



PAGTAOB

THE OFFICIAL NEWSLETTER OF THE MCKEOUGH MARINE CENTER, XAVIER UNIVERSITY

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PAGTAOB

Is a Visayan term for the rising of the tide. Every flood of the tide brings with it new nutrients and other important components that sustain the numerous denizens in the intertidal zone. Just as these nutrients nourish marine life, information is also vital for marine scientists.

It is the aim of this newsletter to update the XU community and our partners on the different programs and activities that we conduct.

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MCKEOUGH MARINE CENTER (RE)ESTABLISHED

by Fra and Timothy S. Quimpo



In the 1960's, Fr. James A McKeough, SJ established the Marine Biology Center to pave the way for marine science research in Northern Mindanao. The center was active in conducting series of hydrobiological and ecological studies in Macajalar Bay in the late 60's to early 80's with major grants coming from the then National Science Development Board (now DOST).

After the last hydrobiological study of the institute in the 80's, the research came to a hiatus due to scarcity of funds. A revival of the research center came during the mid-90's after it got a grant from DA-BFAR for research and ecological assessments in Macajalar and Gingoog Bay. The center was renamed the Marine Biological Research Center and was headed by Mr. Michael Atrigenio, with strong collaborations from the Biology Department. The research center came to another hiatus after the departure of Mr. Atrigenio, albeit short-term researches from small grants were being conducted by a few of the faculty members of the Biology Department.

With the return of Dr. Hilly Ann Roa-Quiaoit in November 2005, the Marine Biological Research Center was restructured and strengthened. The vision, mission and research directions were drafted and on July 26, 2006, it was officially renamed as the McKeough Marine Center by then University President Fr. Jose Ramon T Villarin, SJ in honor of the one person who started marine science research in Mindanao. Currently, the McKeough Marine Center is doing a number of projects on ecological surveys, information and education campaign (IEC), alliance building with the local government units for participatory management, reef rehabilitation, and stock enhancement and conservation of endangered species.

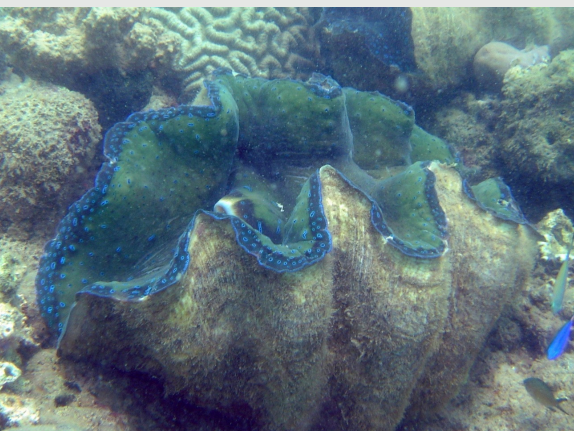
Vision: The sustainable management of marine resources in Northern Mindanao

Mission: To be a center of excellence for marine science research in Northern Mindanao dedicated to the sustainable development of the coastal community & environment

Research Thrusts:

- Work on scientific and environmental problems related to coastal resources in the region
- Develop sound and lasting resource management policies
- Develop information and education campaign strategies
- Assist the university in formulating and implementing community-based development strategies

MARINE CORNER



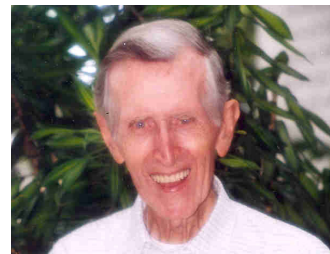
- The *Tridacna gigas* or the true giant clam is an invertebrate that could grow to more than a meter and weigh up to 500lbs.
- They are currently endangered and efforts are now underway to return these giant seashells to our seas.
- They can be found in the Agutayan Marine Sanctuary in Jasaan, Misamis Oriental, a project area of MMC.



- Sea Turtles are marine reptiles that spend most of their lives at sea. During the night, from May through early September, the female sea turtle comes ashore to deposit her eggs.
- Typical of most reptile eggs, sea turtle eggs resemble soft, leathery ping pong balls. During an approximate incubation of 60 days, the eggs are vulnerable to a variety of predators including raccoons, dogs, ants and people.
- The newly hatched turtles are carried by currents to zones with high concentrations of floating algae, which serve as nourishment and refuge for the tiny turtles. Only one out of every thousand turtles reaches adulthood.
- Sea turtles are documented to nest in the beaches of Macajalar & Gingoog Bays.

WHO IS JAMES A. MCKEOUGH, SJ?

by Fra-and Timothy S. Quimpo



Born on December 31, 1920 in Albany, New York to James and Margaret Manning McKeough, Fr. Jim McKeough spent his primary and secondary education in Albany, and completed his Bachelor of Arts degree at Dartmouth College and Holy Cross College in Hanover, New Hampshire and Worcester, Massachusetts, respectively. Called to serve the Lord, he was ordained a priest in June 1954. Even when he was already serving as a Jesuit, he never forgot his love for science and academics. Thus, when he moved to Xavier University, he held various academic positions. He started as dean of the College of Arts and Sciences from 1958 to 1961 and at the same time taught Theology and Biology until 1985. He was the first

chairman of the Biology Department and the first to establish a Marine Biology Institute in the country. He was an active marine scientist conducting hydrobiological studies in Macajalar Bay during the 1970's. He also served as director of the Division of Natural Sciences (1959-1974), Curator of the Marine Biology Station (1965-1977), Director of Marine Research (1968-1974), and Director of the Institute of Marine Science and Institute of Biology (1974-1984). He had walked the path of Ignatius even before the time he joined the Jesuits and he was a good friend to anyone who crossed his path. A Jesuit Priest, an educator, a pioneering scientist, and, most of all, a friend sums up the man that was Fr. James A. McKeough, SJ. ✨

MCKEOUGH MARINE CENTER: ITS PROGRAMS AND PROJECTS

by Ace B. Cardeño

McKeough Marine Center (MMC) has been established to promote research and social development in the field of marine science. It also does ridge and river research in relation to uplands' impacts on marine ecosystems.

The Center's Director is Fr. Mars P. Tan, SJ; Administrative Assistant is Ms. Marianne Mira Katrina E. Macapelit; Research Assistant for coastal and marine ecosystem is Ms. Julie T. Acero; and Research Assistant for the uplands and river is Mr. Ace B. Cardeño. It has also an activity center and a site for future marine station in Jasaan Misamis Oriental. Its Administrative Assistant is Mr. Friday G. Atilano.

The Center has various research and development programs/projects with internal and external partners.

CRISS (Coral Resilience in the Sulu Sea) - Interdisciplinary study to assess the physico-chemical parameters and the oceanographic characteristics to understand adaptability of corals in a changing climate.

Dugong Conservation – Update on the status of Dugong distribution in Mindanao. In particular, it looks at the impacts of fisheries on Dugong numbers in Mindanao (Mr. Fra-and Timothy S. Quimpo).

EA Program (Ecosystem Alliance) – Aims to enhance environmental governance through strengthening of management bodies and IEC (Ms. Cristina T. Remotigue- Project Coordinator and Mr. Warwin O. Sabasaje-Project Assistant).

ER Program (Enhancing Resiliency) – Focused on enhancing the Resiliency of Macajalar Bay by establishing a network of MPAs and through strengthening management

of the network (Mr. Henry V. Trugillo- Project Coordinator and Ms. Patrice Bianca L. Roa- Research Assistant).

IEC-ISDA (Information, Education Campaign and Student Development Advocates)

– Instills in the young generation, particularly the XU-NSTP students and public school pupils an understanding of the importance of the marine ecosystem (Ms. Julie Mae Acero and Mr. Ace Cardeño).

MBDA (Macajalar Bay Development Alliance)

– An alliance of the Province of Misamis Oriental and the 14 coastal Local Government Units (LGUs) for collaborative management and protection of Macajalar Bay (Hilly Ann Roa Quiaoit- Head Secretariat, Mr. Ferit Temur- Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) consultant and Ms. Kristine A. Galarrita - Senior Research Assistant, Ms. Rhona Kim U. Ferido – Administrative Assistant).

R3 Program (Ridge-River-Reef) – Studies the impacts of upland sedimentation influenced by rainfall and wind patterns on the marine ecosystem and resources of Macajalar Bay (Mars P. Tan, SJ - Project Leader and Research Assistant is Mr. James Mark B. Borcillo). ❁

MBDA LGUS DRAFT ICM PLANS

by Kristine A. Galarrita and Hilly Ann Roa Quiaoit



From right: Gov. Oscar Moreno , Fr. Jose Ramon T Villarín SJ of Xavier University and mayors of Misamis Oriental signed the MBDA Memorandum of Agreement.

ENHANCING THE RESILIENCY OF MACAJALAR BAY

by Henry V. Trugillo

To ensure the implementation of the Enhancing Resiliency Program, Xavier University created a pool of experts and teams to work on the project's various components. Each team is focused on its field of expertise and guided by the project's ultimate objective to enhance the resiliency of Macajalar Bay by establishing a network of Marine Protected Areas (MPAs) and through strengthening management of the network.

The management component deals with the strengthening of the Macajalar Bay Development Alliance (MBDA), with a GIZ consultant on Organizational Development, Ferit Temur, who also works on the ENFORCEMENT mechanisms in the whole of Macajalar Bay. Another essential component is RESEARCH, mainly handled by the McKeough Marine Center (MMC), which does scientific studies on existing MPAs that

have the potential to be part of the network of MPAs in the entire Macajalar Bay. XUCLA heads the Policy component. It makes policy recommendations based on policy research and participatory reviews of local ordinances and resolutions. The Information, Education and Communication (IEC) component is handled by the Development Communication Department. The Monitoring and Evaluation (M&E) component, on the other hand, will be sub-contracted to a local NGO (Samdhana). The contract is still being finalized. All of these teams are closely working with the Project Management Office (PMO) of the MBDA. ❁

In 2008, MMC spearheaded the establishment of the Macajalar Bay Development Alliance (MBDA) to do integrated coastal management (ICM) for the bay. The MBDA is composed of the province of Misamis Oriental and 14 coastal Local Government Units (LGUs), namely: Cagayan de Oro City [Chartered], El Salvador City [Component], Alubijid, Balingasag, Binuangan, Jasaan, Kinoguitan, Lagonglong, Laguindingan, Opol, Salay, Sugbongcogon, Tagoloan and Villanueva. The MBDA is a formal collaborative effort of the LGUs and other stakeholders for the sustainable management of the Bay.

Macajalar Bay is a major fishing ground in Misamis Oriental in Northern Mindanao. The Bay is 50 km wide at the mouth, 30 km long, and has an area of approximately 1000 km². It contains most of the heavy, medium to light

industries, with rapid development and strong coastal migration, threatening the condition of the Bay.

Integrated Coastal Management (ICM) defines the process and framework under which issues are prioritized, policies are defined, action programs are implemented and informed decisions are made by the local government for sustainable coastal development.

The member-LGUS of the MBDA as an alliance is in close partnership with MMC in the formulation of their respective ICM Plans, which is needed before setting up the comprehensive plan for the entire bay. At present, only 1 LGU does not have a draft ICM plan, 10 LGUs have drafts to be finalized for adoption, and 3 LGUs have approved and adopted ICM plans. ❁



Participants of the Mining forum last August 2, 2012 at St. Patrick Cronin Hall of the Cathedral

STRENGTHENING THE RIDGE TO REEF ECOSYSTEM MANAGEMENT APPROACH IN MINDANAO

by Warwin O Sabasaja

on the ridge to reef landscape approach to management. One of its objectives is to strengthen the Cagayan de Oro Riverbasin Management Council (CDORBMC), the governing body that manages the protection, rehabilitation and supervision of the Cagayan de Oro Riverbasin.

The EA team has been working with the council as its Secretariat since 2011. They gathered base information of the council, consolidated them and helped strengthen the council's organizational structure. They also helped facilitate meetings in formulating a

harmonized work plan for each of the council's Technical Working Groups (TWG).

On September 5, 2012, the council has identified its Board of Stakeholders as its legislative body. Now, the CDORBMC has a much organized structure having the Board of Stakeholders that makes decision, the Executive Committee that executes and implements the Board's decision, and four technical working groups that serve as the working hands of the council. The TWGs are the following: rehabilitation, local governance, community development and resource management. ✨

The Ecosystem Alliance (EA) project entitled "Strengthening the Ridge to Reef Ecosystem Management Approach in Mindanao" focuses



photo by Fra-And Timothy Quimpo

WHY A RIDGE TO REEF STUDY IN MACAJALAR BAY?

by Mars P. Tan, SJ

Looking at the bay near the river mouth, one can't miss the plume turned brown and sometimes dark brown. Not new to the locals though. Sedimentation has been going on in Macajalar Bay for years. One thing may not be clear – where are most of the sediments coming from? Perhaps from the uplands or probably from riverbanks nearby. Science research might help answer and sharpen the question a bit more: how connected are the ridges, rivers, and the bay in terms of sedimentation?

The Ridge-River-Reef (R3) Program of the University under the Research and Social Outreach Office (RSO) uses the R3 research framework that employs various disciplines, such as terrestrial ecology, marine biology, chemistry, hydrology, engineering, GIS mapping, etc, to study the entire ecological

stretch from the uplands through the river system down to the sea. For MMC, which engages in monitoring and protection of marine ecosystems in Macajalar Bay, the continuous sedimentation of the Bay has raised an alarm and posed the question on how the marine environment and its resources have been affected by upland activities. The case of the continuous sedimentation of the Macajalar Bay is not isolated, nor is it the first one.

In this light, MMC, together with other college units and departments, launched a project to determine the connectivity of the ridges, river, and reefs using sedimentation as the link stressor. The methodology consisted of 3 major studies. The ridge study looked into the erodibility profile of upland areas using the USLE (Universal Soil Loss Equation) Model

by the XU Geo-Informatics (GIS) Center. The river study came up with the profiles of the ecosystem's water quality, biological resources, habitat's condition, and sediments' composition. This was a collaborative work of the Biology, Chemistry, Engineering and MMC faculty researchers. The published study on the bay was an ecological assessment of the coral, mangrove, seagrass, seaweed, fish and macrobenthic fauna communities conducted by the MMC.

Typhoon Sendong impacted a major change in the physical features of the entire landscape and bay sites. To determine the effects of sedimentation on the marine resources in this "new" ridge to reef environment will take more time to finish as more new data have to be considered. Thus, a new challenge for R3 research work. ✨

XU-MARINE STATION TO RISE SOON IN JASAAN, MISAMIS ORIENTAL

by Hilly Ann Roa Quiaoit and Friday Atilano



A Tropical Modern – Native Design of the XU Marine Station soon will rise at Sitio Cabulawan, Brgy. Solana, Jasaan, Misamis Oriental.

Image by Ernest Martin Soriano

After a few years of unwavering determination in planning and preparations, the McKeough Marine Center, true to its Mission-Vision to strengthen its research capability, will finally have a field station, “Xavier University Marine Station,” in Sitio Cabulawan, Solana, Jasaan, Misamis Oriental, a property recently acquired by the university. The 1,609 sqm. lot along the shore will be the site for research, education and extension work, both for freshwater and marine.

The station aims at supporting various researches of the center, especially studies with land - and ocean - based set - ups. It will conduct hatchery operations to grow-out pilot cultures for reseeding and marketable technology transfer (e.g., seaweed farming). It will have laboratory set-ups for experimental trials on fishes and other marine organisms and plants. It will also cater to educational field trips/exposures of various schools with hands-on activities; touch and display tanks and popular educational seminars. Currently, the property also serves as an activity center

which is equipped with event facilities open to all XU community members and outside organizations or institutions. Xavier University, being at the center of the region and with an operational marine station, will serve both scientific and/or industrial ends in the area, either in the collection of invaluable scientific database or effect conservation and management steps. The construction will hopefully start by end of this year. It is expected to be operational and equipped in the middle of 2013. ✨

NEWLY-HATCHED SEA TURTLES RELEASED IN JASAAN, MISOR WATERS

by Ace B. Cardeño and Camille Rivera

Around 80 sea turtle hatchlings have been released in the waters of Jasaan, Misamis Oriental on August 2, 2012 at 4:30 PM. Xavier University McKeough Marine Center personnel, some local school children and the ABS-CBN news reporters joined in the release of the new hatchlings.

The sea turtle hatchlings that were found in the Marine Station site were counted and noted for any deformities and abnormalities. The hatchlings based on their distinct characteristics were identified as Hawksbill turtles.



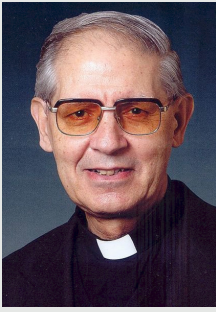
Sea turtles mate in the sea and the female comes ashore to lay her eggs in nests dug into the sand. The sea turtles spend most of their lives in the water, making long migrations, feeding, and mating. Turtles are known to return to where they were hatched as a result of imprinting. They can live up to 80 years or more.

The threats facing turtles are numerous, and, for the most part, humans are the major causes. Turtles’ nesting sites in beaches are exposed to human activities and

developments. Their eggs are vulnerable to predators and human consumers. They are also caught by fisher folks. In some places, turtles are still being hunted for food and for their shell.

Increase public awareness, community participation, research and monitoring activities should be done regularly in hatching and habitat sites so that the turtle population can be protected and can flourish. It is time for us to protect the sea turtles and rebuild their populations to healthy levels as it is a vital step in ensuring healthy and resilient oceans for the





WHAT IS RESEARCH STUDY/WORK IN A JESUIT SCHOOL?

It is always research that is aimed at making a difference in people's lives, rather than simply a recondite conversation among members of a closed elite group.... Thus, we need to ask: who benefits from the knowledge produced in our institutions and who does not? Who needs the knowledge we can share, and how we can share it more effectively with those for whom that knowledge can truly make a difference, especially the poor and excluded? We also need to ask some specific questions of faculty and students: How have they become voices for the voiceless, sources of human rights for those denied such rights, resources for protection of the environment, persons of solidarity for the poor?

(Keynote address to an international meeting of Jesuits, administrators, and faculty of Jesuit schools all over the world)

VERY REV. FR. ADOLFO NICOLAS S.J.
Superior General of the Jesuits

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Website: http://www.xu.edu.ph/index.php/research-and-social-outreach-cluster/mckeough-marine-center

Marine Debris Word find

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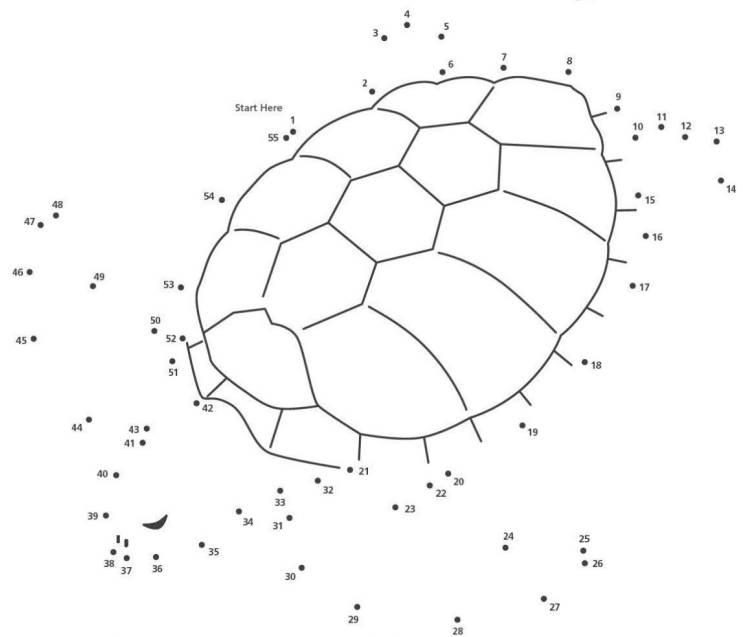
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|-----------------|---------------|--------------|-----------|
| CIGARETTE BUTTS | MARINE DEBRIS | ENTANGLEMENT | NETS |
| FISHING GEAR | PLASTICS | INGESTION | STYROFOAM |
| LITTER | TRASH CAN | | |

Can you find the hidden phrase?

(HINT: It's what we can all do to help prevent marine debris)

_____ , _____ , _____ !

A Sea Turtle's Story



How Can Litter Be Deadly to a Sea Turtle?

Sometimes sea turtles mistake litter in the water as food. Plastic bags look like jellyfish, sea turtles' favorite food. If swallowed, debris can block digestion or remain in the turtle's stomach, causing the turtle to feel "full" and eat less than it needs to survive. Plastic or plastic foam in a turtle's stomach can cause excess buoyancy, decreasing the animal's ability to dive deeper for prey.



Connect the Dots—Don't Let Your Trash End Up in the Ocean!

Feedback:
