2013
Celebrating 35 Years of Research
INSTITUTE OF MARINE AFFAIRS

IMA NEWS

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Coral Reef Early Warning Systems

The Government of Trinidad and Tobago, in its effort to monitor and build capacity to adapt to climate change, has collaborated with the Caribbean Community Climate Change Centre (5Cs) and the Inter-American Development Bank (IDB) to install Coral Reef Early Warning System (CREWS) on Buccoo and Speyside Reefs in Tobago.

The CREWS program is part of NOAA's Coral Reef Watch and Coral Health and Monitoring Program, which collects real-time environmental data from prime coral reef sites worldwide; analyzes patterns/trends; and predicts the effects of environmental events on coral reefs such as coral bleaching.

Coral Reef Early Warning System (CREWS)

Since 2009, the 5Cs has partnered with NOAA to extend the installation of Caribbean CREWS stations to build capacity in detection and response to early-warning signs in climate change, one of which was deployed in Speyside. Additionally, IMA had procured another CREWS for installation on Buccoo Reef as part of a Technical Cooperation with the IDB for a Pilot project on integrating climate change adaptation and coastal zone management in southwest Tobago.

The customized CREWS buoys measure, record and transmit key meteorological and water quality measurements. They consist of a basic suite of meteorological sensors that measure air temperature, wind speed and direction, barometric pressure, rainfall, photosynthetically available radiation and ultraviolet radiation. Specialized oceanographic sensors and site specific sensors were also included.

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CONGRATULATIONS

Ms. Tracey Medina, Administrative Assistant—Information Centre, recently graduated from the UWI School of Business and Applied Studies (ROYTEC) where she earned a Diploma in Public Relations with distinction. Ms. Medina, a qualified and award-winning Administrative Professional also received the ROYTEC Executive Director's 2013 Award. This award is conferred upon one student from the Diploma in Management Programmes who has demonstrated Outstanding Academic Achievement. We congratulate Ms. Medina on this outstanding achievement and wish her much success in the future. Ms. Medina stands by the belief: *"I can do all things through Christ who strengtheneth me."* - Philippians 4:13

Tracey Medina (l) receives her Diploma in Public Relations at the ROYTEC 2013 graduation

Mrs. Maureen Manchouck, President, NIHERST presents Jahson Alemu I with his award

Mr. Jahson Alemu I, Research Officer, Biodiversity and Ecology Research Programme received the NIHERST Frank Rampersad Award (Silver) for Junior Scientist on Saturday 23rd November 2013 at the Hyatt Regency Hotel. This award seeks to recognize and reward nationals for outstanding achievements in science and technology, to provide positive role models for our youth to emulate, and to record our scientific heritage.

The IMA extends hearty Congratulations to Jahson on his professional achievements and wishes him continued success in the future

WELCOME TO THE IMA

Mrs. Toylan Arneaud joined the IMA Family in October 2013 as Human Resource Manager for the purpose building and developing a robust human resource infrastructure in support of the strategic initiatives of the Institute.

Mrs. Arneaud obtained an MSc in Human Resource Management from the Arthur Lok Jack Graduate School of Business in 2013, specializing in Training Design & Implementation Systems. Her experience in the human resource environment spans a period of 30 years, operating at all levels within this field with 16 progressive years at Senior Human Resource Management Levels. Mrs. Arneaud`s employment career was channeled through various industries, such as, Insurance, Finance, Retail, Aviation and Education. At the management level, Mrs. Arneaud was instrumental in setting up organizational systems for reporting, information management, performance monitoring and management, professional development, documentation of policies and procedures and managing organization transitions.

Ms. Toylan Arneaud
Human Resource Manager

IMA launches "A Guide to Beaches and Bays of Trinidad and Tobago"

The Institute of Marine Affairs in collaboration with YARA launched the IMA's publication "A Guide to the Beaches and Bays of Trinidad and Tobago" on Wednesday 30th October 2013 at Anchorage Beach Club, Chaguaramas.

Minister Ramona Ramdial receives a copy of the publication from Lori Lee Lum, the coordinator of the project

Through this updated book, the IMA intends to increase awareness of many of our country's beaches and bays while also creating a greater appreciation for these beautiful and precious aspects of our natural heritage. This guide, published in the year of our 35th Anniversary, covers 30 beaches and/or bays around the coast of Trinidad and 23 around Tobago. Through the beautiful photographs and direction to locations provided in the book, users can discover many new beaches to visit, and learn more about our history.

Professor Indar Ramnarine, Minister Ramona Ramdial, Dr Amoy Lum Kong and Richard De La Bastide, President and Plant Manager at Yara Trinidad Ltd

In support of the IMA's mandate, and its specific objective **"to promote a public understanding of and appreciation for all aspects of the marine related environment"**, and to make the results of its research available to the ublic, the IMA published its first Guide to the Beaches and Bays of Trinidad and Tobago in 2004. The IMA is proud to publish this current edition, updated with more than 100 photographs, maps, new beaches, revised text, facility improvements, pictograms, beach hazards and coastal issues all packaged in a handy reference size. The Guide is user-friendly with directions to known and not so well-known beaches, as well as the facilities available to beach-goers. This updated version is a well-balanced, mixture of science and general user knowledge. Naturally, it will be of interest to tourists and nationals looking for specific marine activities and beach facilities. The book is available at a cost of $200.00 from leading bookstores throughout Trinidad and Tobago and at the IMA in Chaguaramas.

The cast of Brown Cotton introduces the guide book through drama

St. Anthony's College students appreciate the photographs

Road of a Young Scientist - Jahson B. Alemu I

In this issue of the IMA News we profile Jahson B. Alemu I a coral reef ecologist in the Biodiversity and Ecology Research Programme at the IMA and 2013 recipient of the NIHERST Frank Ramsaroop Young Scientist (Silver) Award. Jahson has been at the IMA for the past four years focusing on the interdisciplinary field of ecology and the sustainable management of coral reefs. Before working at the IMA, he spent two years as an enabler, building technical and infrastructural capacity for marine protected area network establishment in the Indo-Pacific (2008) and southwest Caribbean (2008-2009). When asked what has been the most career defining experience in his relatively short career, he coyly says "studying frogs". On another path, Jahson was a forest ecologist specializing in amphibians, birds and trees; and the wealth of training he received opened him up to the world of Applied Conservation. Jahson subsequently learned to SCUBA dive, which led him to where he is today.

Jahson B. Alemu I, Coral reef ecologist

Jahson obtained a M.Sc. in Marine Biology specializing in Marine Protected Area Establishment from the University of Bangor, Wales, in 2009 and then used several training and learning exchanges with Caribbean Marine Protected Areas Management, Coral Reef CSI, ReefCheck, Great Barrier Reef Marine Park and The Nature Conservancy to broaden his expertise in building reef resilience and empirical reef ecology. He goes on to explain "Sea level rise aside, a fundamental understanding of the energy flows in the underpinning metabolic processes within any ecosystem such as photosynthesis and respiration and how temperature or water chemistry affects these processes is all that's required to do my job". In a recent learning exchange, Future of Reefs in a Changing Environment project among others, Jahson worked closely with reef managers and scientists in the Caribbean to develop the beginnings of an ecosystem approach, linking social and ecological aspects towards managing Caribbean coral reefs in the face of climate change.

In an effort to assist coral reef managers, Jahson works closely with the Tobago marine park management. For example, through the Coral Reef Monitoring Programme, Jahson has been able to identify nodes of resilience to both climate change and human impacts. In fact, he has developed and is assisting with the coordination of a Coral Bleaching Response Plan and a BleachWatch network for Tobago. This Plan will be enhanced by the newly installed Coral Reef Early Warning System (CREWS) on Buccoo and Speyside Reefs. Recognising the challenge of park managers to account for climate change impacts on reefs, he has focused his research programme to answer the broad research question "How resilient are Tobago's reefs to climate change impacts?" His work on coral bleaching and resilience has been published in the international journal *PLOS One*, and case studies of his work have been featured as part of The Nature Conservancy Reef Resilience Programme and Animal Health Monitoring Network Island Resilience programme.

True to his foundation in the Pacific, Jahson has been researching reef fish ecology around Trinidad and Tobago. He is now actively participating in efforts to manage the lionfish invasion including: the establishment of a comprehensive network of users, managers and researchers; and conducting education and awareness seminars and workshops. With other stakeholders, he has participated in lionfish culling trips in areas with the highest lionfish densities, and has been investigating the impact of lionfish on reef fish populations in Tobago.

Checking equipment for CREWS deployment with Dr. Jim Hendee (NOAA)

Lionfish capture training with a pole spear at Castara, Tobago

Recording in-situ data for coral bleaching

With some trepidation, Jahson is taking further steps in the development of his career and is currently pursuing a doctorate at the University of the West Indies in Ecosystem Modelling. In this light, he proposes to model and value the trade-offs in the provision of essential ecosystem services, such as shoreline protection, to human well-being within the coastal zone.

He is also investigating the carbon sequestration and storage potential of seagrass beds as a carbon offset. We look forward to the results of his dissertation and wish him continued success!

IMA EVENTS & ACTIVITIES

CREWS (continued from page 1)

The buoys were installed at Buccoo Reef on 21st November and at Speyside on 22nd November by John Halas and Jon Fajans of Environmental Moorings International, and NOAA's Jim Hendee. Maintenance training was also provided to the Tobago House of Assembly (THA). The IMA coordinated all activities and the THA has responsibility for maintaining the CREWS. The CREWS generated data will be shared with all stakeholders.

Addison Titus Marine Technician (IMA) at left and Jon Fajans, secure CREWS buoy

Hannah Wei Mudden, centre, Group HSE Manager at Trinidad Cement Limited TCL Group, representing the Business Sector, at the ICZM consultation

ICZM CONTINUES

Two public consultations on Integrated Coastal Zone Management (ICZM) were held during November at the Hilton Trinidad. On Wednesday 27th and Thursday 28th, meetings were held with Government Ministries and the Business Sector respectively, to discuss management of human activities within the coastal zone and address conflicts among the different resource users. These consultations contribute towards the development of an Integrated Coastal Zone Management Policy Framework, Strategies and Action Plan for Trinidad and Tobago. In April 2013, Dr. Rahanna Juman was appointed Chairperson of the ICZM Multi-Sector Steering Committee.

Natasha Ramdanie-Ramdath, Research Officer with COSTTATT students

COSTAATT Students visit IMA's Chemistry Laboratories

The IMA welcomed a group of students as they visited the Marine Chemistry Department (MCD) on 26th November 2013. The 22 students from the Water Quality class at COSTAATT, accompanied by Mr. Sochan Laltoo, Senior Lecturer, Department of Environmental Studies, were given a tour of Microbiology, Heavy Metal and Wet Chemistry labs. The visit reinforced the lectures during the semester and increased the understanding of processes and techniques used in marine laboratory work. Mr. Laltoo expressed his thanks to the staff of the MCD labs for a highly productive day which would help prepare his students for their exams in December 2013.

Lori Lee Lum, Community Education Officer, teaches students about oceans and continents

IMA at SciTechKnoFest 2013

Through the Information Centre, the IMA participated in NIHERST's SciTechKnoFest 2013 exhibition, **Innovation and Invention**, from 10th to 16th October 2013 at the Centre of Excellence, Macoya. Approximately 1887 Primary and Secondary school students, teachers and members of the public visited the IMA's interactive booth to learn about marine conservation.

IMA EVENTS & ACTIVITIES (con't)

UWI students visit the IMA

A total of 85 final year students from The University of the West Indies — Tropical Aquaculture course toured IMA's Aquaculture facility on Friday 22nd November 2013. Aquaculture is the fastest growing food production sector globally and the fastest growing primary industry in the Indo-Pacific region. Aquaculture can provide environmentally sustainable means of meeting the present and increasing global demand for seafood. Tyrone Walters, Joseph Gomez and Selman Andrews - Aquaculture staff, conducted the tour of the facility.

Tyrone Walters (c) Aquaculture Technician addresses UWI students

Lionfish Awareness

Lionfish have successfully invaded the Caribbean Region in less than a decade and pose a major threat to reef ecological systems. As such, the IMA is continuing to do its part in raising lionfish awareness. A Lionfish Awareness workshop was held at Cedros Community Centre on Friday 25th October 2013. The target audience was fisherfolk in the community. Jahson Alemu I, Research Officer, and Lori Lee Lum, Community Education Officer, delivered the presentations at the Workshop.

Lori Lee Lum (c) and Jahson Alemu I (r) speak with fisherfolk in Cedros

Naparima Boys' College students learn about Marine Invasive Species

On 7th November 2013 Glendon Glasgow, Information Officer, made a presentation on "Lionfish: a Marine Invasive Alien Species" to 350 students, Forms 3 to 6 at Naparima Boys' College, San Fernando.

Submarine Turbine Project

Dr. Donna-May Sakura-Lemessy (Deputy Director of Research), and Board Members - Professor Indar Ramnarine and Mr. Wayne Rajkumar - visited the United Kingdom from 9th – 15th November 2013 to observe submarine turbines. Underwater or tidal turbines are a fairly straightforward concept, as far as cutting-edge energy technology goes. Although there are many designs, they are essentially windmills installed on the ocean floor or river bed. The underwater current produced by the tides spins blades arranged like an airplane propeller. These turbines are attached to a gear box, which is connected to an electrical generator. This produces the electricity that is carried by cable to shore. Once it's plugged into an electrical grid, the electricity can be distributed.

Submarine turbines can produce clean renewable energy.

AVAILABLE NOW!

FOR MORE INFORMATION: 634 4291 ext 2406

A Guide to Beaches and Bays of Trinidad and Tobago, 2nd Edition

Paper Based Bookstore - *Normandie Hotel, St. Ann's*
Ishmael M. Khan & Sons Ltd. - *(all branches)*
UWI Bookshop - *UWI Campus, St. Augustine*
R.I.K. Services Ltd. - *(all branches)*
Metropolitan Book Suppliers Ltd. - *Capital Plaza, Frederick Street, POS*
Rainy Days - *Ellerslie Plaza, Maraval*
The Book Specialist - *Richmond Street, POS*
Mohammed's Book Store Associates Ltd. - *(all branches)*
Nigel R. Khan Bookseller - *(all branches including Tobago)*
Educators' Book Store - *Tobago*
Book and Office Supplies - *Tobago*
D'Resource Centre - *Tobago*

Tidal Calendar 2014

R.I.K. Services Ltd. - *(all branches)*
UWI Bookshop - *UWI Campus, St. Augustine*
Mohammed's Book Store Associates Ltd. - *(all branches)*
Metropolitan Book Suppliers Ltd. - *Capital Plaza, Frederick Street, POS*

THE BLUE CORNER

"There is no planet B so plan A is to protect our planet."

Caribbean Reef Squid

The Caribbean reef squid is commonly observed in shallow nearshore waters of the Caribbean by divers and snorkellers. These squid are often confused with cuttlefish because they have large fins that wrap around their mantles.

- This species, like most squid, eats voraciously and typically consumes 30-60% of its body weight daily.
- Prey is caught using the club-like end of the long tentacles, which are then pulled towards the mouth supported by the shorter arms.
- Like other cephalopods, it has a strong beak which it uses to cut the prey into parts so that the raspy tongue, or radula, can be used to further process the food. It consumes small fish, molluscs and crustaceans.

Reaction to divers – may allow close approach with slow, non-threatening moments

References: Byrne, R.A., U. Griebel, J.B. Wood & J.A. Mather 2003

Caribbean Reef Squid *(Sepioteuthis sepioidea)*

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