Trench since 1998.

Nereus's unique hybrid-vehicle design makes it ideally suited to explore the ocean's last frontiers. The unmanned vehicle is remotely operated by pilots aboard a surface ship via a lightweight, micro-thin, fiber-optic tether that allows Nereus to dive deep and be highly maneuverable. Nereus can also be switched into a free-swimming, autonomous vehicle. "The Mariana Trench is the deepest known part of the ocean. Reaching such extreme depths represents the

pinnacle of technical challenges and the team is very pleased Nereus has been successful in reaching the very bottom to return imagery and samples from such a hostile world. With a robot like Nereus we can now explore virtually anywhere in the ocean," said Andy Bowen, the project manager and principal developer of Nereus at the Woods Hole Oceanographic Institution (WHOI). "The trenches are virtually unexplored, and I am absolutely certain Nereus will enable new discoveries. I believe it marks the start of a new era in ocean exploration". "Much of the ocean's depth remains unexplored. Ocean scientists now have a unique tool to gather images, data, and samples from everywhere in the oceans, rather than those parts shallower than 6500 meters (4 miles)," said Julie Morris, director of the National Science Foundation (NSF) Ocean Sciences Division, the principal sponsor of the $8 million project. "With its innovative technology, Nereus allows us to study and understand the ocean's deepest regions, previously inaccessible. We're very pleased with the success of these sea trials."

Aside from NSF, funds for Nereus have been provided by the Office of Naval Research, the National Oceanic and Atmospheric Administration, the Russell Family Foundation, and WHOI. To reach the trench, Nereus dove nearly twice as deep as research submarines are capable of and had to withstand pressures 1,000 times that at Earth's surface—crushing forces similar to those on the surface of Venus. Only two other vehicles have succeeded in reaching the trench: the U.S. Navy-built bathyscaphe Trieste, which carried Jacques Piccard and Don Walsh there in 1960, and the Japanese-built robot Kaiko, which made three unmanned expeditions to the trench between 1995 and 1998. Neither of these is presently available to the scientific community. Trieste was retired in 1966, and Kaiko was lost at sea in 2003.

Source: Media@whoi.edu June 2, 2009

Palau Pioneers "Shark Sanctuary"

The President of the tiny Pacific republic, Johnson Toribiong, announced the sanctuary during Friday's session of the UN General Assembly. With half of the world's oceanic sharks at risk of extinction, conservationists regard the move as "game-changing". It will protect about 600,000 sq km (230,000 sq miles) of ocean, an area about the size of France. President Toribiong also called for a global ban on shark-finning, the practice of removing the fins at sea.

Fins are a lucrative commodity on the international market where they are bought for use in shark fin soup. As many as 100 million sharks are killed each year around the world. "These creatures are being slaughtered and are perhaps at the brink of extinction unless we take positive action to protect them," said President Toribiong. "Their physical beauty and strength, in my opinion, reflects the health of the oceans; they stand out," he told BBC News from UN headquarters in New York. The president also called for an end to bottom-trawling, a fishing method that can destroy valuable seafloor ecosystems such as coral reefs.

Local benefits

A number of developed nations have implemented catch limits and restrictions on shark finning. Some developing countries such as The Maldives have also taken measures to protect the creatures; but Palau's initiative takes things to a new level, according to conservationists close to the project. "Palau has recognized how important sharks are to healthy marine environments," said Matt Rand, director of global shark conservation at the Pew Environment Group. "And they've decided to do what no other nation has done and declare their entire Exclusive Economic Zone a shark sanctuary." "They are leading the world in shark conservation." Mr Rand said that about 130 threatened species of shark frequented waters close to Palau and would be likely to gain from the initiative.

Although the country has only 20,000 inhabitants, its territory encompasses 200 scattered islands, which means that its territorial waters are much bigger than many nations a thousand times more populous.

Economics is clearly an incentive for the Palau government, which derives most of its income from tourism. Sharks are themselves a big attraction for scuba-divers, and may also play a role in keeping coral reef ecosystems healthy. Globally, 21% of shark species whose extinction risk has been assessed fall

into the ―threatened" categories, and 18% are ―near threatened". For a further 35%, there is not enough data to decide. Over half of the species that spend most of their time in the upper layers of the ocean, exposed to fishing, are on the threatened list. Illegal shark-finning is the main cause; but there are legal targeted hunts for fins and meat, and sharks are also caught accidentally on longlines set for fish such as marlin and tuna.

Port side catches

Enforcing the ban will be an issue for Palau, which possesses just one patrol boat capable of monitoring its waters. A recent aerial survey found fishing 70 vessels in the area, most of them illegally. But Carl-Gustaf Lundin, who heads the marine programme at the International Union for the Conservation of Nature (IUCN), said there were other ways of tackling the illegal trade. ―For example, the US has been sharing lists of illegal vessels with established fishing companies, so that they can report on their dishonest or non-decent peers," he said. ―We're also exploring what options there are for monitoring remotely at low cost. And you don't need to catch people out there in the ocean; everyone needs to land their fish, so as long as you have most nations signed up to oppose illegal fishing, your chances of catching them are pretty decent."

Dr. Lundin noted that earlier this week, another Pacific island state, Kiribati, signed off a collaboration with the US that establishes the largest marine reserve on the planet. ―The time for setting aside tiny areas of sea that only protect a few sedentary species is over; and it (the Palau sanctuary) is important because it shows the way in terms of putting large areas aside."

By Richard Black
Environment Correspondent BBC News Website

Coral in Florida Keys Suffers Lethal Hit from Cold

Bitter cold this month may have wiped out many of the shallow water corals in the Keys. Scientists have only begun assessments, with dive teams looking for bleaching that is a telltale indicator of temperature stress in sensitive corals, but initial reports are bleak. The impact could extend from Key Largo through the Dry Tortugas west of Key West, a vast expanse that covers some of the prettiest and healthiest reefs in North America. Given the depth and duration of frigid weather, Meaghan Johnson, marine science coordinator for The Nature Conservancy, expected to see losses. But she was stunned by what she saw when diving a patch reef 2.12 miles off Harry Harris Park in Key Largo.

Star and brain corals, large species that can take hundreds of years to grow, were as white and lifeless as bones, frozen to death. There were also dead sea turtles, eels and parrotfish littering the bottom.
―Corals didn't even have a chance to bleach, they just went straight to dead," said Johnson, who joined teams of divers last week surveying reefs in the Florida Keys National Marine Sanctuary. ―It's really ecosystem-wide mortality."

The record chill that gripped South Florida for two weeks has taken a heavy toll on wildlife -- particularly marine life. On Tuesday, the Florida Fish and Wildlife Conservation Commission reported that record numbers of endangered manatees had already succumbed to the cold this year -- 77, according to a preliminary review. The previous record, 56, was set last year. Massive fish kills also have been reported across the state. Carcasses of snook and tarpon are still floating up from a large fish kill across Florida Bay and the shallow waters of Everglades National Park.

Many of the Florida Keys' signature diving destinations such as Carysfort, Molasses and Sombrero reefs -- as well as deeper reefs off Miami-Dade and Broward -- are believed to have escaped heavy losses, thanks to warming effects of the Gulf Stream. But shallower reefs took a serious, perhaps unprecedented hit, said Billy Causey, Southeast regional director of national marine sanctuaries for the National Oceanic and Atmospheric Administration.

Past Problems

Coral-bleaching has struck the Keys in the past, most recently twice in the 1990s, preceding a die-off that claimed 30 percent of the reef tract. But those events, along with others that have hit reefs around the world,

have usually been triggered by water hotter than what corals typically tolerate.

Healthy corals depend on a symbiotic relationship between polyps, the living tissues that slowly build the hard outer skeletons that give species distinctive shapes, and algae called zooxanthellae that give them their vibrant colors. But when ocean temperatures veer from their comfort zone too much or too long, the coral begin to shed that algae, turning dull or a bleached bone-white.

The effect usually doesn't immediately kill coral but can weaken it, slowing growth and leaving fragile reefs -- home to millions of fish, crabs and other animals -- more vulnerable to diseases, pollution and damage from boaters and divers.

Cold-water bleaching is unusual, last occurring in 1977, the year it snowed in Miami. It killed hundreds of acres of staghorn and elkhorn corals across the Keys. Neither species has recovered, both becoming the first corals to be federally listed as threatened in 2006.

This big chill, said Causey, shapes up worse. "They were exposed to temperatures much colder, that went on longer, than what they were exposed to three decades ago," he said. Typical winter lows in-shore hover in the mid- to high-60s in the Keys. At its coldest more than a week ago, a Key Largo reef monitor recorded 52. At Munson Reef, just about a half-mile off the Newfound Harbor Keys near Big Pine Key, it hit 56. At Munson Reef, said Cory Walter, a biologist for Mote Marine Laboratory in Summerland Key, scientists saw losses similar to what was reported off Key Largo. Dead eels, dead hogfish, dead coral -- including big coral head five- to six-feet wide, bleached white with only fringes of decaying tissue. "They were as big, as tall, as me. They were pretty much dead," said Walter, who coordinates Mote's Bleach Watch program, which monitors reefs.

The dividing line for damage seems to be Hawk Channel, which parallels the Keys on the Atlantic Ocean side. East of the channel, at reefs such as Looe Key, one of the top tourist sites, there was only light paling on some coral, she said. In Hawk Channel itself, there were dead sponges and stressed corals but not many outright dead ones.

Surveying Damage

West of the channel toward shore, damage was more serious. Walter estimated 75 percent coral loss at one patch reef, though with poor visibility, it was a limited survey. Some nurseries growing small staghorn and elkhorn corals for restoration programs also may have been hard hit.

Over the next few weeks, scientists and divers from the Florida Keys National Marine Sanctuary, National Park Service, Florida Fish & Wildlife Conservation Commission, Mote Marine Laboratory, the University of Miami, Nova Southeastern University and other organizations will try to get a more complete picture of damage with reef surveys as far north as Mar tin County and as far south as the Dry Tortugas.

While they may not be able to save cold-damaged corals, Causey said, chronicling what dies and, more important "We're going to know so much more about this event than any other event in history," he said.

BY CURTIS MORGAN
Miami Herald
Jan. 27, 2010

Meetings & Workshops

The 2010 Fisheries Society of the British Isles Annual International Symposium

July 23-30, 2010

In July 2010, Queen's University in Belfast will host the 2010 Fisheries Society of the British Isles Annual International Symposium, which this year will examine Fish and Climate Change. Convened by Chris Harrod (QUB) and David Sims (Marine Biological Association), the meeting is also supported by the American Fisheries Society and the Japanese Society of Fisheries Scientists.

The meeting will run between July 23 and 30, 2010. It aims to maximize interactions between fish biologists

of all disciplines and backgrounds who are interested in climate change. Rather than splitting fishes by salinity-habitats, the meeting will examine the influence of climate change on fish at different levels of biological organization. Sessions will be organized to examine the role of climate change on the biology of fish at the genetic, cellular, individual, population, community and ecosystem levels. As such, we envisage this to be a meeting where a wide variety of fish biologists (e.g. ecologists, fisheries biologists, physiologists and geneticists) can meet to present and discuss the issues of climate change effects on fish so as to develop a synthesis across scales and levels of biological organization. We also hope it will help foster new collaborations that further progress the field of Fish and Climate Change. We have an outstanding set of invited speakers, including John Magnuson (University of Wisconsin-Madison), Keith Brander (ICES), Malcolm Elliott (Freshwater Biological Association), Hans Pörtner (Alfred Wegner Institute) and Nils Christian Stenseth (University of Oslo).

We would be extremely happy to welcome your submissions as either oral or poster presentations (abstract deadline 30 November 2009).
See www.fsbi.org.uk/2010 for conference details and http://www.paceprojects..co.uk/fsbi2010-abstract.htm for abstract submission.

All contributors will be invited to submit a manuscript that will be considered for publication in an issue of the Journal of Fish Biology (the FSBI journal), which will be published in December 2010.
NB: all manuscripts will be subjected to the normal Journal peer review process. The language of the conference and manuscripts will be English.

Deadline for the submission of abstracts 30 November 2009 Deadline for the submission of manuscripts 1 March 2010 Final manuscripts to be submitted online to the editor 16 July 2010 Symposium 26-30 July 2010

We look forward to welcoming you to Belfast!

Larval Biology Symposium
23-27 August, 2010

The next Larval Biology Symposium will be in Wellington, New Zealand, 23-27 August 2010. As part of the conference, Steve Simpson, John Montgomery and Jeff Leis are convening a symposium titled "The influence of larval sensory abilities on dispersal". We would be delighted if you could attend the Conference and present a paper at our symposium. Time slots are likely to be 20 minutes (15 talk + 5 questions).

You can find details of the Conference at:
http://www.victoria.ac.nz/sbs/research/vucel/larval2010/www/index.htm

If you are interested, please send an e-mail to Larval2010@vuw.ac.nz requesting that you be put on the mailing list and also cc to one or more of us, or better still, email us separately to give us a tentative title.

European ISRS Meeting: Reefs, Science and Society Dec 13-17, 2010

The next European International Society of Reef Studies –**Reefs, Science and Society"** will be held in Wageningen, The Netherlands, on December 13-17, 2010.

A second announcement, including a call for abstracts, a conference website and details for registration will be distributed in February 2010.

Contact:
Dr Ronald Osinga
Wageningen University
Aquaculture & Fisheries
ronald.osinga@wur.nl

About the Organizers

Dr. Ronald Osinga is a research scientist at Wageningen University. He has been involved for more than 10 years in the aquaculture of marine invertebrates (corals and sponges) and organised conferences on this topic in 1998 and 2001.

Dr. Jaap Kaandorp (University of Amsterdam) is a leading scientist in the field of "in silico" biology of marine benthic organisms. He published a book about this subject (The Algorithmic Beauty of Corals, Seaweeds and Sponges) and organized a series of annual meetings on Bioinformatics in Amsterdam.

About the Venues

Cinemec is a new, modern venue that includes both conference facilities and cinemas. It hosted already several meetings organized by Wageningen University.

Burgers' Zoo is one of the oldest and largest zoos in the Netherlands.

It has a brand new, comfortable conference facility located next to the aquarium section, which holds one of the largest indoor live coral displays in the world.

2010 Annual Meeting of the Association of American Geographers in Washington, DC. 14-18 April, 2010.

I am pleased to invite you to submit a paper on the topic of coastal and marine climatology to a jointly sponsored (Coastal and Marine and Climatology specialty groups) session at the forthcoming 2010 annual meeting of the Association of American Geographers in Washington, DC (14-18 April, 2010). Papers are welcome on all aspects of climatology as they relate to the marine or coastal environment. Papers which focus on the links between climate and reef systems are especially encouraged. If you are interested in participating in this session, please register for the conference and submit your abstract via the AAG meeting website (http://www.aag.org/annualmeetings/2010/index.htm)

Following your registration and abstract submission, please e-mail a copy of your title, abstract, and your AAG presenter identification number (PIN) to: Karsten.Shein@noaa.gov, no later than 12:00 EDT, Tuesday, October 27th.

The Second Asia Pacific Coral Reef Symposium 2010. June 20-24, 2010. Phuket Thailand.

The Asia Pacific is a significant region for natural resources and socio-economic aspects of the world. It is a home of over 50% of the world's marine species. Coral reefs are one of the most important marine ecosystems in this region and support human population of more than 500 millions. Most people depend on the coral reefs as a source of their livelihood, mainly from fisheries and tourism. In many areas, rapid economic development and associated pollution problems also contributed to the destruction of coral reefs. These threats to coral reefs are urgently needed to address together with the impacts from global climate change through an effective forum, especially for coral reef scientists and managers in the Asia Pacific region to share their experiences.

The First Asia Pacific Coral Reef Symposium was successfully organized by the Chinese University of Hong Kong, during 18 - 24 June, 2006. The symposium had about 250 abstracts, with participants coming from 27 countries. The symposium also served as the founding congress of the Asia Pacific Coral Reef Society.

The Second Asia Pacific Coral Reef Symposium, 20 – 24 June, 2010 in Phuket, Thailand provides greater cooperation and more concrete programs for collaboration among all researchers and managers in the Asia Pacific region.

We strongly hope that you could be an important collaborator and be with us at the 2nd APCRS in Phuket, Thailand to conserve coral reefs in a changing climate.

Deadline for abstract submission: 1st March 2010.

Please log in the Webpage for complete details:

http://www.thaicoralreef.in.th/2ndAPCRS/main.html.

Course Offerings

International Education Program in Tropical Marine Biology. June 8-30, 2010

An International Education Program in Tropical Marine Biology is being offered in Australia from June 8 to June 30, 2010. Snorkel off Heron Island in the Great Barrier Reef Marine Park. Monitor the health of corals and survey invertebrates and fishes.

Explore mangrove and eucalypt forests on Stradbroke Island observing Australian wildlife. Learn about Aboriginal natural arts from the Indigenous Community. For more information visit: http://www.pc.maricopa.edu/au

Harbor Branch's Summer Internship Program

Harbor Branch Oceanographic Institute at Florida Atlantic University offers a Summer Internship Program to qualified undergraduate and graduate students interested in marine-related fields. Our Internship Program is designed to provide students work experience in a research environment. The areas of study may include, but are not limited to: aquaculture, biomedical marine research, marine biology, marine mammal research, marine natural product chemistry, marine microbiology, ocean engineering, and oceanography.

The 2010 Summer Intern Program begins May 24 and continues through July 30 (10 weeks). Applications must be returned by March 1. Awards will be announced April 1. Additional information and a downloadable application form is available at: http://www.fau.edu/hboi/education/internships/index.php.

Undergraduate Internships at the Dauphin Island Sea Lab in the Marine Ecology Lab.

The Marine Ecology Lab is looking for interns to help conduct research on several on-going projects in various nearshore benthic habitats along the Northern Gulf Coast. Research will be based out of the Dauphin Island Sea Lab located on Dauphin Island, Alabama at the mouth of Mobile Bay. Interns will work closely with Dr. Ken Heck, his lab technicians and graduate students.

We are looking for interns for both summer and fall seasons. The duration of the internship is about 3 months. The internship will have a flexible start date with *summer interns starting on or about May 17, 2010 continuing through August 13, 2010. Fall interns will start on August 16, 2010 and continue through November 19, 2010.** *You may apply for both seasons if you wish.

Application Deadlines:
Summer Applications - March 26, 2010
Fall Applications – June 4, 2010

Duties and responsibilities – Interns will be required to participate heavily in field-based activities, which are sometimes characterized by long hours and potentially arduous conditions. Field research will include seagrass restoration and monitoring, juvenile snappers and gag grouper habitat assessment, and monthly sampling of restored oyster reefs near Dauphin Island, Alabama. For more information regarding current projects, please check the Marine Ecology Lab website at http://marineecologylab.disl.org

Applicants should have their own snorkel gear (both seasons) and wet suit (fall season only). Interns will be involved in sample collection and processing and will receive training in sampling techniques (benthic flora and fauna sampling, fisheries sampling, water column sampling, and seagrass monitoring techniques), fish and invertebrate identification, and analytical methods (chlorophyll analysis and nutrient analysis).There will also be opportunities to learn other ecological field sampling techniques in a variety of marine environments. In addition, interns are encouraged to attend seminars on current topics in marine science hosted at the Dauphin Island Sea Lab and at the University of South Alabama.

We are seeking people who are committed and enthusiastic about marine science and may be considering marine ecology as a career. This job requires long days of physically demanding field

work and long hours sorting samples in the lab. Experience (although not necessary), as well as enthusiasm about marine research, are important aspects of a rewarding internship. This is a great opportunity for hands-on training in the field and laboratory.

A monthly stipend of $1400 is provided.

Eligibility– Undergraduate juniors and seniors enrolled in marine programs (or related fields) or with marine experience are preferred.
Graduating seniors are also welcome to apply. This internship is available only to U.S. citizens.

Application Requirements

1) Fill out Internship application accessed at:
http://marineecologylab.disl.org

2) Provide 2 letters of recommendation. These can be emailed directly to dbyron@disl.org or mailed to Dottie Byron, Marine Ecology Lab Intern Program, Dauphin Island Sea Lab, 101 Bienville Blvd., Dauphin Island, AL 36528
-
Dottie Byron, M.S.
Research Technician
Marine Ecology Lab
Dauphin Island Sea Lab
101 Bienville Boulevard
Dauphin Island, AL 36528

Voice: 251.861.2179
Fax: 251.861.7540

Summer 2010 Bonaire, Netherland Antilles in the Southern Caribbean

CIEE is accepting applications for summer 2010. Undergraduate Study Abroad Program

Summer I is 29 May – 19 June 2010 when 2 linked courses are offered:
Marine Ecology Field Research Methods (3 semester hr). In this course you will learn to use scuba as a research tool instrumental to understanding the underwater environment. You will learn to record, collect and analyze scientific data that are collected underwater. The course will introduce you to research techniques with broad applications in Marine Ecology while focusing on using scuba to better understand coral reef ecology in the southern Caribbean.

Advanced Scuba (1 semester hr). In Advanced Scuba you will expand your experience beyond the recreational dive level in order to participate fully in the scientific diving program at the CIEE Research Station in Bonaire. You will learn techniques that will improve your dive skills and learn to respond to medical emergencies in or out of the water. By the time you complete this course you will be eligible for certifications in Open Water, Advanced Open Water, Rescue Diver, Emergency First Responder and Oxygen First Aid.

Summer Session II is from 19 June – 3 July when 1 course is offered:

Marine Biology and Ecology in the Southern Caribbean (3 semester hr). This course will provide you with an introduction to the ecological and biological principles important to coral reef communities. More specifically, you will learn how reef, seagrass and mangrove systems are interconnected. Ecological concepts such as competition, species and habitat diversity, adaptation, reproduction will be examined in the classroom and on the reef. You will also learn to identify major fish, invertebrate and plants species in Bonaire.

Course descriptions can be found using the following link:http://www.cieebonaire.org/courses.html.
Students can register for Summer I, Summer II or both.

Prerequisites: Overall GPA 2.75 or better, a semester of biology or environmental science and a nationally recognized open water SCUBA certification (or a PADI referral – you can do your check out dives in Bonaire). **The deadline for application to the summer course is 1 April 2010.** Interested students should contact Rita Peachey, Director of CIEE Research Station Bonaire at RPeachey@ciee.org or call 1-800-40-STUDY.
Register online at http://ciee.org/study/apply.aspx. Contact the study abroad office at your institution to assist you with registration and course approval.

Rita BJ Peachey, PhD
Director, CIEE Research Station Bonaire
Kaya Gobernador Debrot #26
Kralendijk, Bonaire, Netherlands Antilles
rpeachey@ciee.org
+599.786.7394

Training opportunity, the NF-POGO Centre of Excellence in Observational Oceanography.

This 10 month program is offered in Bermuda starting in August 2010. Applications are due February 2010. Full details about the program, including a link to the application form, can be found here: NF- POGO Website
http://www.bios.edu/education/cofe.html

The goals of the Nippon Foundation (NF) - Partnership for Observations of the Global Ocean (POGO) Centre of Excellence (C of E) at the Bermuda Institute of Ocean Sciences (BIOS) are to expand world-wide capacity to observe the oceans, to develop human resources in developing countries; to expand international networking in ocean sciences, with an emphasis on training young scientists from developing countries; and to strengthen ocean networking relations between developed and developing countries.

The availability of this Programme is subject to final funding approval by The Nippon Foundation. Please do not hesitate to contact us at this address if you have questions.

Education Department
The Bermuda Institute of Ocean Sciences (BIOS)
17 Biological Lane, Ferry Reach
St George, GE01
Bermuda
tel: 1-441-297-1880 Fax: 1-441-297-2222

Short Course in Taxonomy and Ecology of Caribbean Sponges July 20 – August 2, 2010

The Smithsonian Tropical Research Institute, Bocas Research Station presents a short course in taxonomy and ecology of Caribbean sponges.

Dates: July 20 to August 2, 2010
Location: Bocas Research Station, Bocas del Toro, Panamá. Registration Fee: $600 (includes room and board, STRI registration fee, etc.). Some need-based fellowships are available
Instructors: Dr. Cristina Diaz, Museo Marino de Margarita, Venezuela
Dr. Robert Thacker, University of Alabama at Birmingham

Application: Please e-mail your CV, 1 letter of recommendation, and a 1-2 page statement explaining your background and reasons for taking the course, to Rebecca Rissanen at RissanenJ@si.edu before March 1, 2010. Limit 12 students. To be considered for a need-based fellowship, applicants should send a description of their need, their efforts to obtain funding from other available sources, and a travel budget. For more information see
http://striweb.si.edu/taxonomy_training/

This course is supported by the National Science Foundation's Assembling the Tree of Life program under Grant No. 0829986 to R. W. Thacker: "PorToL - The Porifera Tree of Life"

Robert W. Thacker, PhD
email: thacker@uab.edu
http://www.uab.edu/uabbio/thacker.htm

Perry Institute for Marine Science 2010 Internships

Location: Lee Stocking Island, Exuma, Bahamas
Duration: 2 month minimum
Starting date: Year round
Application deadlines: Spring: February 1 Summer: April 15 Winter: October 1
Open to: All students pursuing or have recently completed a degree in marine science or biology.

Description: Interns will split their time between direct involvement in support of scientific research and operational support of science. Responsibilities will depend largely on the current projects being conducted during each period. Interns will gain firsthand experience with standard field procedures, experimental design, sampling protocol, environmental monitoring techniques, diving and boating, and perhaps most valuable, personal

interaction with some of the world's leading marine scientists.

Requirements: Open water SCUBA certified, first aid, CPR and oxygen administration certified, experience operating small vessels (preferred)

To apply: Please visit www.perryinstitute.org for application form and detailed internship descriptions and agreement. Send additional questions to elamarre@perryinstitute.org.

Number of internships awarded each season will vary and are dependent on research demands and funding availability. Internships are non-salaried, however, room and board (shared accommodation) and transportation between LSI and Exuma International Airport (Georgetown, Bahamas) will be provided.

Global Fellowships in Marine Conservation

Deadline: 1 March 2010.
Eligibility: This fellowship is available to any international applicant with interest and qualifications in conservation biology.
Application Form: There is no separate fellowship application form. Intent to apply for a fellowship should be made known on the reverse of the summer course enrollment form.
Required Credentials: In addition to the summer application for courses and current college or professional school transcript*, each Global Fellowship applicant is required to submit (1) a brief essay (one page or less) describing the applicant's education, research, and work experience background (a Curriculum Vitae does not take the place of this essay); (2) a brief statement of purpose, i.e., describing the applicant's reason for taking the course, how the applicant will be able to apply the training in his/her home country, the applicant's future goals; (3) a letter of recommendation from academic faculty or employer addressed to Dr. Larry Crowder; and (4) a Curriculum Vitae. All credentials may be posted (135 Duke Marine Lab Rd, Beaufort NC 28516, USA) or faxed (252-504-7648) to the attention of Debbie Pease or scanned and sent in Word or pdf form as an email attachment to drpease1@duke.edu. We do not offer guidelines about the information to be included in your reference letter. These letters typically include how the referee knows you, his/her opinions of your work together in the past, and thoughts about whether he/she feels you'd be well suited to this program.

If at all possible, a copy of the transcript is preferred. A scan (sent in Word or pdf form as an email attachment to drpease1@duke.edu) or fax (252-504-7648) to the attention of Debbie Pease, an unofficial version of the transcript is fine. If this is impossible, then please send a copy of your degree. An ordinary (non certified) translation of the transcript is fine.

Due Date: All Global Fellowship credentials must be received no later than March 1, 2010 by the admissions office of the Marine Laboratory. All fellowship applicants will be notified of their award status shortly after the deadline date. For additional information regarding the Global Fellowships in Marine Conservation applicants are encouraged to contact: ml_admissions@nicholas.duke.edu.

Fellowships for international students will fully cover travel expenses, room and board, and tuition for both BIO 109/ENV 209 Conservation Biology and Policy and one elective course subject to availability.

Contact Information:
Debbie Pease, Executive Assistant
Duke Center for Marine Conservation
Duke University Marine Lab
135 Duke Marine Lab Road
Beaufort, NC 28516
Phone: 252-504-7636
Fax: 252-504-7638
Email: drpease1@duke.edu

The Asian Institute of Technology (AIT) offers MSc and PhD programs

The Aquaculture and Aquatic Resources Management (AARM) Field of Study of the Asian Institute of Technology (AIT) offers MSc and PhD programs on:
(1) Aquaculture Technology
(2) Aquatic Resources Management
(3) Integrated Coastal Management (interdisciplinary program)

The Asian Institute of Technology (AIT), established in 1959 in Bangkok, Thailand, is an autonomous, international postgraduate institution serving

over 2,000 students from many countries across Asia and beyond. Teaching faculty, researchers, staff and students from more than 40 countries form a unique international community on the Institute's 400 acres, beautifully landscaped residential campus, situated 42 km north of Bangkok, Thailand.

Scholarships are available for highly qualified applicants. Deadline for applications for admission for August 2010 semester is March 2010. Details of admission process, application forms, costs and expenses, financial assistance, and academic calendar can be found in the following web site: http://www.ait.ac.th/AIT/admissions/

Short-term and customized training courses aquaculture, aquatic resources management, and integrated coastal management are also available. Professional masters (1 year) and regular masters (2 years) program on Aquaculture Business Management are currently being developed and targeted for offering in August 2010 semester. For more information, please visit http://www.ait.asia; http://www.aqua.ait.asia, or email us at aarm@ait.asia.

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 it to the address below, or send the information by e-mail to David Wilson at the e-mail address below.

Dr. David Wilson
Australia Fisheries Management Authority
506/16 Moore Street
Canberra Ciry, ACT 2601
Australia
amlc.membershipdirector@gmail.com

Name & Title

_____

Institution/Association

_____

Address _____

_____

_____

Telephone _____
FAX _____
E-mail_____

Dues

Individual membership dues for 2009-2010 are $25.00 due in June 2009. You can make your payment with Dr. Laurie Richardson (treasurer) or Dr. Aldo Croquer (Membership Director), whom can be contacted by e-mail at: amlc.membershipdirector@gmail.com or at their personal e-mails in page 16. If you attended the Dominica meeting, your membership fee for the two years (2009-2010) was included in the registration fee. If you did not attend the meeting, please remit your dues as discussed here. 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 accept credit card payments online at www.amlc-carib.org. 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 (address on next page).

Name & Title

_____

Institution/Association

_____

Billing 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)

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Expiration Date_____

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Signature _____

AMLC Background & Goals

The Association of Marine Laboratories of the Caribbean (AMLC) was founded in 1957 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 scientist and student memberships are available.

Biannual AMLC scientific meetings are hosted by member laboratories actively conducting marine research in the Caribbean. The host laboratory arranges facilities for research presentations, and logistical arrangements. The AMLC has no designated official language so researchers are free to make their presentations in their native language.

Caribbean Marine Science, published twice per year in English and Spanish, is the 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

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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 March for inclusion in the Spring-Summer issue, and by the end of October for the Fall-Winter issue.

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