



MARITIME REVIEW

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25 Year Anniversary Edition

Maritime Awards 2016



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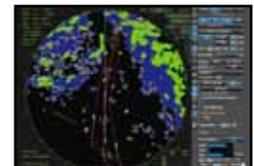
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About the Cover:

*This issue's cover is a collage of past issues, highlighting the 25 Years of continued publication, making the **Review** the first and the longest running Maritime Magazine in the Philippines.*

The Maritime League at 25

by Vicky Viray Mendoza

The Maritime League, the Philippine maritime foundation, was established in 1991 to address the need for an organization which will help spur progress in the maritime profession and advance the interest of the maritime industry.

How did it start? I asked its Founding Chairman and President, Commo Carlos L. Agustin, and this is what he said:

*"It was 'spawned' at a dinner on the occasion of the PCG 88th anniversary held at the Army and Navy Club of Manila at the Luneta Park on October 8, 1990 through a challenge for the maritime industry and agencies concerned with the maritime industry and profession to organize professional-business-institutional association by the Guest of Honor, Secretary of National Defense **Fidel V Ramos**. posed a challenge for the maritime industry and agencies concerned with the maritime industry and profession to organize a professional-business-institutional association. He said, "Pick any international model, expand and improve upon it and do your thing for the development of our maritime industry."*

*Everybody agreed and we went to work on it. We looked at various models: The US Navy League, the US Naval Institute, the (UK) Nautical Institute the Propeller Club and all sort of shipping, ship-building, ports and other organizations dealing with maritime business and profession. Eventually, I suppose because most of the members were associated with the Navy and Merchant Marine and most receive or occasionally read the Naval Institute Proceedings, we settled on something similar. We agreed the **League** would:*

- be a Foundation
- be apolitical
- help spur progress of the maritime industry and profession
- publish a monthly magazine to promote the maritime sector; and
- unify the government agencies with the maritime industry in the common cause of developing (or helping develop) the nation into a maritime power."

They opted for the name The Maritime Foundation, but the SEC suggested they come up with something else. Not long after, **The Maritime League, Inc.** was hatched and was finally approved by the SEC.

Aside from Secretary Fidel V Ramos;, Agustin gives much



emphasis to the role of many players towards organizing the League:

Miguel Magsaysay of Magsaysay Lines; **Carlos Salinas** of PTC and Chairman of the Filipino Shipowners Association (Magsaysay, Salinas and Agustin were all in the World Maritime University, Malmo Board of Governors); PSTC President RADM **Carlito Y Cunanan**; Marshall Group's Vice President Teofilo S Eugenio; HERMA Group Chair **Herminio S Esguerra**, **Winston Kawsek** and **Vicente Angliongto** of the PCG Auxiliary; former PN Chief and EPZA (later PEZA) Administrator **Tagumpay R Jardiniano**, MARINA Administrator **Philip S Tuazon** (who was the one who pushed Agustin's Governorship in the WMU); CISO President **Paciencio M Balbon**; PPA GM **Rogelio A Dayan**; PN FOIC VAdm **Mariano J Dumancas**; William Lines President **Victor S Chiongbian**; Sandoval Shipyards President **Vicente A Sandoval**; PDSFA top guns **Vicente V Villaviciencio** of Triple V and Chairman **Matias B Aznar** of Southwestern University; DOTC Sec **Jesus B Garcia** and USEC **Jose Valdecanas**; SLI Vice President **Edgar S Go**; ATI EVP **Richard D Barclay** and ICTSI EVP **Edgardo Abesamis**.

Agustin adds: *"I'm sure I have missed one or more for which I plead for mercy due to senior moments."*

Presidential Proclamation 866 dated 4-August-1996 institutionalized the national involvement of the League with respect to the Annual World Maritime Day activities every third Friday of September each year. On its maiden activity under the Proclamation, the Shipping and Ports Advisory Council (SPAC) held the 1996 **MARITIME FORUM** at the Westin Plaza on 27-September-1996. The 1997

MARITIME FORUM and the 1998 **MARITIME SAFETY FORUM** followed to usher in the advent of the coming into force of the **International Safety Management (ISM) Code**, and the compilation of the IMO "White List", both at the Westin Plaza Hotel. In 1999, PP157 superseded PP 866.



The TRIAD

Capt **Winston G Arpon** PN (ret), former Chairman of the Maritime Review Editorial Board describes what we have as a **TRIAD**: The **Maritime League**, the **Maritime Forum** and the **Maritime Review**.

The Maritime League



A Philippine maritime foundation, the **Maritime League** is an apolitical, non-stock non-profit and non-sectarian organization with the purpose of advancing the interest of the maritime profession and industry launched and inaugurated at the Army and Navy Club of Manila on 8-October-1991 with Secretary **Fidel V Ramos**. When organized the following year, the Founding Board agreed to have Honorary Chairmanship

shared by Secretary Ramos with the Secretary of Transportation and Communications **Oscar M. Orbos** as most of the functions of interest to the League are concerned with marine transport. Orbos' successor, Jesus B Garcia was a great supporter of the League.

This was opportune, as **Fidel V Ramos** assumed the Presidency in 1992, during which he had given approval in principle for Agustin to initiate action for the transfer of the PCG to the Department of Transportation (see RAdm **William M Melad** PCG, "Remembering VAdm **Mariano J Dumancas**", *Maritime Review* July-August 2016). At that time, the League Board created the position of Chairman Emeritus and invited President **Fidel V Ramos** to give the League the honor of having the President's name in its place. Secretary **Arthur P Tugade** of the Department of Transportation is the current Honorary Chairman.

The Maritime Forum

In line with the avowed goal of establishing a regular forum, the League formalized a regular discussion session initially together with the Marine Technology Foundation, a bi-monthly **MARITIME FORUM** or **MARITIME BREAKFAST FORUM** where various key leaders in the industry and maritime agencies are invited.

The first of this series was held on 6-November-1998 at the Marine Technology Center. Topical Papers developed during the sessions were taken up during the ANNUAL WORLD MARITIME DAY FORUM, while specific discussion papers are considered for publication in the **Maritime Review**. As needed, special position or WHITE PAPERS are developed. The Maritime Forum, started in 1992 on a quarterly basis, eventually became bi-monthly, then 7, then 8, 9 and now 10 times a year (monthly except June and December). In November 2016, the 11th Maritime Forum will be held (hosted by DOTr. Per the request of MOAO DFA in 2002, the DFA became first host of each year.

Participation in the Forum is not limited to the League; it is open to those invited by the Maritime League management as well as its affiliated agencies and corporate members. The affiliated agencies are DFA, DOTC, DENR, DND and their bureaus involved in maritime affairs and the various maritime organizations.

The **Proceedings** of the Forum are covered in the **Maritime Review**.

The Maritime Review

Completing the triad, the **Maritime Review** is the only regularly-published maritime magazine of general scope in the Philippines geared towards the dissemination of information useful to the maritime profession and industry. The League has institutionalized its journal, which is meant to be published monthly. To-date, It still remains a bi-monthly publication.

The **Maritime Review** is the official journal published quarterly by the League from 1993 to 1998, and six times a year starting in 1999. It was launched during the PCG Anniversary program on 10-October-1993 with President **Fidel V Ramos** as Guest of Honor. The **Review** covers professional information of relevance to the maritime industry and profession.

Aside from the regular printed magazine, the **Maritime Review** can be accessed via its website, www.maritimereview.ph or Facebook.

The League hopes to establish a plan to sustain the operation of the League and enable it to inform, enlist the support of members as well as the Office of the President, both houses of Congress, and the agencies and non-governmental organizations involved on matters concerning the maritime profession and industry. This includes:

1. Seek representation on national fora, to include the legislative arm, where maritime related subjects are being discussed.
2. Cooperate with other organizations to promote maritime interests.
3. Work closely with other maritime professional bodies.
4. Eventually seek to make the Philippines a truly developed maritime power through:
 - a. Self reliance in ship building, ship repair, ship engineering
 - b. Achievements of the six pillars of a Flag State through:
 - i. A well-developed National Maritime Registry;
 - ii. A well-developed National Maritime Laws and Regulation;
 - iii. A systematic National Maritime Administration;
 - iv. A professional Merchant Marine service and a high state of involvement in ship manning;
 - v. Active national participation in the ownership of ships; and
 - vi. Active participation in the management of ship owning and ship-operating companies.
 - c. Enhance the use of systems and infrastructure for global trade and efficient transport of goods and people.
5. Develop the research capability of the organization.

The League supports a high degree of transparency and responsibility of the real owners and operators of ships.



From left to right: VAdm Emilio Marayag, Capt. Tom Baino, RAdm Margarito Sanchez, Commo. Chuck Agustin, Jay Agustin, VAdm Jose Luis Alano

Underscoring Waterfront Infrastructure Development Needs

by Commo. Carlos L. Agustin AFP (Ret)

In 2010, I wrote a 4-part series in 4 issues of this magazine entitled "Extended Waterfront Development Needed", highlighting my own vision of government inability to develop infrastructure to address transport, commercial and tourism needs in the coastal areas. I started dabbling on these after President Fidel V Ramos approved the 25-year rolling master plan that we at PPA proposed in 1994, and in which I required all port and district managers to have a continuing port development input based on projected needs. The Arroyo government's "Strong Republic Nautical Highway" came from a modified part of that Master Plan.

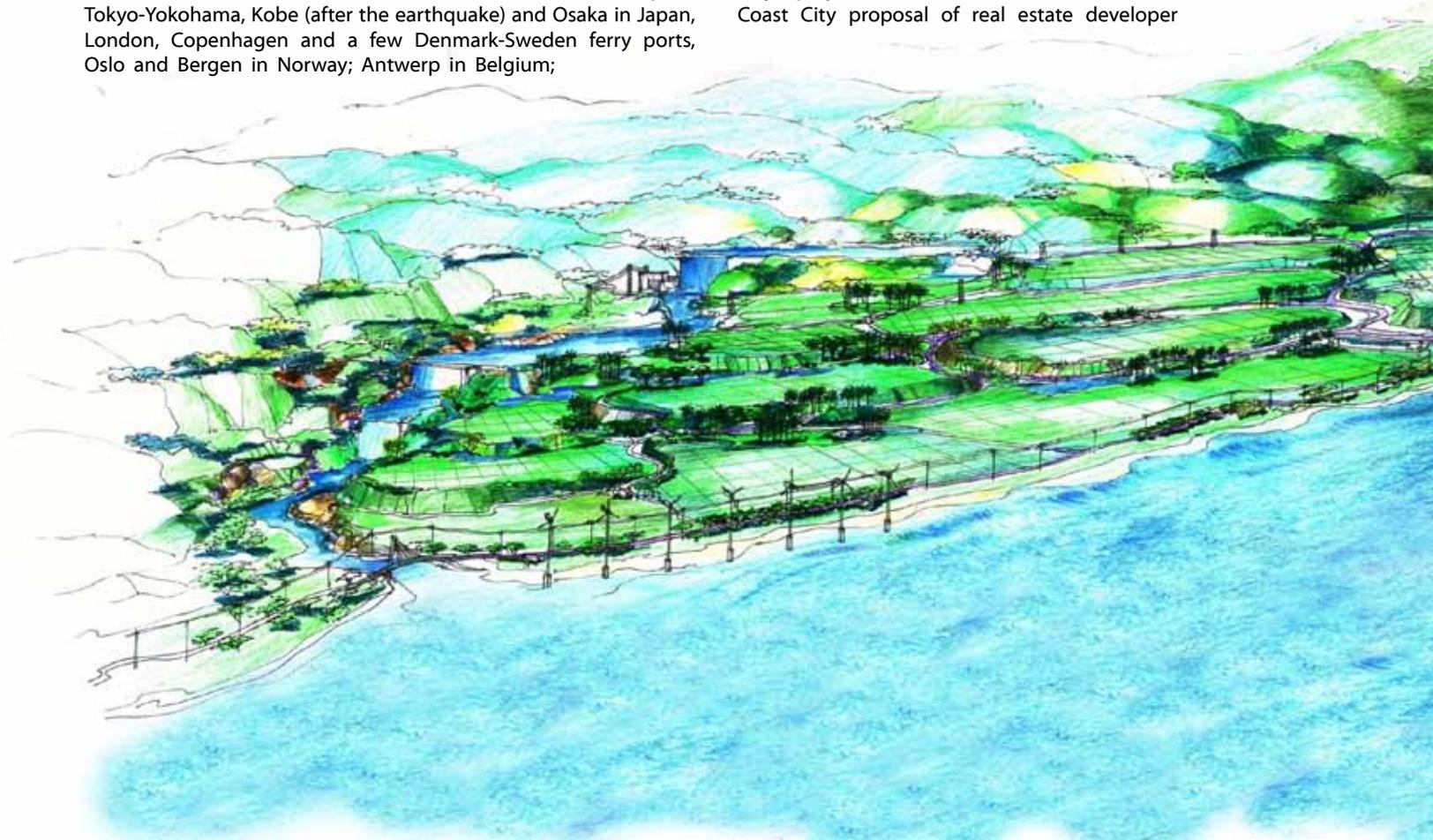
Each story read or told, each experience and visit I made to various places always drew me to look at infra development and how they help create wealth and improve living conditions.

I related that way back in 1987 I had been thrilled at the way the old Inner Harbor was redeveloped for tourism by the City of Baltimore, but it was only when I visited officially through the auspices of the World Bank in 1994 that the rationale for it was sufficiently explained to me at the Baltimore WTC by the Maryland Ports Authority. I was fascinated with a lot of other examples I saw in the course of my work in ports – New York, Sydney, Melbourne and the Gold Coast (Australia), Oakland (CA); Vera Cruz, Mexico; Charleston (SC); Barcelona and Las Palmas de Canarias in Spain; Tokyo-Yokohama, Kobe (after the earthquake) and Osaka in Japan, London, Copenhagen and a few Denmark-Sweden ferry ports, Oslo and Bergen in Norway; Antwerp in Belgium;

Bremen, Bremerhaven and Hamburg in Germany; Rotterdam in The Netherlands (largest in Europe); Singapore; Vancouver (BC, Canada) and Honolulu; and Shanghai (where they have constructed what will probably be the largest port in the world – offshore on an island) in addition to the current large inland port of Shanghai. This was obvious to me when I saw in 2005 its plan at the Shanghai City Planning Center.

In January 2000 we convened in Manila the first International Waterfront Development Forum and Exhibition at the World Trade Center, and as Conference Chair I invited the Chairman of the London Waterfront Development Project (who was unable to attend but nevertheless sent a presentation and video of the project, which was presented by a British Embassy staff), the Japanese Ministry of Transport, and our very own then Mayor Bayani Fernando of Marikina, for his unprecedented riverfront accomplishment in the Philippines. I had the internationally noted Philippine architect Felino "Jun" Palafox Jr present his concept of waterfront development as well.

Our objective was to enhance Philippine waterfront transport and tourism development planning and secondarily to induce developers and investors to come to the Philippines. For instance, a major project that could have been started was the Pacific Coast City proposal of real estate developer



Romeo G Roxas, who had commissioned Palafox to make the master plan. Likewise, having seen its tourism potential, I wanted to see if there would be interest in selling Northern Palawan (which I feel could be the playground of Asia in the future) for tourism development. But we were then in the second year of the Asian financial crisis, and thus not one of these dreams was realized. I have even seen the San Antonio, Zambales coastal area as a possible future Philippine Rivera but there are other great tourism sites as well if we could get the LGUs and the national government to "get hot." I see more areas in Palawan, Camarines Sur, the Visayas and Mindanao as waiting to be noticed (or to be planned for, as they certainly have been noticed).

I still hold that dream of inducing waterfront planning and development for commercial, industrial, residential and tourism purpose as future engines of growth. For this reason, we are including among the **2016 Maritime Forum Achievement Awards** to be presented on November 25, 2016 two companies involved in that: The ASEANA Group and the Green Square Properties. The ASEANA City project has been realized but in the case of the Pacific Coast Cities project, the Forum was impressed with the planning and coordination done that it has issued a RESOLUTION in support of it, seeing the impact it could have on development and progress for the country, which has as inspiration the Dubai waterfront and Singapore's Marina Bay.

In the case of Laguna Lake, a complete development Master Plan must be prepared and implemented in the long range, with participation of all LGUs and concerned government agencies similar to the Boulevard 2000 Project for Manila Bay. Likewise, a determined effort by LGUs must be made to relocate squatters away from riverbanks following the Marikina model, and residences abutting on riverbanks, creeks, drainage canals and lakeshore areas must be inspected and required to have the requisite septic vaults and sewer systems because today

these households are clearly disposing their sewer and solid wastes on the waterways.

Before the Jan-Feb 2010 issue of the Review, I mentioned the following recommendations to avert future flooding in Metro Manila and Laguna Lake that were made as a result of a forum involving all players and analysis made by the Crisis Management Institute:

- Construction of the planned Parañaque Spillway.
- Develop a total of five sites for environment-friendly shore land development. to serve as transfer sites of dredged materials and for the establishment of wastewater treatment facilities in the reclaimed sites.
- Reforestation of watershed areas
- Restrict building infrastructure density in the Marikina Valley
- Relocate illegal settlers, as well as communities found obstructing the outflow of Laguna Lake water
- Vigilance against siltation, dumping of garbage on waterways, encroachment of esteros, rivers and other waterways and squatting on riverbanks.
- Improvement and implementation of the Metro Manila Urban Master Plans.

My statement "These are not easy tasks to follow, and require a lot of political will" still apply equally for this Part III, which I consider a Dream List.

1. Manila Bay-Cavite Wetlands

We seem to be losing the Cavite wetlands by default, i.e., through the various reclamation proposals and even the Cavite Coastal Road Project. I was not able to sell this idea even in the Boulevard 2000 Project during the Ramos administration (proponents did not want to discuss beyond the scope of the reclamation plan), or to Hong Kong magnate Gordon Wu when he made an ambitious proposal for reclamation from Pasay to Cavite City, including a huge new port and airport.



The Cavite foreshore between Sangley Point and Parañaque had traditionally been a source of livelihood for salt making families and mussel/oyster fishermen. Pollution has practically destroyed both endeavours, and now the reclamations will probably merely extend the seawall all the way to Cavite City and forever destroy the wetlands.

I described how we can allow fresh sea water to come in and out to flush stagnant or polluted water by having controlled floodgates at the Sangley causeway.

2. Pollution, solid waste and sewage control

I suggested political will to address the sewage and garbage collection systems in the coastal town. Is this now an impossibility, as even after the Supreme Court came out with its Writ of Kalikasan and the Manila Bay Environmental Protection Order, no improvement has been seen?

I suggested immediate consideration of reclamation at Manila Bay with complete development master plan off Bulacan, after having been briefed on the Tokyo "Garbage Island Project" during Waterfront 2000 and suggested we look at the 3.5 square km Semakau Landfill, designed by Singapore's National Environment Agency (NEA) of two small islands connected by a rock embankment, started in 1999 and still ongoing. The landfill, which cost around \$400 million, can hold up to 63 million cubic meters of rubbish, enough to satisfy Singapore's waste disposal needs until 2040.

The fourth part of the series dealt with reclamation to replace the Pandacan oil terminal that has been decided already for relocation. Maybe, the national government, if not PPA, should now look into total development of the BASECO compound (Engineering Island) but then again that requires tremendous political will that runs smack against the increased illegal settler in the area, some of whom claim ownership as a result of political accommodation by the Arroyo government.

Its really about time we undertake these and other infrastructure projects to improve transport connectivity, commercial and overall development of the country, many of which doable without foreign loans.



US Navy and Brunei Armed Forces conduct CARAT 2016 - Naval Technology

Source: naval-technology.com news, 15-November-2016

Kable Intelligence Ltd.



Personnel from USMC and Royal Brunei Armed Forces engaged during CARAT. Photo courtesy of US Navy. Photo by Mass Communications Specialist 1st Class Micah P. Blechner.

Task Force 73 commander rear admiral Don Gabrielson said: "The United States deeply values our relationship with Brunei, centered on a defense partnership that underpins our shared commitment to the peace and security of the Indo-Asia-Pacific region."

"Twenty-two years of CARAT solidified our relationship with the Brunei armed forces, building genuine friendships and a strong partnership based on common interests."

The CARAT exercise will feature five days of shore-based and at-sea training events and is scheduled to conclude on 18 November.

The sea phase of the exercise will see US and Brunei vessels conduct deck landing qualifications and formation ship

maneuvers with mobile diving and salvage personnel operating while being embarked aboard Military Sealift Command rescue and salvage ship USNS Salvor (T-ARS 52).

While being ashore, US marines from the third Battalion, second Marine Regiment will engage in a jungle warfare exercise along with the Royal Brunei landing force (RBLF).

The exercise also offers a platform for participating nations to share and gain inputs to meet maritime security priorities such as counter-piracy, counter-smuggling, maritime interception operations, and port security.

"Additionally, the nations can share best practices in search-and-rescue, military law and medicine, amphibious warfare, diving and salvage operations, and humanitarian assistance / disaster response (HADR)." 



Damen Guided-Missile Frigates for the Indonesian Navy

by Vicky Viray-Mendoza

The first of two **SIGMA Class 10514 Perusak Kawal Rudal (PKR)** guided-missile frigates to be built for the Indonesian Navy successfully completed its sea trials last September. The assessment phase began with seven days of basin trials to ensure that the propulsion and safety systems were fully operational before the vessel made the challenging passage from the **PT PAL (Persero) Shipyard** in Surabaya, Indonesia to the open waters of the Java Sea. It went through two weeks of sea trials that included tests of its weapons system, the combat radar, and the sonar system. Noise measurements and pump cavitation observations were also carried out on the ship.

The 105.11-meter, 2,365-ton Sigma 10514 PKR Frigate has a maximum speed of 28 knots and is designed to undertake a wide range of missions in and around the EEZ waters of Indonesia with a crew capacity of up to 201. It can sail up to a range of 5,000 nautical miles at 14 knots, and can endure for 20 days at sea. The vessel's combined diesel or electric (CODOE) propulsion system has two 10,000 kw MCR (maximum continuous rating) diesel engines, two 1300 kw electric engines, 2 double input/single output gearboxes, and two 3.55m controllable pitch propellers. Its auxiliary system has 6 generator sets, 1 emergency generator set, 2 redundant distribution chilled water systems, and a fire-fighting degaussing system. At the aft, is a helicopter hangar and flight deck with astern fuelling capabilities to operate a 10-ton helicopter for both day and night operations. Amidship are 2 rigid hulled inflatable boats (RHIB).

It has extensive anti-air, anti-surface, anti-submarine, and electronic warfare systems. In addition, the Sigma 10514 PKR Frigate is equipped for maritime security, naval patrol, deterrence, search and rescue, and humanitarian support missions.

This frigate has a guided-missile weapon suite equipped with: a medium caliber 76mm gun; a close-in weapons system; 2 small caliber guns; 2 SSM launchers; 12 cell vertical launch short-range air defense system (VL SHORADS); 2 triple torpedo launchers; 2 decoys/chaff counter-measures; an electronic counter-measures (ECM); and a Tactics combat management system designed by Thales, France.

It has a **sensor suite** equipped with: 3D surveillance, target indication radar, Indication Friend or Foe (IFF); Radar/electro-optical fire control; Hull-mounted sonar; and electronic support measures (ESM). The nautical equipment includes two radars, a global maritime distress and safety system A3 (GMDSS-A3), and a reference gyro.

The two frigate vessels are to be built using a collaborative modular process operating simultaneously at **Damen Schelde Naval Shipbuilding (DSNS)** in the Netherlands and **PT PAL Shipyard in Indonesia**. Each vessel is made up of six modules.

For the first vessel, four of these modules were built at PT PAL. The other two modules were built and fully tested at DSNS before shipment for final assembly at PT PAL.

The success of the program rested on the two shipyards, DSNS and PT PAL, working well together. The strong work relationship allowed the massive technology-transfer to flow smoothly, in Indonesia and in the Netherlands.

The first Sigma 10514 PKR Frigate is on schedule for delivery to the Indonesian Navy by January 2017 following the completion of three months of crew training. Meanwhile, work is currently proceeding as arranged in both the Netherlands and Indonesia to complete the second frigate. ⚓

Maritime Law Enforcement in the Philippines

by **Vadm Emilio C Marayag Jr AFP (Ret)** and **Radm Quirico V Evangelista Jr AFP (Ret)**

Maritime law enforcement maybe broadly defined as the coordinated efforts by government enforcement agencies to prevent, detect and suppress violations of maritime laws and their concomitant rules and regulations. This definition intentionally excludes the other pillars of law enforcement such as the court, rehabilitation centers and the community and focuses on the people duly authorized to enforce the law in the maritime domain.

Prevention entails constant presence of and public information dissemination by law enforcers to dissuade violators. Detection involves employment of physical senses and electronic means to discover the violations of the law. Suppression is the actual application of reasonable force to arrest the violators, and to seize the evidence of such violation. Each of these actions requires physical, financial and human resources that determines the efficacy of the enforcement policy.

This article reviews the basic features of maritime law enforcement, cites some challenges, and suggests strategies to enhance maritime law enforcement.

Features of Maritime Law Enforcement. The sea is the center of maritime activities. It is a source of food, power and energy. The sea also provides a line of communication between islands and nations, and carries over 80% of the world's trade commodities. While the sea is commonly used to establish geographical boundaries of many nation-states it also connects them. Given the vastness of the sea, the varied territorial claims by coastal states, and the institutionalization of international human rights law, enforcing the law in the maritime environment inevitably becomes very challenging.

There are five features of maritime law enforcement: authority, surveillance, apprehension, prosecution, and disposition.

Authority is the power to judge, act or command, and necessarily requires extensive knowledge of the laws, rules and regulations. Enforcement consists of three categories: (1) area of jurisdiction; (2) person or thing; and (3) offense or violation. The 1982 United Nations Law of the Sea is one of the many laws that vests a coastal state authority to enforce its laws pertaining to customs, immigration, quarantine, fishery, marine pollution, etc. in specified geographical areas adjacent to it. At the high seas, the coastal state exercises the right to visit merchant vessels under the following circumstances: a) engaged in slave trade; b) engaged in piracy; c) engaged in illegal broadcasting; d) without nationality; and e) displaying a flag other than the ship's state flag.

Surveillance is the act of ascertaining the violation through observance of facts. It normally starts with intelligence reports or formal requests from principal agencies mandated to implement special laws. After collaboration with other intelligence agencies the tasked law enforcement unit conducts actual verification. Once on the scene, visual detection is the most common way to discover the violation. If boarding the suspect vessel is the necessary and proper interdiction, then boarding procedures must be followed to the letter to avoid any untoward incidents.



Philippine Coast Guard conducting Board and Search.

Apprehension is the next step in enforcement once surveillance is completed. This requires minimum amount of force to protect the enforcers, placing the suspects under custody, and gathering evidence of the violation. Vital data needed upon apprehension include the actual location and time of arrest, vessel name and nationality, crew and passengers, cargo manifest, and port of origin and destination. At this stage, enforcers must observe proper procedures to avoid human rights curtailment and preserve the evidence of the violation. Unless armed with a search warrant, inspection officers must observe the **Miranda Doctrine** in conducting search aboard the vessel.

Prosecution is the process of resolving the violation after the apprehension. Right after the arrest of suspects and the gathering of evidence the enforcement team shall conduct tactical interrogation to initially determine the probable cause to warrant elevation to the prosecutor's office. For serious violations like piracy, slave trading, illegal broadcasting against the coastal state, and smuggling of contraband goods (prohibited drugs, WMD, firearms, etc.) the conveyance vessel maybe detained in the nearest port. The task of the arresting officers shall be to serve as witnesses during preliminary investigation and court trial, and to present the evidence in their original form and quantity.

Disposition is the act of implementing the court decision. It also involves the recording of the entire proceedings for analysis that should usher policy and procedural changes and for future reference. Disposition gauges the success or failure of the enforcement efforts.

Challenges. Each of the five features enumerated above pose several challenges. The **authority** to enforce laws in the maritime environment emanates from the legislature that assigns the implementation of such laws to specific agencies under the executive branch of government. But most of these agencies have limited capability and so they deputize the uniformed services with sea going assets like the coast guard, the navy, and the maritime police. Since

these uniformed services have their primary functions, their assistance to requesting agencies depends on the nature, criticality and location of the violations, and the availability of ships and aircraft.

In the past, the **National Law Enforcement Coordinating Committee (NALECC)** served as coordinative body to align the government law enforcement plans, programs and activities at the national level. NALECC's collective decisions were cascaded down to the regional and provincial levels. The Philippine Navy took the lead in the maritime domain with its patrol vessels and the coast guard units stationed ashore. Former President Fidel V Ramos, then Chief of Philippine Constabulary, was founding chair of NALECC. Commodore Carlos L Agustin was one of FVR's staff during those days.

In 2011, the government institutionalized the **National Coast Watch System (NCWS)** that traces its beginnings in the Philippine Navy as far back as the seventies. The principal decision-making body is a council consisting of 9 line department secretaries and the executive secretary. Its implementer is the **National Coast Watch Center** whose main task is coordinating maritime security operations including maritime law enforcement. Failure to promptly monitor, if not prevent, the 2013 intrusion by Sulu Sultanate warriors into Lahad Datu in Sabah, Malaysia demonstrates the gap between concept and implementation.

Surveillance is hampered by the expanse of the country's maritime territory and the limited capability of the enforcement agencies. The number of coast watch stations is inadequate and their operational availability is far from desirable. There are neither satellite-based surveillance systems nor drones to monitor jurisdictional waterways, including EEZs, contiguous zones, and anchorages. Real time coordination is far from ideal. Interoperability among the three uniformed maritime enforcement units needs a serious examination.

It is in the area of **apprehension** where many challenges occur. They may be classified as personal and organizational. On organizational, the first would be intervention from higher authorities. The actions of the apprehending officers, considered agents of law, are normally guided by doctrines and rules of engagement (ROE). Problems occur when higher authorities without amending those guidelines intervene for no justifiable reason.

A sad point to mention is the June 2012 incident in **Scarborough Shoal**. Before that, fishing boats from Philippines and China would frequent the shoal as a matter of peaceful coexistence because of abundant resources therein. Apart from deriving mutual benefits, their presence served as check and balance to regulate fishing activities.

On that fateful day, a **Philippine Navy** boarding team inspected a Chinese fishing vessel that was not in the act of fishing but only lying near the mouth of the shoal. While the Philippines can invoke the regime of island doctrine by virtue of RA 9522 approved in 2009 to board foreign vessels in the area, China has a standing "9-dash line" claim that includes Scarborough Shoal many years ahead of the new Philippine baseline law. Some books even cite Scarborough Shoal as one of the world's flash points because of conflicting ownership claims. The order to board and search apparently came from higher authorities probably to test both the implementation of the baseline law and China's resolve to protect their 9-dash line claim or to please a party with vested interest. The boarding team returned to their ship and the naval patrol left the shoal without replacement.

The result was catastrophic. The Philippines lost control of a piece of territory without any fight thereby denying the local fishermen a significant source of income from fishing. The UN Permanent Court of Administration's decision will not change the current situation in the shoal unless China voluntarily relinquishes physical control of Scarborough.

The second challenge would be the impractical detention period

of arrested persons that gives a maximum of only 36 hours to the law enforcers to hold the suspects. Sea patrols are normally undertaken in areas far from the courts. Law enforcement units are liable to be charged with arbitrary detention and such concern could affect the motivation to enforce the law.

The third challenge would be how to increase the operational availability of law enforcement assets, for the interdiction of vessels and crafts. In the past, the navy utilized its floating assets in accordance with Deploy-Maintain-Repair-Train (DMRT) cycle. Fully operational ships were deployed in designated sea areas and the crew undertook planned maintenance to keep the ships in shape. Ships facing major derangement requiring depot-level repair are sent to the shipyard. The repair period is used to train the crew to prepare for the next deployment. This DMRT cycle ushered the culture of maintenance in the navy.

The personal level challenge that tops the list is individual training. Such training involves activities to learn trade skills especially customs, immigration and quarantine (CIQ) and fishery laws, inject positive attitude and influence habits. The quality and frequency of training of the enforcers are important determinants of effective maritime law enforcement. Many cases have been lost due to technicalities. Procedures are not strictly followed in some cases because of unforeseen circumstances or unfamiliarity with maritime law.

In 1985, then Lt. Emilio Marayag, Davao PCG Commander, apprehended a tugboat with around 300 wooden logs off Samal Island in Davao Gulf. He decided to have the tugboat and its towed cargo anchor off Santa Ana pier. The next day, he received a release order from headquarters citing a memo from one of the offices in DENR. But before he could ascertain the veracity of the order, he received another order contravening the previous order. This time, the reference was a memo from the DENR Secretary's office. With conflicting directives, he had to hold on to the confiscated items. Ultimately, what prevailed was an act of nature - a strong squall - that resolved the issue. The logs parted from their lines and got scattered along the nearby shoreline. Both tugboat operator and owner were fined for towing the improperly documented timber.

Apart from individual training, inter-agency training is necessary for both the uniformed services and the agencies that deputize the uniformed agents of law.

Another challenge is corruption. Considered a social cancer, corruption permeates many organizations especially those involved in law enforcement. Violations continue not only because the violators want to earn more money or derive more favor but also because those entrusted to arrest them condone the violations for personal benefit. Corruption happens when the agents have the opportunity by virtue of their positions to discover, stop or perpetrate violations. Once attracted to easy money or reward, and receive such, they become corrupt. As they continue with this illegal practice, they rationalize their actions by saying that everybody is doing it anyway. Bribery and harassment are the most common techniques used to corrupt the enforcers.

The third is committing a violation to extract information from the violators to build up a case. Interrogation officers in some instances violate the human rights of the suspects to get vital information.

The law enforcers' role during the **prosecution** is to stand as witnesses. The challenges include sustained presence during the court trials. Due to administrative, operational and financial requirements, many law enforcer-witnesses fail to attend the court proceedings. Their personal testimonies influence the decision of the court. The judge who schedules the trial, hears the case, weighs the evidence and issues the verdict needs first hand evidence usually provided by witnesses to make unbiased decision. The large

volume of court cases can prolong court proceedings, which in turn dissipate the financial resources and interest of the witnesses.

The **disposition** of a maritime case is dependent on the court decision. There are attendant matters that law enforcers must deal with to orderly dispose the case. One is the custody of the arrested persons. While the arresting officers may commit them to the jail agency, their physical security is always a concern as in the recent case of town mayor who was killed while in prison. The storage and preservation of the evidence is another. Where will they be deposited and how will they be brought to court to avoid tampering and loss of evidentiary material?

In sum, maritime law enforcement challenges revolve around resource allocation for doctrine formulation, detection, command and control equipment, extensive training and continuous motivation of the enforcers, and readily accessible support personnel to build up the case from apprehension to disposition.



Philippine Coast Guard arrest Chinese fishermen who rammed a PCG vessel. Photo credit: philstar.com.

Suggested Strategies. Law enforcement efforts require strong coordination, cooperation and collaboration between and among the different government agencies. With sea territory larger than its land area, the Philippines needs a clear maritime strategy to protect, defend, exploit and preserve its maritime areas.

This maritime strategy must emphasize that the country is an archipelago that depends on unimpeded use of the sea not only to extract the fishery and aquatic resources and the minerals beneath the seabed but also for movement of goods and services for economic sustainability. A change in mindset of the population and the country's leaders from land-based to maritime-based economy and security may shift government programs and budget allocation. To stress this point, Britain in the later part of the 17th century gave around 80% of its national budget to its Navy to protect its maritime interest that coincided with its national interest.

The nation's maritime strategy must recognize three components: (1) a large and flourishing merchant fleet; (2) a credible navy or sea going armed force to insure freedom of navigation and protect the merchant fleet; and (3) a string of mobile or fixed bases or stations to provide logistics to the navy or sea-going force, and monitor the movement of vessels traversing the sea.

Enforcement of laws is intended to allow the merchant fleet vessels to do legitimate business free from harm, avoid safety-related accidents involving persons and vessels, and to protect the marine



Philippine Coast Guard rescues 178 passengers from sinking ship (MV Asia Malaysia) in 2011. Photo credit: AP News & Asian Correspondent.com.

environment from degradation. Pending the creation of a body to oversee strict and sustained compliance to all applicable laws, the **National Coast Watch Council** with its secretariat and center may be clothed with additional powers to implement the maritime strategy.

Beyond structural change at the topmost hierarchy, the maritime law enforcement agencies must acquire affordable capabilities to enhance their interoperability and information sharing. This would entail training in boarding and search procedures, human rights, evidence collection and preservation, violation detection, reporting system, records management, and Rules of Engagement. The Council may influence the Agency Heads to tailor procurement to improve capability to coordinate and operate at ground level.

Professional jealousy must be replaced by "team spirit" as espoused by former President Fidel Ramos who compares the country to a ship where harmony, teamwork and foresight propel it to the intended destination. Synergy can be achieved only by setting aside personal differences of the leaders in the enforcement agencies.

At the operational level the enforcement units may organize themselves to conduct periodic tabletop exercises and initiate limited exercises at sea to test respective or joint doctrines. They may start with inter-agency informal or formal meetings to be familiar with each other's mandate and capabilities.

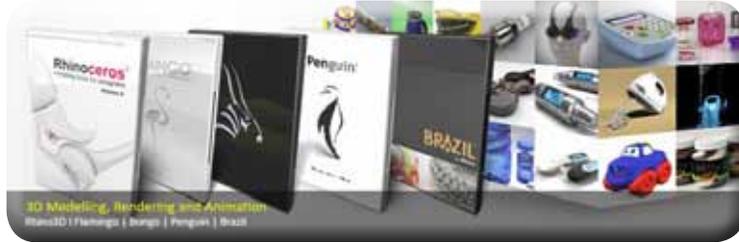
During then RADM Emilio Marayag's stint as Commander, Naval Forces Western Mindanao in 2007-2008, he invited nearly all government agencies including the governors of the 3 island-provinces of Basilan, Sulu and Tawi-tawi for inter-agency meetings and consultations. The actual test of such interactions occurred during their participation in the periodic Philippine-Malaysia Border Patrol Operations. Before actual operations, both countries established clear-cut protocols to undertake specific tasks. In those border operations, none of those apprehended at sea filed any complaint of violations of human rights or harassment perpetrated by the participating units.

The present court system may not be able to efficiently handle maritime cases should our enforcement units level up their capabilities. In the previous issue of the Maritime Review there was a proponent, **Daisy Arcilla Brett-Holt**, who has been working hard for several years to establish the Jury System to expedite resolution of cases before the courts. This is one proposal worth exploring in the near future.

Maritime law enforcement units must forge a common doctrine for operations to avoid conflict and misunderstanding. They can consider plan-prepare-execute-assess cycle with special attention to human rights protection as one of the principles in their operational planning. One veteran constabulary officer once said something to this effect: the true gauge of success in law enforcement is not the number of apprehensions made but the number of cases won in the court of law. ⚓

Software Solutions for...

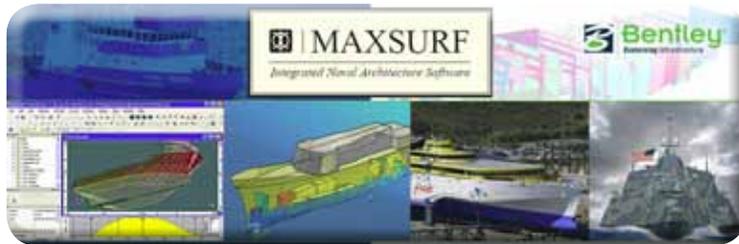
3D MODELING & ANIMATION



PAYROLL, HR & WORKFORCE MANAGEMENT



SHIP-DESIGN & NAVAL ARCHITECTURE



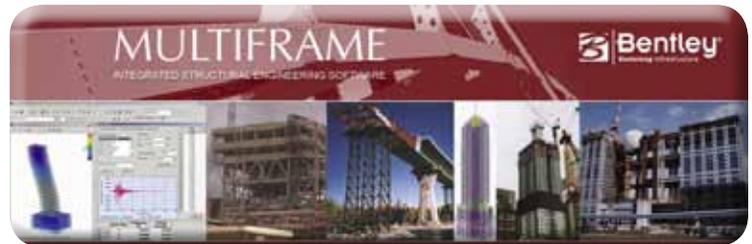
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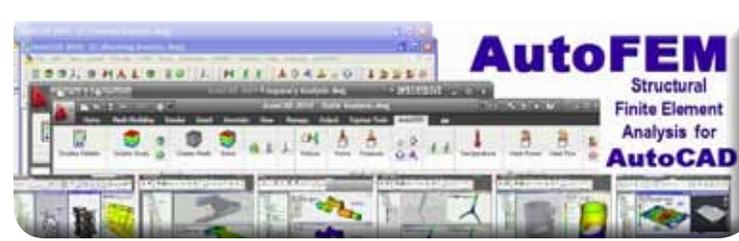
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WEB DEVELOPMENT, EMAIL & CLOUD HOSTING SERVICES





Maritime Events Calendar

NOVEMBER '16

- 1-5 SNAME MARITIME CONVENTION (BELLEVUE, WA)
- 2-5 INDO DEFENCE 2016 TRI-SERVICES FORUM (INDONESIA)
- 3-4 FERRIES, MARINE LOG CONFERENCE AND EXPO (SEATTLE, WA)
- 8-9 ASIAN MARINE ENGINEERING CONFERENCE (SINGAPORE)
- 15-17 METS MARINE EQUIPMENT TRADE SHOW (AMSTERDAM, NETHERLANDS)
- 15-17 FUTURE OF UNDERWATER TECHNOLOGY CONFERENCE 2016 (UK)
- 16-18 CREW CONNECT GLOBAL CONFERENCE & EXHIBITION (MARRIOTT HOTEL, MANILA)
- 25 **MARITIME BREAKFAST FORUM #117 (DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS (DOTC); COLUMBIA TOWER, ORTIGAS AVE., BRGY WACK-WACK, MANDALUYONG CITY)**
- 29-30 SHIPPING 2030 ASIA (SUNTEC SINGAPORE CONVENTION & EXHIBITION CENTRE, SINGAPORE)
- 29-30 MARITIME DEFENCE WEEK 2016 (MAX ATRIA, SINGAPORE EXPO, SINGAPORE)

NOVEMBER-DECEMBER '16

- 30-2 INTERNATIONAL WORKBOAT SHOW (NEW ORLEANS, LA)

JANUARY '17

- 6-15 LONDON BOAT SHOW (LONDON, UK)
- 19 DOTC ANNIVERSARY (PHILIPPINES)
- 20 **MARITIME BREAKFAST FORUM #118 (DEPARTMENT OF FOREIGN AFFAIRS (DFA); 2330 ROXAS BLVD., PASAY CITY)**

FEBRUARY '17

- 9 **MARITIME BREAKFAST FORUM #119 (CEBU PORTS AUTHORITY (CPA); NORTH RECLAMATION AREA, CEBU CITY, CEBU)**
- 19-23 INTERNATIONAL DEFENCE EXHIBITION AND CONFERENCE (ABU DHABI)

MARCH '17

- 17 **MARITIME BREAKFAST FORUM #120 (MARITIME ACADEMY OF ASIA AND THE PACIFIC (MAAP); KAMAYA POINT, MARIVELES, BATAAN)**

APRIL '17

- 4-6 OCEAN BUSINESS (SOUTHAMPTON, UK)



MARITIME FORUM

The League organized the Maritime Breakfast Forum (MBF) series in 1995 as a venue for developing plans and programs to discuss and resolve issues in the maritime industry. The MBF is attended by stakeholders in the maritime sector and resource persons in the government and private agencies involved in maritime concerns. The MBF is regularly held, without fail, every month except June and December, hosted by different agencies and organizations in the maritime industry. Policies and projects presented during the forum are published in the Maritime Review for information and dissemination to the general public.



Damen Unveils Next Generation Water Bus

First composite vessel set to launch. Damen is set to launch its first composite urban water shuttle as the prototype undergoes sea trials in the next few weeks. Customers benefit from reduced fuel consumption, less maintenance, no corrosion or fatigue problems, and at the same time, the **Damen Waterbus** is very robust. Besides safety and efficiency, the new **Damen Waterbus** has also been designed to limit noise and vibrations, making it much more comfortable for passengers.

Marcel Elenbaas, Damen's Design & Proposal Engineer - Fast Ferries, comments: "This is a prototype for the first of the new generation **Damen Waterbus**. We believe in this new composite vessel and the benefits it offers to clients. The **Damen Waterbus** is the best fit for highly congested urban areas, providing a simple and efficient way of making use of natural waterways, and consequently integrating into the public transport network. Hence, the reason we took the decision to invest in developing this new series."



The **Damen Waterbus** has a slender hull, weighs less than a traditional aluminum vessel, and low resistance, producing only a low wake and ensuring the vessel is fuel-efficient. With a length of up to 24 meters, it can travel at 21.5 knots or 40 km per hour. The highly maneuverable vessel has a capacity of up to 100 passengers.



The vessel can easily be adapted to specific customer requirements, and the selected composites' production process facilitates a swift delivery to clients.



This next generation **Damen Waterbus** is also very strong because it is built with high quality vacuum infusion technology, creating a 'difficult to penetrate closed cell, epoxy sandwich structure,' **Marcel Elenbaas** stressed.

The **Damen Waterbus** is equipped with two, forward facing, double contra rotating podded Volvo Penta diesel propulsion units, which reduce vibrations, besides offering low fuel consumption. Additionally, the exhaust of these units is under water, further reducing noise and vibrations. The vessel is also designed for easy and efficient boarding, and passengers have panoramic views from the large windows on the sides and top deck.



Damen Shipyards Group has a long history of producing water taxis, waterbuses and ferries, mainly built from aluminum and steel, and intended for intensive public transport operations. **Damen Shipyards** offers a complete infrastructure system for waterbuses, including jetties, bunkering stations, and training and service packages.

The **Damen Waterbus** is the first vessel for public transportation produced at **Damen Shipyards Antalya**, which specializes in composite (consisting of glass fiber reinforced polymer) professional workboat series suitable for heavy-duty operations. Its modular design is suitable for a large variety of applications. Thus, the **Damen Waterbus** can be deployed as taxis, sightseeing boats, commuter ferries, dinner cruises, and many other uses.

The first **Damen Waterbus** is expected to be in the Netherlands before the year-end, and Damen has another Water Bus hull in stock ready for outfitting. ⚓



Maritime Awards 2016

The Maritime Forum presents, in commemoration of the 25th Anniversary of the Founding of its convener, The Maritime League, the 2016 Maritime Awards for excellence in various endeavors in the Philippine maritime community will be presented on November 25, 2016. An Awards Committee to review the final list was confirmed during the 116th Maritime Forum held at the NAMRIA, Lawton Ave., Fort Bonifacio, Taguig City on 28-October-2016 consisting of RADM Quirico V Evangelista AFP (Ret) as Chairman, and Commo Mariano S Sontillanosa AFP (Ret), and Capt Roberto N Patrimonio PCG, as members.

The AWARDEES shown below are companies engaged in development and activities that are inherently part of the maritime industry or have significant contribution to developments that affect the maritime environment or area and reflect their outstanding achievement in the fields they represent.

1. For excellence in international port/terminal management and operations:

INTERNATIONAL CONTAINER TERMINAL SERVICES, INC. (ICTSI)



International Container Terminal Services, Inc. (ICTSI) is involved in the management, operation and development of ports and terminals. Incorporated in 1987, ICTSI is the Philippines' largest and most successful container terminal operator, and has become a world leader in this business of providing container handling, storage and related services to shipping lines and cargo owners. ICTSI has an experience record that spans container terminal operation in six continents. ICTSI currently has 30 port operations in 20 countries. We have a track record that confirms our ability to rapidly adapt to different operating environments, and to add substantial value to our operated terminals by enhancing their efficiency at every level. The management and staff of ICTSI, at both its corporate and operations levels, have extensive operating experience in container, break-bulk, roll-on roll-off and general cargo.

2. For excellence in the conduct of maritime education, training, and overseas deployment of quality seafarers:

MARITIME ACADEMY OF ASIA AND THE PACIFIC (MAAP)



The Maritime Academy of Asia and the Pacific located in Kamaya Point, Mariveles, Bataan is an all-scholar school for Merchant Marine Officers offering Baccalaureate and Master's degree programs. Cadets are recruited nationwide and those selected have free tuition, board and lodging paid by international shipping companies for whom their scholars will work for 5 years. Established in 1998 by the late Capt Gregorio S. Oca, President of the Associated Marine Officers and Seamen's Union of the Philippines, MAAP has graduated 2916 officers, 91% of whom are still working in the industry. MAAP is equipped with the latest maritime training simulators & equipment. To maintain high quality of service, MAAP is accredited with ISO 9001-2015; Quality Maritime Education and Training; Offshore Petroleum Industry Training Organization, and PACUCOA, among others. Since its first graduation rite in 2003, MAAP has produced 93 licensed Master Mariners (Captains) and 67 licensed Chief Engineers. With a current enrolment of 1710 cadets, 34 of them women.

3. For excellence in the development, management & operation of transport business conglomerate:

HERMA GROUP



The Herma Group traces its origins to 1985 when Herma Corporation, a company specializing in the seaborne transport of refined petroleum products, was established. The company has since ventured into other businesses, namely, shipbuilding and ship repair, port terminal operations, petroleum trading and terminals, property development, and environmental management services to form the present-day Herma Group. Their most recent accomplishments include the construction of 3 IACS-classed petroleum tankers, and 3 domestic bunkering barges at their shipyard in Bataan to add to their ever-growing fleet of hauling and bunkering vessels; expansion of their petroleum trading out of their 2 oil import terminals in Batangas and Davao; and upgrading of their hazardous waste treatment facilities in Cavite and Leyte.

4. For excellence in planning and development of an urban commercial waterfront area:

ASEANA HOLDINGS INC.



Aseana Holdings Inc. is a fully owned subsidiary of D.M. Wenceslao & Associates Inc. (DMWAI). Formed in 2003, Aseana Holdings Inc. was organized for the development potential of Aseana City, a 107-hectare business, entertainment, and tourist destination fronting Manila Bay and forms part of the Central Business Park Island B&C reclamation. Its projects within Aseana City include office, dining and retail strip Aseana Power Station and Aseana Square; Aseana I, Aseana II and Aseana III office buildings; and residential condominium Pixel Residences. Some of its locators are Ayala's biggest Metro Manila Mall, boutique hotels, Red Planet Hotels, and Sequoia Manila; City of Dreams, and the Solaire Resort and Casino.

5. For excellence in the development, management and operation of a modern interisland ferry system:

ARCHIPELAGO PHILIPPINES FERRIES CORPORATION (APFC)



APFC was founded to provide a vital maritime link between the Philippine islands. Incorporated in 2002, it now owns and operates the Philippines' first and only catamaran RoRo ferries, and modernized ports and terminals in the eastern and western Philippine sea routes. In support of the Strong Republic Nautical Highway Project, and to facilitate efficient movement of people and goods, APFC offers safe, fast and convenient ferry service to the islands using state-of-the-art RoRo vessels designed specifically for Philippine weather conditions. With a focus on ensuring passenger safety, welfare and comfort, APFC re-fleeted in 2010 to pioneer 10 brand-new, custom-crafted, cutting-edge Ropax vessels fitted with world-class amenities and compliant with international standards. 20 vessels will be added to the fleet.

6. For excellence in planning and visionary concept in integrated coastal development:

GREEN SQUARE PROPERTIES CORP.

Pacific Coast Cities is a masterplanned development of 30,000 hectares at Dingalan, Aurora and Gen. Nakar, Quezon that would include an Industrial City, a Workers' City, a City of Learning, and a Government Center with an International Port and an Airport. Green Square Properties Corp. consolidated and conceptualized the Pacific Coast Cities masterplan, and is leading the movement of developing the Philippine Eastern Board. Our Industrial City will have a transshipment port, airport, and roads and railways that will ensure the smooth flow of commerce. Our Workers' City, will employ the Manila squatters, which will propel township and city development in the East, from Tuguegarao to Surigao. Our City of Learning will provide skills training, research and development so our workers can contribute to national productivity. The Port of Dingalan would attract huge container ships without the need for ship downsizing in nearby country ports. Pacific Coast Cities is envisioned to decongest Metro Manila.



7. For excellence in development, management and operation of a multi-purpose cargo and passenger terminal:

MANILA NORTH HARBOUR PORT INC.

Manila North Harbour Port, Inc. (MNHPI) is the terminal operator of Manila North Harbor, a 52-hectare port facility situated at Tondo, Manila. The port has a total quay length of 5,200 meters and 41 berths that can accommodate all types of vessels. The North Port Passenger Terminal Complex is the first



passenger terminal facility with facilities designed to provide utmost safety, security and comfort to passengers, and accommodate 2,000 passengers at any given time. To ensure optimal delivery of port services, MNHPI increased its cargo handling capacity with 6 ship-to-shore quay container cranes, and 20 rubber-tyred gantry cranes. An additional 2 ship-to-shore quay container cranes, and 7 rubber-tyred gantry cranes will be added in July 2017.

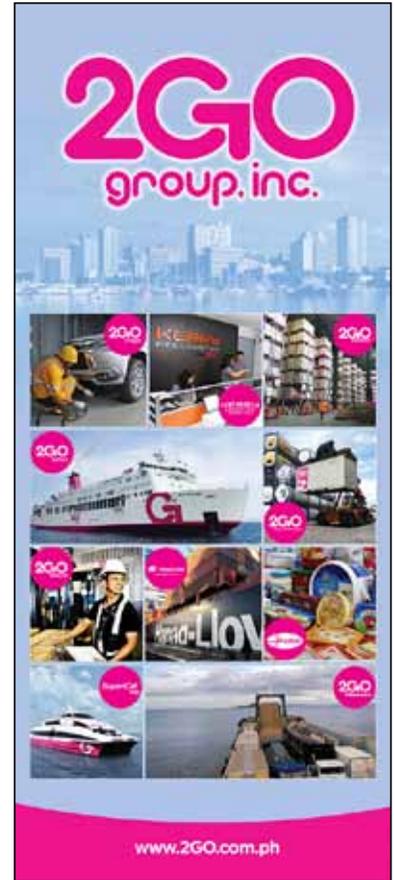
8. For excellence in integrated logistics, passenger transport, tourism and travel in the maritime industry:

2GO GROUP INC.

2GO Group Inc. is the largest, fully integrated supply chain enterprise and most complete end-to-end solutions provider in the Philippines, with 180 years of shipping and logistics experience.

The group owns and operates 2GO Travel, 2GO Freight, 2GO Express, 2GO Logistics, 2GO Special Containers, and Scan Asia Overseas Inc..

2GO Group's services include: international shipping; international freight forwarding; customs clearance; domestic shipping; freight and travel; warehousing; land transport; express; projects; and XTrade. It maintains 24 vessels, 55 warehouses, and over 2,200 outlets.



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Custom and ready-made FRP cruising / speed / recreation / leisure boats using the latest composite technologies.



Naval Architecture & Marine Engineering using the advanced 3D CAD/CAM software tools.

Information Technology Applications in the Maritime Industry

by Julius Patrick Apud

Ships have undergone many advancements in terms of design, materials, propulsion, and navigation systems. From the first ships that used muscle and wind power, to modern-day vessels that have efficient fuel and electrical systems; from wooden ships, to modern vessels made of steel and composite materials; from using star maps and astrolabes, to using GPS and computerized maps, shipping has evolved by many leaps and bounds.

In this interconnected world, virtually every industry has at least a basic computer system and connectivity to a local network and to the Internet. Modern ships may not have the same computer systems as those found in passenger airplanes and automobiles; still, they use different kinds of technologies that make life on board easier, more comfortable, and more manageable than ever before.

Modern ships contain many different equipment and machinery that run round the clock. Systems such as the engine, fuel delivery, electrical power, climate control, among others, need constant monitoring. Temperature changes, revolutions per minute, fuel and oil flow rates, and other parameters need to be observed, recorded and analyzed. By using computers, the task of record-keeping and analytics would be easier, which in turn improves performance.



Navigation systems for modern ships use GPS, radar, sonar, and computerized maps in conjunction with radio and satellite-based communications systems. These systems help navigation officers find their way and follow their routes even in the dark, inclement weather, or low visibility.

Cargo operations require timely processing of movements of cargo to and from ships. Systems that monitor the weight and balancing of bulk and liquid cargo are vital not just for quick and efficient transfers, but also for the safety of shipping and port crew.

Training of shipping officers and crew are now aided by simulators powered by computers. Different situations can be programmed into these simulators, such as storms, fog, and port congestion, which are necessary for training officers in handling such situations. Computer simulations can help maritime students and seasoned officers and crew learn more effectively than by verbal or theoretical discussions alone.



These are just some of the basic systems that are being used on modern ships. In future articles, we will discuss more IT applications in commercial shipping. ⚓

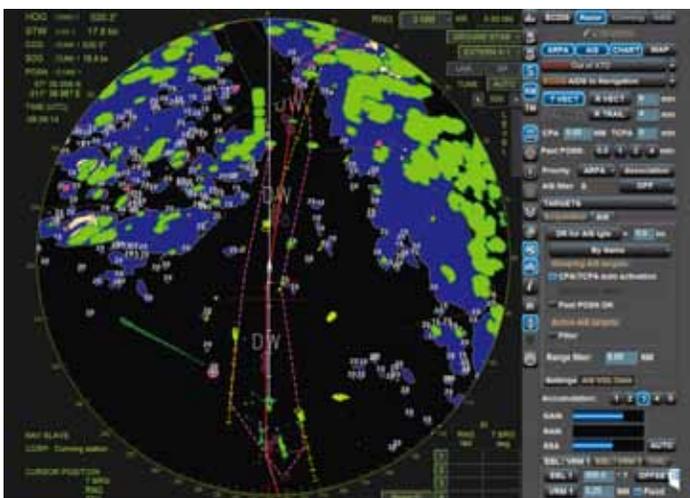


PHOTO CREDIT: TRANSAS NAVI-RADAR 4000

Ships and their crews are dependent on different types of supplies. Among these are food, water, fuel, oil, spare parts, and many others. By using computerized inventory management systems, records of supply utilization can be analyzed, and the data can be used to make utilization and resupply more efficient. Routine maintenance can also be facilitated through systems that monitor daily usage of machineries and record maintenance dates and times. Such systems help remind the maintenance crew which systems are in need of preventive maintenance, and which ones are due for replacement.



Enhancing the U.N.-China-U.S. Strategic Collaboration

by former Philippine President Fidel V. Ramos

These past two weeks in the United Nations and at side events in various venues, significant happenings took place and will continue to evolve through the month of October. Some of the world's leaders are phasing out of the international limelight while others will be coming on the world stage for the first time.

Climate Change – Priority for China, U.S. and U.N.

Earlier this month, at the Summit held on 04-05 September 2016 in Hangzhou City, Zhejiang –the first-ever G20 summit China hosted– U.S. President Barack Obama and China President Xi Jinping announced the ratification by their respective countries of the Paris Agreement of the 2015 U.N. Climate Change Conference. This simultaneous declaration was “a giant step forward for Earth’s better and more peaceful future.” The U.S. and China represent, respectively, 18% and 20% of worldwide carbon dioxide emissions, the main cause of global warming. Prior to such ratification, only 23 nations had so far ratified the Agreement, accounting for just over 1% of CO2 emissions. Hopefully, more and more nations, the Philippines included, will soon follow.

BBC News reported (03-September-2016): “In a speech in Hangzhou, President Obama said the Paris deal was the ‘single best chance to deal with a problem that could end up transforming this planet’... U.N.

Secretary General Ban Ki-Moon praised President Obama for what he called ‘inspiring’ leadership. Sec-Gen. Ban also said President Obama and President Xi had both been ‘far-sighted, bold and ambitious.’”

Last 20-September-2016, President Obama gave what was his final speech before the U.N. General Assembly in which he focused on climate and the need for a new sustainable global business model that would be inclusive of both the developed and developing countries.

In his U.N.G.A. speech, Obama asserted: *“We need to follow through on our efforts to combat climate change. If we don’t act boldly, the cost that could come due will be mass migrations, cities submerged, nations displaced, food supplies decimated, and conflicts born of despair. The Paris Agreement gives us a framework in which to act, but only if we scale up our ambition. There must be a sense of urgency about bringing the agreement into force, and helping poorer countries leapfrog destructive forms of energy.”*

For the wealthiest countries, a green climate fund should be established from the beginning. The developed countries need to invest more in research and provide market incentives to develop innovative applications, and then make these technologies accessible and affordable for poorer countries. Only then can people be lifted up from poverty without condemning our children to a planet bereft of natural resources because of the lack of caring, sharing, and daring.

Sec-Gen Ban Ki-Moon's Valedictory.

Equally important in terms of earth's progress toward a better, sustainable future was the valedictory of outgoing Secretary General Ban Ki-Moon before the assemblage of Heads of State, Prime Ministers, and top diplomats last 20-September. His term ends by December 2016.

Sec-Gen Ban emphasized the need for greater international cooperation to put a closure to bloody conflicts on several fronts, resolve the migrant issues that had cost thousands of lives of refugees lost seeking sanctuary in safer lands, plus the fulfillment of the 30-year old nuclear Non-Proliferation Treaty (NPT). He specifically pinpointed Syria's leadership as responsible for continuing suffering in its 5-year civil war.

Sec-Gen Ban stressed: *"In today's world, the conflict in Syria is taking the greatest number of lives and sowing the widest instability... Many groups have killed many innocents, but none more so than the Government of Syria itself, which continues to barrel-bomb neighborhoods and systematically torture thousands of detainees. Present in this U.N. hall today are representatives of Governments that have ignored, facilitated, funded, or even planned and carried out atrocities inflicted by all sides of the Syria conflict against Syrian civilians."*

Sec-Gen Ban called the attack last 19-September on a U.N.-Syrian Arab Red Crescent Aid convoy as "sickening and savage." The U.N. has been forced to suspend aid convoys as a result of this latest outrage.

Encouraging Commitments from China.

For his part, China Premier Li Keqiang also recently addressed the same U.N. General Assembly. In an article entitled, "Li Vows New Round of Opening-Up," the China Daily (Asean Edition, 23-September) reports, "China still has a long way to go to reach modernization and needs to pursue development through deepening reform, further opening up and safeguarding a peaceful environment, Li Keqiang said at the U.N. Headquarters in New York. *"Li said China has become the first nation to submit a report to the U.N. on how it is implementing the "2030 Agenda for Sustainable Development," a blueprint endorsed unanimously by the U.N. General Assembly in September 2015 for ending conflict, poverty and hunger, promoting equality, and protecting the environment in the years leading up to 2030."*

While addressing the U.N.G.A., whose theme is "The Sustainable Development Goals: A Universal Push to Transform our World," Premier Li vowed that China would carry out a new round of opening-up and work to achieve mutually beneficial cooperation to fulfill the "U.N.'s 17 Sustainable Development Goals," by 2030.

In the closing part of his U.N.G.A. speech, Premier Li stressed, "China has taken action to advance the 2030 Agenda for Sustainable Development. It was among the first to release a national plan on agenda implementation while China remains supportive of relevant international cooperation. \$100 million by 2020 from the 2015 level will raise China's total annual contribution to U.N. development agencies. China was among the first countries to deposit with the U.N. an instrument of ratification of the Paris Agreement, and China will honor its commitment made in this regard."

China's State Council ratified on 19 September –two days prior to Premier's Li U.N.G.A. address– the implementation of the 2030 Agenda for Sustainable Development. Premier Li is President Xi Jinping's right-hand man and second-in-command for the fulfillment of China's vision of universal peace and prosperity.

Premier Li released the National Plan when he chaired a recent Beijing Roundtable on the Sustainable Development Goals. The plan consists of five parts, including China's achievements and experience in implementing the 2015 Millennium Development Goals, and the challenges and opportunities, guiding principles, roadmaps and detailed plans for implementing the Sustainable Development Goals.

The Refugee/Migrant Crisis.

In an article entitled, "China Pledges to Help Refugee Crises," the China Daily (Asean Edition, 23-September) reports, "China pledged \$100 million in humanitarian aid to help countries and international organizations to resolve refugee and migrant crises and will consider additional support measures."

Premier Li made the vow when he addressed a meeting at the U.N. on refugees and migrants. Li said China would also consider using part of the China-U.N. peace and development fund to support refugee/migrant work in developing countries, and to explore ways to enhance cooperation with developing countries and international agencies.

President Xi Jinping announced China's decision to establish a 10-year, \$1 billion China-U.N. peace and development fund during the 70th session of the U.N. General Assembly last year. Premier Li said the resolution of the refugee/migrant issues calls for ramped-up intensified international cooperation and intensified efforts by native countries of refugees/migrants. He said China has actively joined efforts to resolve these humanitarian issues.

At the end of 2015, the number of displaced people reached a record 65.3M, an increase of more than 5M from 2014, according to the Office of the U.N. High Commissioner for Refugees. These figures include 21.3M refugees, 3.2M asylum seekers, and 40.8M migrants.

Threats of Nuclear Warfare.

The same newspaper likewise reported that Premier Li voiced Beijing's opposition to the plan by Washington and Seoul to deploy an advanced missile-defense system in the Republic of Korea, during Li's meeting with President Obama last week at the sidelines of the U.N.G.A. 71ST session. Li said, "It is hoped that all parties will avoid taking actions that lead to escalation of the tense situation."

Earlier this year, Washington and Seoul had agreed to deploy the Terminal High Altitude Area Defense (THAAD) system, angering Beijing and Moscow. The system's radar has a maximum reach of 2,000 km and could cover parts of China and Russia.

Tensions rose anew on the Korean Peninsula after the Democratic People's Republic of Korea's recent nuclear test in an area near the China-DPRK border.

The Bottom-line for the Philippines.

It does appear that in the past two weeks, chances for China-U.S. conflict over the China Sea controversies, thankfully, have receded, while their collaboration on equally important issues have been reinforced under the U.N. umbrella, principally the:

- 17 Sustainable Development Goals to be achieved by all nations by 2030;
- Global Climate Change;
- Non-Proliferation of Nuclear Weapons; and
- Massive Assistance to U.N./Red Cross-Red Crescent Humanitarian Efforts towards refugees leaving their homelands because of violence and terrorism.

In sum, all of the above developments point to the need for inter-dependent foreign policies on the part of all countries to ensure people's well being and Mother Earth's survival.



Please send any comments to fvr@rpdev.org. Copies of articles are available at www.rpdev.org.



Friend of the Sea confirms Kimagro's Levantina Seabass and Seabream

by Vicky Viray Mendoza

Kimagro Fishfarming Ltd, a producer of Mediterranean seabass and Mediterranean seabream based in the New Port of Limassol, Cyprus, has recently concluded Friend of the Sea (FOS) renewal audit for both species, and can proudly continue to display the FOS international sustainability seal of approval on its products. "This certification renewal is a confirmation of the sustainable origin and high quality of our fish," says Antonis Kimonides, Owner and Managing Director of Kimagro. "The Friend of the Sea certification sends a very clear message to our customers regarding our commitment to environmental conservation."

Founded in 1989, **Kimagro** is a family-run aquaculture company led by **Antonis Kimonides** who has over 30 years experience in the marine aquaculture industry, and holds a Masters degree in Oceanography.

The main mission of **Kimagro** is to produce and distribute sustainably farmed fish that sets the highest standard for freshness, taste and quality, and to provide complete customer satisfaction, starting from the wholesaler and finishing with the home chef.

In 1990, **Kimagro** was the first in Cyprus to research and build 43 open sea fish farms off the coast of Limassol, using floating cages with semi-automatic feeding system.

By 1996, **Kimagro** designed and manufactured a unique feeding platform, far from pollution and industrial activities, and set in place near the floating cages. Their fish feed does not contain hormones, antibiotics, GMO or PAP (Processed Animal Proteins), medicines, or

formaldehyde to preserve freshness. The fish are free from stress related to habitat due to over-crowding or heavily stocked dense cages. The presence of a specific traceability system in **Kimagro** assures that certified products respect all the requirements. Each product is uniquely identified throughout the whole process.

In 2006, **Kimagro** became a Member of Green Dot Cyprus regarding its "package declaration," and later met HACCP and ISO certification requirements.

In 2011, **Kimagro's** brand name, **Levantina Fish**, became official to differentiate the highest quality sea bass and seabream in the region. In 2012, **Kimagro** received 3 Golden Stars for successful results in the initial participation of the **iTQi Superior Taste Awards** with its **Levantina Fish** seabass. Since 2013, **Kimagro** has received Golden Stars for superior taste of both its seabass and seabream. In the same year, **Kimagro's Levantina Fish** received its first **FOS** certification for sustainable aquaculture.

Produce. **Kimagro's** sea farms grow two major species: Mediterranean Seabass (*dicentrarchus labrax*) and Mediterranean Seabream (*sparus aurata*).

The Seabass is also called Branzino, Loup de Mer, Robalo, Lubina, or Spigola.

The Seabream has more names emanating from its light golden bar. Depending on the country, the seabream also goes by the name of: Ajaj, Awrata, Chapaneta, Denees, Daurada/Dorada/Dorade/Daurade Royale/Dorado, Haksa, Gilthead, Goldbrasse, Koce,



Clockwise from left: 1) Kimagro employee adjusts fish nets on a floating fish cage; 2) Seabream; 3) Seabass

Kuldmerikoger, Lovrata, Murcielago, Orada/Orata/Ovrata, Tsipura/Cipura/Cupra, Wourata, or Zapatilla.

Animal Welfare. The seabass and seabream are allowed to grow at nature's pace and not forced to grow at a fast pace. They are fed with high quality and sustainable fish feeds through the unique Feeding Platform that uses electronic systems for more accurate and efficient daily distribution of feeds per cage. **Levantina Fish** feed on Ad libitum so that their growth and metabolism simulate their natural rhythms as far as possible, thus, ensuring animal welfare, which in turn produces a fish of superior quality.

The fish are maintained in low stock density cages and daily monitored by the Diving Team. Harvesting the fish is done by thermal shock in ice. The offshore cages have a fish density of 12-15 kg per square meter, and are equipped with video cameras to monitor feeding habits of the fish, and provide security to the farm. The floating cages are covered with special nets that can prevent birds from getting entangled.

Traceability and Monitoring. Kimagro employs a traceability system to monitor in full its practices and record keeping. The local Veterinary Authorities perform regular tests on the feeds. Kimagro uses only top reputable fish feed suppliers that are sustainable in their own practices, and source their fishmeal and fish oils from responsibly managed fisheries using efficient feed transportation and waste management. Kimagro also performs **internal tests** as part of its regular checks to ensure traceability of its products. This process was also checked during the **Friend of the Sea Audit** for Kimagro to be a fully certified Sustainable Aquaculture.

Kimagro operates its own hatchery, and all details are identified regarding development from the egg up to 2-gram fry stage, including the quality of both live and dry food. The fry from the hatchery are delivered in specific batch numbers to include the quantity and actual weight per batch. The fry are monitored

through the life span of the fish and its development. The fry are spaced out in the cages throughout their lifetime in order to keep low- density levels. Traceability is maintained through the harvesting, packing, and delivery of consignment to the customer.

Environmental monitoring takes place every six months, in the summer and winter. **Kimagro** has its own Environmental Impact Specialist to deal with environmental obligations.

Sustainable Rearing Practices. **Levantina Fish** are raised in open sea fish farms, where no meadows of the protected endemic seagrass (*Posidonia Oceanica*) exist, a major environmental issue with other fish farms in the Mediterranean. The farms have excellent water quality and oxygenation, and travel from the fish farms to the packing site is a relatively short distance, intentionally.

Packing Site. In 2003, the EU approved **Kimagro's** packing equipment that quickly sorts and grades the fish to the customer's required sizes. Initially, it was HACCP-certified, which means **Kimagro** met international standard requirements for effective control of food safety. By 2007, it became ISO 22000-certified which means **Kimagro** has a food safety management system in place. The Company has also been FDA approved after undergoing an audit in 2014.



Friend of the Sea is an international certification program for products from sustainable fisheries and aquaculture. Over 500 companies in over 50 countries rely on FOS to assess the sustainable origin of their seafood. The audits performed on the companies are based on the best and the most updated available scientific data, and are run by accredited independent certification bodies.





World's Largest Marine Protected Area in Antarctica's Ross Sea

By Eurasia Review, October 30, 2016

The Commission for the Conservation of Marine Living Resources (CCAMLR) on Friday approved the creation of a New Zealand/United States proposal to establish the world's largest Marine Protected Area (MPA) in Antarctica's Ross Sea. The Agreement will enter into force on December 1, 2017.

The Ross Sea Marine Protected Area covers 1.55 million square kilometers, of which 1.12 million square kilometers, or 72%, is fully protected and no fishing will be permitted.

According to the New Zealand government, "The agreement balances marine protection, sustainable fishing and science interests. These include important habitats and foraging areas for marine mammals, birds, fish, and invertebrates, including iconic species in the region such as Weddell seals, killer whales and Emperor penguins."

New Zealand and the United States first came together to propose the MPA in 2012 and have been working to gain agreement

from CCAMLR's 23 other members since. CCAMLR only makes decisions by consensus.

According to US Secretary of State John Kerry, "The new MPA adds 1.55 million square kilometers (598,000 square miles) in new ocean protection – an area nearly twice the size of the state of Texas. This designation — on top of the nearly 4 million square kilometers of newly protected ocean announced around the global Our Ocean conference the State Department hosted in September — makes 2016 a landmark year for ocean stewardship."

Kerry said, "In addition to its tremendous conservation value, the Ross Sea MPA is designed to be a natural laboratory for valuable scientific research to increase our understanding of the impact of climate change and fishing on the ocean and its resources."



Sources: Antarctica and Wikipedia Commons.

Rising Sea Level: A National Security Concern

by LCDR Carter S. Luma-ang

The **National Defense College of the Philippines** defines national security as the state or condition where the sovereignty, territorial integrity, and the people's way of life and institutions are protected and enhanced.

One of the predominant effects of climate change is rapid sea level rise. If sea level rise occurs, will it affect the sovereignty, territorial integrity, and the Filipino's way of life?

Territory is one of the components of a nation-state. The territory is the area where the State has jurisdiction. The area where a State has sovereignty and sovereign rights are determined and measured from the baselines, which are commonly coincident with the coastline. The limits of a State's territory are defined by the coastline – where the land meets into the sea. The adjacent sea area of the territory can also be claimed by the Coastal State as its territorial waters where it can enforce its domestic laws.

Under the **United Nations Convention on the Law of the Sea (UNCLOS)**, a Coastal State has the right to establish the breadth of its territorial waters up to a limit not exceeding 12 nautical miles (NM) measured from the baselines. The state can also have a contiguous zone, which may not extend beyond 24 NM from the baselines from which the breadth of the territorial sea is measured. The Coastal State is further entitled to an exclusive economic zone (EEZ), which shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

In the different areas of the sea, the Coastal State and other States have certain rights under international law. The UNCLOS allows the following kinds of navigation in each maritime zone:

The UNCLOS, which is also called the Law of the Sea treaty, the baselines are the reference for all maritime zones that a Coastal State is entitled to. There are three types of baselines under the UNCLOS – normal baselines, straight baselines, and archipelagic baselines. Under RA 9522, the Philippines used **archipelagic baselines** for its archipelago (Luzon, Visayas and Mindanao), and **normal baselines** for the Kalayaan Island Group (KIG) and Bajo de Masinloc.

When sea level rise occurs, it causes change in the coastline. Naturally, the coastline will move landwards reducing the land area. The effect of sea level rise has a high impact because if the baselines would shift it will change the regime of the maritime zones measured

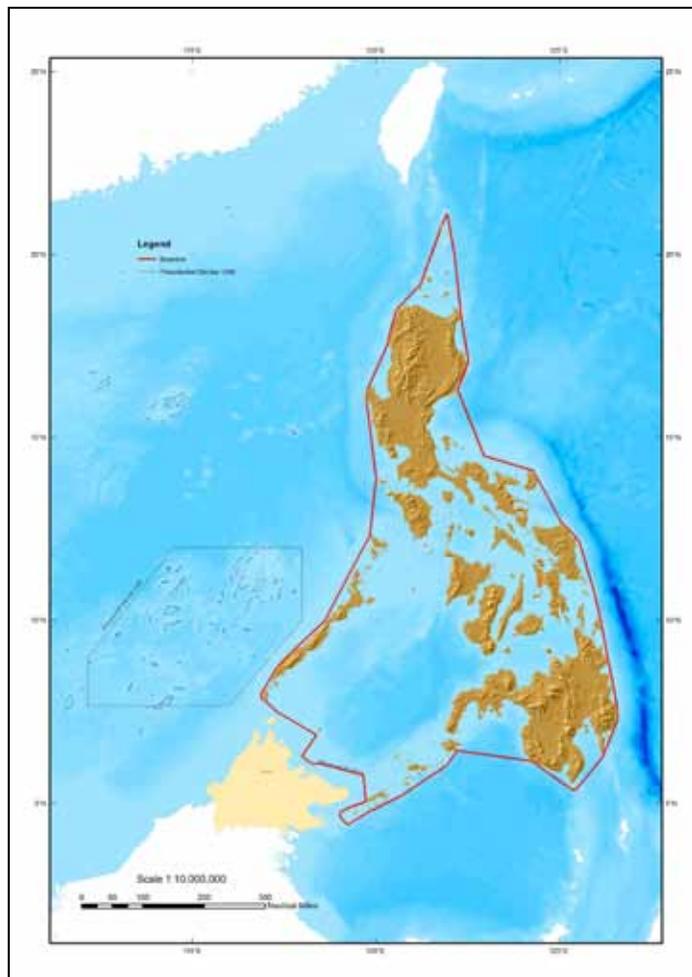


Figure 1. The baselines of the Philippines

Note. The red line shows the archipelagic baselines. The Kalayaan Island Group and Bajo de Masinloc are not included in the archipelagic baselines and are determined to be a regime of islands in RA9522.

from it. It has a subsequent effect on the implementation of local laws and the nature of navigation allowed on an area of water.

Table 1. Different maritime regimes

Maritime Regime	Rights in Enjoyed by Other States
Archipelagic Waters	Right of passage through sea lanes designated by the archipelagic states
Territorial Sea	Innocent passage
Exclusive Economic Zone	Freedom of navigation and overflight in the zone, as well as freedom to lay submarine cables and pipelines
High Sea	All states would enjoy the traditional freedoms of navigation, overflight, scientific research, and fishing on the high seas

Note. The rights listed in the table were derived from the provisions of the UNCLOS.

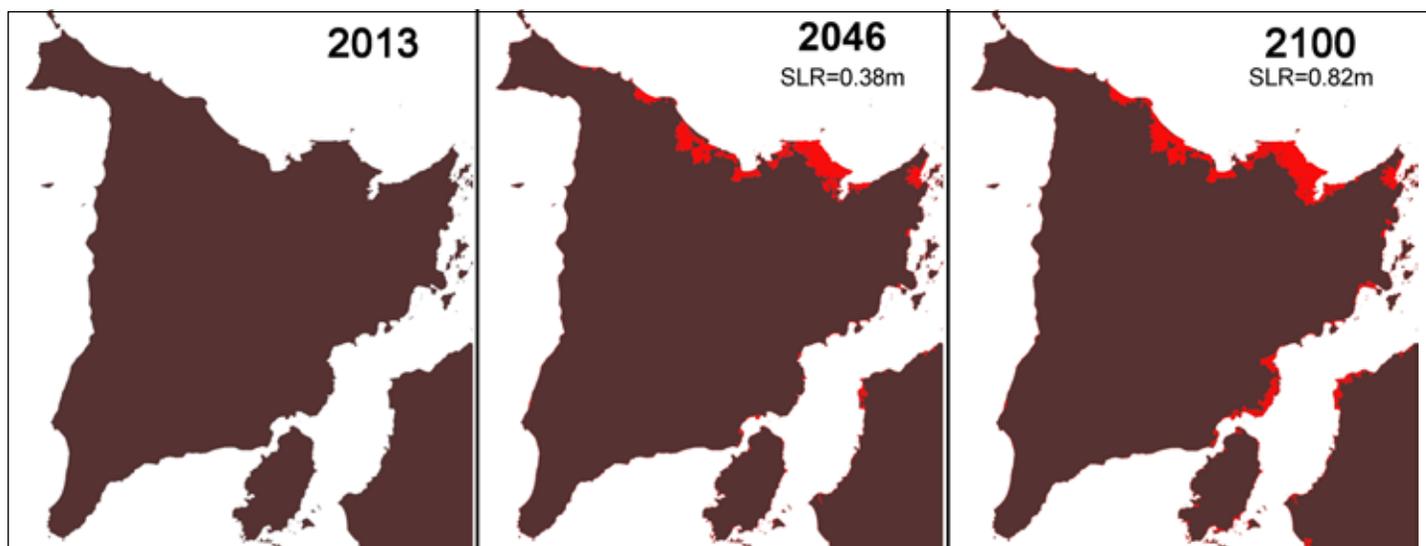


Figure 2. Change in Panay Island due to Sea Level Rise (SLR)

The figure shows images from the model of Panay Island with SLR of 0.38m and 0.82m. The red represents the submerged areas.

If the baselines would shift landward, an area of water that was previously considered as archipelagic water will become part of the territorial sea. A portion of the territorial sea will also become part of the EEZ, and portions of the EEZ will become part of the high seas. The authority of the Coastal State and the privilege of a foreign vessel change in the area affected.

The normal baseline is the actual low water line of an island or feature. Thus, it moves with the sea level. When the sea level rises, the coastline and baseline moves landward thereby reducing the land area of the island or feature. The movement also reduces the effective area of the territorial sea surrounding the island or feature. If the island or feature will be totally submerged underwater, it will lose entirely its territorial sea.

Inside the EEZ, the Coastal State has exclusive rights to fishing. In contrast, the high seas are common heritage to all. Thus, all States including land-locked States have equal rights to fishing in these areas.

If a portion of the Philippines' EEZ becomes a part of the high seas, the way of living of Filipino fishermen will definitely be affected as they no longer would enjoy exclusivity in areas which previously were.

The Fifth Assessment Report (AR5, Table 2.1) of the Intergovernmental Panel on Climate Change (IPCC) shows that the likely range for sea level rise could go as high as 0.38 meters in 2046 and 0.82 meters in 2081-2100. Some studies suggest that sea levels could go as high as 5 meters if the Antarctic Ice Sheets melt.

Despite the attention given to climate change at present, discussions have focused generally on environmental and social impacts.

The Philippines, even with its archipelagic nature, does not seem to give much discussion on how sea level rise will affect its territory and maritime zones. On the other hand, the international community is already voicing out opinions on how to address complications of shifting coastlines brought on by sea level rise.

Straight baselines are employed in localities where the coastline is deeply indented, or if there is a fringe of islands along the coast in its immediate vicinity. Archipelagic baseline is a special type of straight baseline. To be considered an archipelagic baseline, it must conform to the requirements set in UNCLOS Article 47.

Under UNCLOS, only islands or naturally formed bodies of land above water at high tide can have maritime zones. UNCLOS Article 12 states that, "an island is a naturally formed area of land, surrounded by water, which is above water at high tide." Thus, if a feature is underwater at high tide, it is not an island and cannot have maritime zones.

Coastal States, including the Philippines, use outermost islands and drying reefs in designing their baselines in order to claim bigger maritime zones. It is expected that many, if not all, basepoints of the Philippines will submerge underwater if sea level rises. However, no one knows up to what extent the land will shift, and how much the maritime zones of the Philippines will change with such submerging of basepoints.

With this question in mind, the author generated models that will show the scenarios in 2046 and 2100 using the projection of sea level by the IPCC, and the digital terrain model from the National Mapping and Resource Information (NAMRIA) 2013

Table 2. Change in Land Area and Coastline Caused by Sea Level Rise (SLR)

	UNIVERSE (2013 IfSAR Data)	0.38m SLR (CY 2046)	Difference (from 2013)	0.82m SLR (CY2100)	Difference (from 2013)
Land Area (sq.km.)	295,954.36827	293,007.86087	2,946.50740 (decrease)	289,802.85177	6,151.5165 (decrease)
Coastline Length (km)	44,894.32158	58,314.07530	13,419.75372 (increase)	68,004.21132	23,109.88973 (increase)

Note. The land area and coastline length were derived from the IfSAR data for the purpose of this study. These numbers do not represent the official statistics of NAMRIA.

Interferometric Synthetic Aperture Radar (IfSAR) data. IfSAR is a powerful approach in generating high-resolution digital data through the use of Digital Elevation Model (DEM) and Orthorectified Radar Image (ORI).

The data extracted from the models show that the country will lose around 2,946.50 sq.km. and 6,151.52 sq.km. of land areas with a 0.38-meter and 0.82-meter sea level rise, respectively. The land area loss after 0.82-meter sea level rise is larger than the islands of Cebu and Catanduanes combined. Unlike land area, the total length of coastlines increases as sea level rises.

Aside from the effect on the land area and coastline length, sea level rise causes location of points of the archipelagic baselines to submerge permanently underwater and the normal baselines to shift landwards. The shifting of the baselines causes subsequent effect on all the maritime zones measured from it.

The question that haunts States that used archipelagic baselines is whether the submerging of locations of points joining the baselines would result to shifting of baselines and the maritime zones that are measured from them. Experts seem to have different views on this.

Arsana (2013) believes that “other types of straight line type baseline are also potentially threatened by sea level rise as such baselines need to be anchored to the coast as represented by the low water line.” This opinion conforms to the principle “the land dominates the sea” which was declared by the International Court of Justice (ICJ) in the North Continental Shelf Cases (1969). In the decision, the ICJ outlined the principle by saying, “the land is the legal source of power which a State may exercise over territorial extensions to seaward.” Thus, change in the land configuration causes change in the limits of the maritime zones.

Groups that promote fixed baselines have reference only to Article 7(2) of UNCLOS, which states “where because of the presence of a delta and other natural conditions the coastline is highly unstable, the appropriate points may be selected along the furthest seaward extent of the low-water line and, notwithstanding subsequent regression of the low-water line, the straight baselines shall remain effective until changed by the Coastal State in accordance with this Convention.”

Article 7(2) is also called the Bangladesh Provision because it was included to accommodate the position of Bangladesh. Other than that, there are no articles in the UNCLOS dealing with shifting baselines.

Article 7(2) does not refer directly to appearing or disappearing islands, or change of coastline due to sea level rise. The words “highly unstable” were used to describe the Bangladesh coastline at the time of the Convention, and were not referring to the future configuration of the coastlines. At the moment, there are no cases decided by any international tribunal on shifting baselines.

What the Philippines can do is to develop plans and activities that will address the situation when it comes to a point that the international community agrees to adopt fixed or ambulatory baselines.

Figure 3 shows the scenario of the Bajo de Masinloc when sea level rises. The figures were generated by the author using NAMRIA Chart 4723A as background.

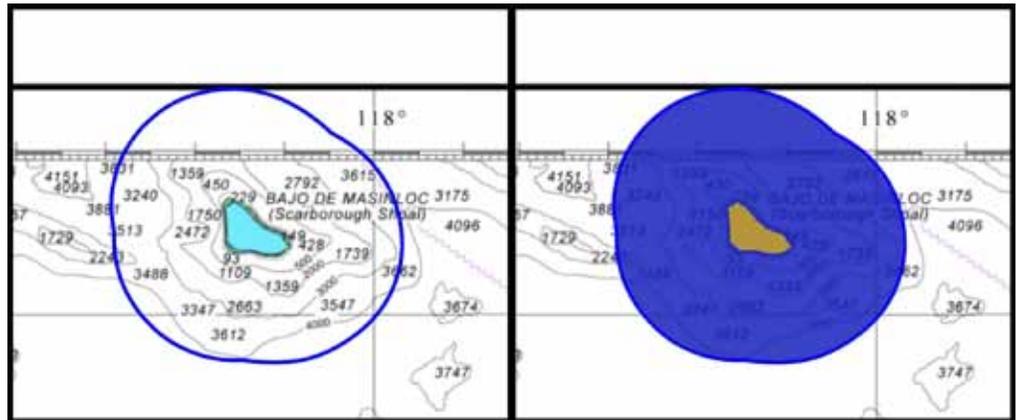


Figure 3. Bajo de Masinloc depicted in a nautical chart

Left image: blue line represents the outer limits of the territorial sea. Right image: blue area represents the belt of the territorial sea.

A Coastal State has the right to establish the breadth of its territorial waters up to a limit not exceeding 12 nautical miles (NM) measured from the baselines. If the island or rock completely submerges, will the territorial sea remain despite the ‘disappearance’ of the land and baselines from where its limits were measured from?

To argue that the territorial sea remains will be against the principle of land dominates the sea. Contrary to the loss of the Coastal State, the international community gains more when ambulatory baselines is adopted because an area previously considered as territorial sea becomes part of the EEZ or the high seas. Foreign vessels have more privileges in the EEZ and high seas than in internal waters and territorial sea.

While it is perceived that fixing baselines would promote stability and prevent conflict, it also restricts the right of a Coastal State to extend its maritime zones when circumstances change in the future. The case of the **Banua Wuhu** submarine volcano in Indonesia is rare but not impossible. New islands, as high as 90 meters, are occasionally formed by submarine volcanoes. Unfortunately, the islands of Banua Wuhu disappeared a few years later. Banua Wuhu would have been an interesting example. If baselines are fixed, a State will not be able to claim territorial sea or additional EEZ in the new island.

Table 3 shows the model of sea level rise in 2046 and 2100, predicting that there are at least 21 Philippine Archipelagic Basepoints (PAB) that will be permanently underwater. In this situation, the low water did not recede. Instead, the feature on which it is located is totally submerged. If idea of ambulatory baselines is followed, the basepoint would have to be transferred to the nearest feature above water.

In the domestic arena, land area is used in the computation of the Internal Revenue Allotment (IRA) of barangays, cities and municipalities, and provinces. The Local Government Code of 1991 (RA 7160) provides how the share of local government units is allocated. Under the Code, land area is 25% of the formula for determining the share of each province, city and municipality.

Following the formula of the Code, a coastal municipality that has an area submerged in water will lose a portion of its IRA. A

Table 3. Change in Total Areas of Maritime Zones

Maritime Zone	CY2013	0.38m SLR (CY 2046)	Difference	0.82m SLR (CY2100)	Difference
Archipelagic Waters (sq.km.)	591,878.51	586,044.28	5,834.23	588,790.21	3,088.30
Territorial Sea (sq.km.)	114,359.22	111,452.62	2,906.60	111,458.40	2,906.82
Contiguous Zone (sq.km.)	116,896.28	114,311.17	2,585.11	114,316.76	2,579.52
Exclusive Economic Zone (sq.km.)	2,127,228.11	2,001,227.89	126,000.22	2,001,296.37	125,931.74

Note. The figures were all extracted from the model generated by the author for the purpose of this study. The numbers do not represent official statistics from any government agency.

land-locked municipality will not have the same problem and would even have a bigger share of the IRA since even without increasing its land area; its proportion to the total area will be increased due to the reduction of area of another municipality.

The ongoing delineation of municipal waters will also be affected by sea level rise because similar to the UNCLOS, there are no provisions in the Philippine Fisheries Code of 1998, Department of Environment and Natural Resources Administrative Order No. 2001-17 (DENR DAO-17) and Department of Agriculture Administrative Order No. 2004-01 (DA AO 2004-01) dealing with changing coastlines. The municipal waters are also measured from the municipal baselines – where the land meets the sea. A dilemma will have to be faced if during the negotiation in the future between adjacent municipalities, the actual coastline is different from how it was described in the submission.

There are no international laws that measure State power or responsibility according to its land area. Thus, the Philippines should not be affected in its political relationship with other countries despite its shrinking area.

In the local governance, there are laws that use land area, coastlines, and outermost points in their provisions for implementation such as the **Local Government Code** and **The Philippine Fisheries Code**. These laws must be amended to prevent any unjust effect to coastal local government units.

Simple beacons are recommended to be constructed in locations of basepoints that will have the biggest impact on the breadth of the maritime zones if sea level rise happens. Simple warning structures, which may not be in the same standards as expensive aids to navigation, would also be acceptable. It may even be appropriate to construct a marker indicating it is a basepoint for the archipelagic baselines of the Philippines.

The Maritime Zones Bill should be revised to state specifically the maritime zone limits by listing the coordinates of the limits. At present, the Bill includes a general statement that the outer limits of the territorial sea and the EEZ shall be 12 NM and 200 NM from the archipelagic baselines, respectively.

A special and large-scale (larger than 1:200,000) chart should be published showing the baselines (low water line) of the island and limits of the territorial sea in the **Kalayaan Island Group** and **Bajo de Masinloc**. The existing Chart 4723A is scaled at 1:1,250,000 which is not ideal for showing the baselines and outer limits of the maritime zones because the features are too small to be measured in this scale.

It is still inconclusive whether baselines are fixed or ambulatory. As Schofield (2009) summed it “when the UNCLOS was being drafted, sea level rise was not a major issue and no provisions on

sea level rise were included. At the Third UNCLOS, it was generally not anticipated that sea level rise would engender such radical shifts in normal baselines and changes in insular status. Consequently, UNCLOS does not necessarily provide mechanisms to deal with these novel problems.”

However, more experts seem to favor the ambulatory baselines. Therefore, existing laws and policies of the country should be reviewed and amended if necessary, including the proposed **Maritime Zones Bill**, to ensure that the alarming impacts of sea level rise in the future will not greatly affect how the Philippine Government manages its own territory and maritime zones.



The author, **LCDR Carter S Luma-ang**, is a hydrographic survey officer of National Mapping and Resource Information Authority (NAMRIA), the central mapping agency of the Government of the Philippines. He earned his Masters in National Security Administration (MNSA) from the National Defense College of the Philippines (NDCP) in September 2016. He attended the Rhodes Academy on Ocean Law and Policy, and is a member of the inaugural class of the Yeosu Academy on Ocean Law and Policy. In 2011, he was named NAMRIA's Best Employee - Commissioned Officer.

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The Disappearing Dugong

by Vicky Viray Mendoza



Dugong observed in Coron, Palawan, Philippines. Photo Credit: Louisa Fisher, Originaldiving.com

The **Dugong** (*Dugongidae*) is the only strictly herbivorous marine mammal. It is one of four living species of the order Sirenia, which also includes three species of manatees. The Dugong is the only living mammal of the once-diverse family *Dugongidae*. Its closest relative, the Steller's sea cow (*Hydrodamalis gigas*), was hunted to extinction in the 18th century. Dugongs and other *Sirenians* are not closely related to other marine mammals, and are rather more related to elephants. The Dugong, elephant, hyrax, and armadillo share a monophyletic group, meaning, they are descendants of the same ancestral group. Common names of the Dugong include sea cow, sea pig and sea camel.

Food and Habitat. The Dugong is the only *Sirenian* found in the warm coastal waters of less than 40 countries from the western Pacific coasts to the eastern African coasts. Their historic range, which is along 86,992 miles of coastline between 26° and 27° degrees to the north and south of the equator, corresponds to the seagrasses from the *Potamogetonaceae* and *Hydrocharitaceae* families.

The **Dugong** feeds mainly on seagrass for subsistence and its habitats are thus restricted to coasts that protect its seagrass meadows. When a Dugong feeds, whole plants are uprooted, thus, aerating the sea floor; increasing the organic matter in the area; and encouraging regrowth of the seagrass. Dugongs are thus known as *cultivation grazers*, because they inadvertently cultivate the seagrass, particularly *Halophila ovalis*, their preferred species.

Description. As a *Sirenian*, the body of a Dugong is rotund, like a spindle with tapered ends. It has neither a dorsal fin nor hind limbs. The fore limbs or flippers look like paddles. The Dugong has a fluked,

dolphin-like tail, while a manatee has a paddle tail. The Dugong also possesses a unique head. It has very small eyes, thus, has limited vision but has acute hearing within narrow sound limits. Their ears are located on the sides of the head, while their nostrils are located on top of the head and can be closed using valves. Their snout is sharply down-turned, with a large horseshoe-shaped upper lip forming a highly mobile muzzle. **The Department of Environment and Heritage Protection of Australia** finds that due to poor eyesight, the Dugong relies on the sensitive bristles covering the upper lip to find and grasp seagrass. Communication between Dugongs is through chirps, whistles, and barks that echo underwater. Different sounds have different amplitudes and frequencies that imply different purposes.

The male Dugong has two incisors like tusks that emerge during puberty. The female's tusks do not emerge during puberty, but later in life. The number of growth layer groups in a tusk can indicate the age of a Dugong, and their cheekteeth move forward with age. Like other *Sirenians*, the Dugong experiences *Pachyostosis*, a condition in which their ribs and other long bones are unusually solid and contain little or no amount of bone marrow. Their dense and heavy bones act as a ballast to keep *Sirenians* suspended below the surface of the water.

Dugongs may live for 70 years or more, and are slow breeders. The shallow waters are used as sites for calving. The deep waters are used to provide a thermal refuge from cooler waters closer to shore during winter. Female Dugongs breed between 8-18 years old (Anderson, P. and Macdonald, D., *The Encyclopedia of Mammals*). Dugongs calve only once every 2.5-7 years, and environmental conditions play a big role (IUCN, 2015).

A typical adult Dugong has a length of about 9.8 ft., and weighs between 926 lbs. to 1,984 lbs. The largest Dugong recorded was 13.32 ft long, and weighed 2,240 lbs. It was found off the coast of Saurashtra in western India. Females tend to be larger than males.

Groupings. The largest Dugong concentrations typically occur in wide, shallow, protected areas such as bays, mangrove channels, waters of large inshore islands, and inter-reefal waters with seagrass meadows.

Results of molecular studies done on Dugong populations using mitochondrial DNA suggest the Dugong population of Southeast Asia is distinct from the others. Australia has two distinct maternal lineages, which includes Dugongs from Africa and Arabia. Limited genetic mixing has taken place between those in Southeast Asia and Australia, mostly rather around Timor. But data is insufficient to draw boundaries between distinct groups.

IUCN Red List Category. The Dugong has been hunted for thousands of years for its meat, oil, skin, tusks and bones. Traditional hunting still has great cultural meaning in several countries in the Dugong's range, particularly northern Australia and the Pacific Islands. The Dugong's current distribution is fragmented, and many populations are close to extinction. The **IUCN** listed in July 2015 that the Dugong as *Vulnerable* to extinction. With a slow rate of reproduction, the Dugong is especially *Vulnerable*. The **Convention on International Trade in Endangered Species** bans the trade of derived products.

Population Decline.

The Dugong is protected throughout Australia and Papua New Guinea, except from indigenous hunting. Torres Straits supports a large Dugong population, and promotes sustainable hunting by the indigenous peoples of Torres Straits and the adjacent Papua New Guinea. The Dugong populations of **southern** Queensland (Hervey Bay and Moreton Bay) are stable. The **northern** waters of Australia between Shark Bay and Moreton Bay are believed to have the highest number of Dugongs. The second largest is in the Persian Gulf. The third largest is in New Caledonia.

Despite this, the Dugong population is thought to be shrinking with a worldwide decline of 20% in the last 90 years according to the last major worldwide IUCN study in 2002 by H. Marsh and S. Sobtzick. The report not only concluded that the Dugong population was declining, but possibly already *Extinct* in a third of its range.

In the Mediterranean, where the Dugongidae originated in the mid-late Eocene age, the Dugong has become *Extinct*.

In East Africa, where herds of 500 were observed in the 1960s, now only 50 or less can be spotted in Madagascar, Mozambique, Mauritius, Seychelles, and Aldabra Atoll.

In South Asia, particularly in the waters of Borneo, the Straits of Johor, and the Andaman and Nicobar Islands in the Bay of Bengal, a small number of Dugongs are present. In Sri Lanka, where Dugongs used to surround its coastline, now only the northeastern coast has Dugongs. In Pakistan, the Dugong is considered *Endangered*. In the Maldives and Laccadive Islands, however, where their habitats once centered, Dugongs have become *Extinct*.

In East Asia, the Dugong population has either diminished rapidly down to dangerous levels, or virtually disappeared in Hong Kong, Taiwan, Hainan, Cambodia, Vietnam, Thailand, Japan, and the Philippines, considering that the Dugong was the first marine mammal to be protected by the country. In 2003, 20 scientists considered the Dugongs in the Philippines as *Critically Endangered*, as reported by Neptune911.com.

According to IUCN, all the islands of the Philippines were believed to have once provided habitats for Dugongs, which were common until the 1970s. The name Dugong was derived from the Tagalog word of northern Philippines, which means "lady of the sea." Muller classified it as

Trichechus Dugon in 1776, and indicated that the Type Locality was from the Cape of Good Hope (South Africa) to the Philippines. Dugongs are often considered as inspiration for seafarer tales of mermaids and sirens (National Geographic, 2011). In the Philippines, the mermaid is called "*Sirena*," which sounds like the Dugong order "*Sirenia*." In Malaysia, there is a 5,000-year-old wall painting of a Dugong drawn during the neolithic era in the Tambun Cave of Ipoh that was discovered by Lt. R.L. Rawlings in 1959 while on a routine patrol. In Malaysia, the Dugong is called *Duyung*.

Threats and Environmental degradation.

Dugongs are vulnerable to vessel strikes as they surface to breathe, putting themselves directly in the path of boats. Dugongs are also vulnerable to bycatch in commercial fishing nets. If Dugongs do not get enough seagrass to eat they may breed later, and produce fewer calves. Shortage of seagrass are caused by loss of habitat and a disturbance of feeding caused by waste products such as sewage, detergents, heavy metal, hypersaline water, and agricultural herbicides. Human activities such as mining, trawling, dredging, land-reclamation, and pollution play a major role in damaging seagrass meadows. Boat propellers cause an increase in sedimentation that can smother the surrounding seagrass, and consequently prevent light from reaching the seagrass under water. Extreme weather such as cyclones and severe floods destroy vast seagrass meadows, and wash the Dugongs to shore. The damaged seagrass meadows take over a decade to recover, resulting in food shortage for the Dugongs. Consequently, most measures for the protection of Dugongs restrict trawling in seagrass meadows, but with little or no action against chemical pollutants originating from land. Moreover, in some countries, protection laws may have been passed, but unfortunately, are unenforced. ⚓



Dugong cow and calf in Philippine coastal waters. Photo Credit: Neptune911.com

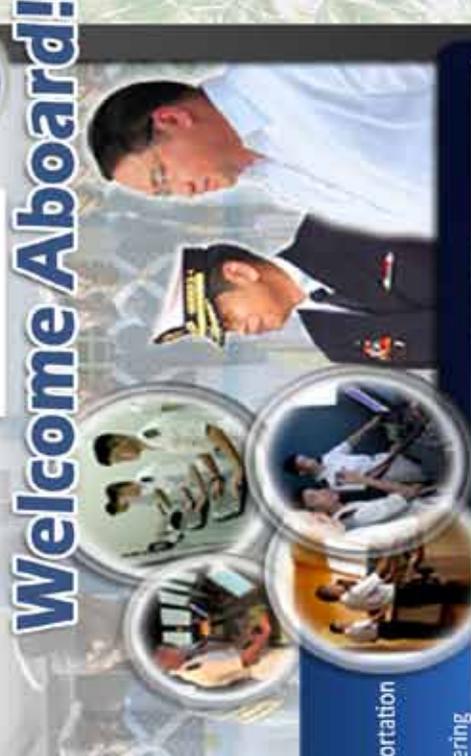


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MAAP Profile

Geographic destiny has given the Filipino the innate talent to be an excellent seafarer. To enhance this natural skill, the Maritime Academy of Asia and the Pacific (MAAP) was established on January 14, 1998. The Academy stands on a 103-hectare property in Kamaya Point, Mariveles, Bataan.

The Associated Marine Officers' and Seamen's Union of the Philippines (AMOSUP) founded by the late Capt. Gregorio S Oca, capitalized and developed the Academy. The new AMOSUP President, Dr. Conrado F. Oca, heads the Academy's board of governors. The board is comprised of representatives from the private sector, the International Transport Workers Federation, the Filipino Association of Maritime Employers, the International Transport Workers Federation, the All Japan Seamen's Union, the International Mariners Management Association of Japan, the Norwegian Seafarers' Union, the International Maritime Employers' Committee, the Danish Shipowners' Association, the Norwegian Shipowners' Association, and the Japanese Shipowners' Association.

MAAP conducts shipboard training aboard T/S Kapitán Felix Oca, a 5020 DWT dedicated training ship capable of accommodating 180 midshipmen and 9 instructors in 30 air-conditioned cabins and six berths.

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Our Curricula

MAAP students are all scholars who are entitled to free tuition, board and lodging. They receive a comprehensive, up-to-date and well-rounded education that fully complies with the requirements of STCW 95 and the Commission on Higher Education (CHED). To ensure the highest standards of quality, MAAP adheres to a Quality Standards System that has been certified to comply with ISO 9001 version 2008, the Det Norske Veritas (DNV) Rules for Maritime Academies, and the Productivity and Standard Board (PSB) of Singapore.

The Academy offers three main programs: the Bachelor of Science in Marine Engineering (BSMarE) and the Bachelor of Science in Marine Transportation and Engineering (BSMTE). The curricula for the three courses were designed with the help of the United States Merchant Marine Academy at Kings Point, New York. Courses are four-year courses with sea phases scheduled in the third year. The BSMTE curriculum requires a total of 192 units: 152 at MAAP, 40 practicum/shipboard units on board T/S Kapitán Felix Oca and/or a shipping company sponsorship. The BSMarE curriculum requires a total of 193 units: 153 at MAAP, 40 practicum/shipboard units on board T/S Kapitán Felix Oca and/or a shipping company sponsorship.

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