



MARITIME REVIEW

A PUBLICATION OF THE MARITIME LEAGUE

Issue No. 17-4

July-August 2017

REARING A MARITIME NATION

- ▶ **PhilMarine 2017**
- ▶ **Learning from Korea**
- ▶ **Reactions on China
War Threats**
- ▶ **PRS Stability
Software**





Manila North Harbour Port, Inc. sets the pace as partner for growth



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Keen on providing the environment for growth, new equipment are set in place together with enhanced IT and management services.

Berths now accommodate longer and bigger vessels. MNHPI productivity is at a record pace and port capacity has increased to 2.5 million TEUs.

With a global outlook, MNHPI continues to deliver quality services and improve port facilities, spurring economic growth and building the image of the Philippines as a premier maritime hub.





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Maritime Events Calendar

JULY '17

- 6-7 15TH ASEAN PORTS AND SHIPPING 2017
(SULE SHANGRI-LA, YANGON, MM)
- 12-14 MARINE PHILIPPINES 2017 (SMX CONVENTION CENTER, MANILA, PH)
- 21 MARITIME BREAKFAST FORUM #124**
(NATIONAL COAST WATCH COUNCIL (NCWC); MALACANANG SOCIAL HALL, 4TH FLOOR, MABINI HALL, MALACANANG PALACE, MANILA)
- 25-28 BUNKERING WEEK 2017 (SG)

AUGUST '17

- 1-4 7TH DREDGING & LAND RECLAMATION ASIA SUMMIT (SG)
- 1-31 INDONESIA MARINE & OFFSHORE EXPO (IMOX) 2017 (SWISS BELHOTEL HARBOUR BAY REVIEW, RIAU, ID)
- 18 MARITIME BREAKFAST FORUM #125**
(PHILIPPINE PORTS AUTHORITY (PPA), PPA HEAD OFFICE, SOUTH HARBOR, PORT AREA, MANILA)

SEPTEMBER '17

- 5 DONSO SHIPPING MEET 2017 (DSM 2017)
(DONSO ISLAND, SW)
- 11-15 LONDON INTERNATIONAL SHIPPING WEEK 2017 (LONDON, UK)
- 19-22 NEVA2017
(EXPOFORIUM CONVENTION AND EXHIBITION CENTER, ST. PETERSBURG, RU)
- 21 FT CYBER SECURITY SUMMIT EUROPE 2016 (LONDON, UK)
- 22 MARITIME BREAKFAST FORUM #126**
(PHILIPPINE COAST GUARD (PCG); HPCG, SOUTH HARBOR, PORT AREA, MANILA)

OCTOBER '17

- 3 INMEX SMM INDIA 2017 (THE BOMBAY EXHIBITION CENTRE, MUMBAI, IN)
- 4-6 MALAYSIA INTERNATIONAL MARINE EXPO 2017 (MIMEX 2017)
(PUTRA WORLD TRADE CENTRE, KUALA LUMPUR, MY)
- 10-12 THAILAND MARINE & OFFSHORE EXPO 2017
(BITEC, BANGKOK, TH)
- 20 MARITIME BREAKFAST FORUM #127**
(DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR), TBA)
- 24 THE MARITIME STANDARD TANKER CONFERENCE
(GROSVENOR HOUSE HOTEL, DUBAI, AE)

NOVEMBER '17

- 7-8 CREWCONNECT GLOBAL (HOTEL SOFITEL PHILIPPINE PLAZA, MANILA, PH)
- 7-10 EUROPORT 2017 (ROTTERDAM AHOY, ROTTERDAM, NL)
- 16 MARITIME BREAKFAST FORUM #127**
(DEPARTMENT OF TRANSPORTATION (DOTR), TBA)

DECEMBER '17

- 5-8 MARINTEC CN 2017 (SHANGHAI NEW INTERNATIONAL EXPO CENTER, SHANGHAI, CN)

JANUARY '18

- 19 MARITIME BREAKFAST FORUM #129**
(DEPARTMENT OF FOREIGN AFFAIRS (DFA), 2330 ROXAS BLVD., PASAY CITY)
- 23-24 MEGA CARGO SHOW 2018 (HALL NO. V, BOMBAY EXHIBITION CENTRE, MUMBAI, IN)
- 24 VIETSHIP 2018 (VIETNAM NATIONAL CONVENTION CENTER, HANOI, VN)

FEBRUARY '18

- 8 MARITIME BREAKFAST FORUM #130**
(CEBU PORTS AUTHORITY (CPA), NORTH RECLAMATION AREA, CEBU CITY, CEBU)

MARCH '18

- 14-16 ASIA PACIFIC MARITIME 2018 (MARINA BAY SAND, SINGAPORE, SINGAPORE)
- 20 MARITIME BREAKFAST FORUM #131**
(MARITIME ACADEMY OF ASIA AND THE PACIFIC (MAAP), KAMAYA POINT, MARIVELES, BATAAN)

APRIL '18

- 20 MARITIME BREAKFAST FORUM #132**
(MARITIME INDUSTRY AUTHORITY (MARINA), TAFT AVE. COR. TM KALAW ST., ERMITA, MANILA)

MAY '18

- 25 MARITIME BREAKFAST FORUM #133**
(PHILIPPINE NAVY (PN), HEADQUARTERS, PHILIPPINE NAVY, ROXAS BLVD, MANILA)



MarRev Executive Editor handing over copies of *The Maritime Review* to LtCol Domingo of the PMA Library.

Rearing A Maritime Nation

by VAdm Emilio C Marayag Jr AFP (Ret)

The presentation of some groups working to promote awareness of the archipelagic and maritime nature of the nation is one of the highlights of the recent **Maritime Forum** held last month at the **National Defense College of the Philippines**. This could have been triggered by the developing situations in the South China Sea and **Benham Rise** in the Philippine Sea.

Security analysts in the past have always regarded the **Spratlys** in the South China Sea as one of the world's conflict "flash points" long before China formulated its latest naval strategy of establishing maritime defense perimeter way beyond its territorial boundaries. It may be recalled that China's modernization starting 1978 needed tremendous energy requirements, which has led China to become an oil importer since 1995. With rising population and increased production outputs to propel its economy, China had to focus on exploiting its sea areas for energy, mineral and fishery resources. It gradually developed a strong maritime force and converted three features in the Spratlys into naval bases to do just that. Many nations have been alarmed over China's posturing that could hamper freedom of navigation, degrade the marine environment, and disturb maritime commerce.

At the northeastern part of the Philippines lies a less known sea frontier, **Benham Rise**, lately renamed as **Philippine Rise**, and believed to contain considerable ocean resources for the present and future generations. The United Nations' award of extended continental shelf in that region five years ago added additional seabed area for the Philippines to exercise sovereign rights but has gone unnoticed until the government reported few months ago the sighting of Chinese vessels on extended stay. Incidentally the **Philippine Rise** is within China's controversial "nine-dash line" maritime claim.

China's assertive stance in South China Sea has generated negative reactions from several countries. The previous Philippine government unilaterally took an aggressive position but received no encouragement from its neighbors. Chinese response adversely affected the country's bilateral trade. The new administration, however, adopted a more pragmatic view to set aside territorial issues for the meantime in favor of economic opportunities and conflict avoidance.

The government's new approach towards Philippines-China relations must be taken positively at this point in time. Already, the Chinese have shown their willingness to assist in the social (drug rehabilitation and aid to conflict area), economic (infrastructure soft loans and bilateral trade), and military affairs (weapons acquisition). With these developments, the incumbent President clearly demonstrated his resolve to adopt an independent foreign policy as enunciated by

the Constitution, and avoid the risk of military confrontation. This period of friendly relations presents an opportune time for the country to reflect and put some time and efforts to awaken the patriotic spirit of the people and instill the "maritime nation" mind set.

The geographical position and physical configuration of the country make it a maritime nation. It is at the crossroad of the western Pacific Ocean where half of the global tonnage carrying a third of monetary value of world commerce passes through. It has plentiful natural resources and uses the sea as principal means of communication and livelihood. The country is a top provider of merchant seamen in the world and has the 12th largest population. It has extensive territory with a water area three times the land area.

But to transform a maritime nation into a sea power it has to satisfy six conditions identified by American naval strategist **Alfred Thayer Mahan**. These are: (1) advantageous geographical position; (2) serviceable coastlines, abundant natural resources and a favorable climate; (3) extensive territory; (4) a population large enough to defend its territory; (5) a society with an aptitude for the sea and commercial enterprise; and (6) a government with the influence to dominate the sea. The first five conditions are easy to discern but the sixth, and the most important, is difficult to ascertain.



The 1994 National Marine Policy promulgated during President **Fidel V. Ramos** administration is the first comprehensive initiative to make the country a maritime power. It mandates to shift the focus of development from land-based to marine-based. This policy conditions the government to "dominate the sea." As John F. Kennedy once said: "Control of the sea means security. Control of the seas means peace." Sadly, after 23 years not much has been achieved. For example, despite being the 4th in the world in merchant fleet production in terms of tonnage, not a single medium to large combatant vessel has been built by local shipyards since the issuance of that policy and that the top shipbuilders, tonnage-wise, are foreign-owned. The sea going forces mandated to protect the merchant fleet and maritime areas continue to encounter difficulties in convincing the budget decision makers to fund their modernization programs. Failing to implement those programs has adverse impact on operational force planning and readiness involving deployment, sustenance, maintenance and training.

With the recent formation of some advocacy groups to attract people to recognize and support the country's maritime character and the government's new foreign policy, there is great hope that Philippines may eventually emerge as a true maritime nation that is capable of becoming a sea power... a sea power that is committed to peace, progress, and stability in the Asia-Pacific region. ⚓

Philippine Maritime Conference at the 4th PHILMARINE 2017

SMX Convention Center, Manila

by Vicky Viray Mendoza

On 12-July-2017 **The Maritime League**, represented by **Commo Carlos L Agustin** AFP (Ret), and its co-host the Department of Agriculture's **Bureau of Fisheries and Aquatic Resources (DA-BFAR)**, represented by **Secretary Emmanuel Piñol**, in partnership with **Fireworks Philippines**, will sponsor a full-day maritime conference entitled "**Maritime Forces: Naval Defense and Non-Traditional Roles.**" Five notable speakers from the maritime sector will share their viewpoints and interact with the participants.



At 10:45 a.m., the first speaker, **Hon. Delfin N Lorenzana**, Secretary of National Defense of the Philippines, will talk on the "*Philippine Self-Reliant Defense Program: A Challenge to Maritime Defense Industries.*" **VADM Ronald Joseph J Mercado** (AFP), the incumbent Flag Officer in Command, Philippine Navy, will introduce the Secretary.



At 11:15 a.m., the second speaker, **His Excellency Sung Kim**, U.S. Ambassador to the Philippines, will present a paper on "*Protecting Maritime Commons: The United States perspective.*" Retired **VADM Mateo M Mayuga**, former Navy Flag Officer In Command, will introduce the speaker.



At 1:00 p.m., the third speaker, National Director of the Bureau of Fisheries and Aquatic Resources **Commodore Eduardo B Gongona** PCG (Ret), will discuss "*Food Security in the Maritime Domain.*" Retired Coast Guard **Commodore Gilbert D Rueras** will introduce the speaker.



At 2:00 p.m., the fourth speaker, **His Excellency Igor Anatolyevich Khovaev**, Russian Federation Ambassador to the Philippines, will give a presentation on "*Russian Maritime Defense Industries: Challenges and Opportunities.*" Retired **VADM Alexander B Pama**, also a former Navy Flag Officer in Command, will introduce the Ambassador.



At 3:00 p.m., the fifth and final speaker, **BGEN Charito B Plaza** AFP (R), MNSA, Ph.D., the Director-General, Philippine Economic Zone Authority (PEZA), will discuss "*The Role of PEZA in Maritime Defense Industry Development.*" Retired Navy **Commodore Francisco L Tolin**, one of the founding members of The Maritime League, will do the introduction.



Maritime League Trustee **Albert Suansing** will be the master of ceremonies while Ms **Vicky Viray Mendoza** will be the speech synthesizer.

In the following days, July 13 and 14, the **Maritime Industry Authority**, headed by **Dr Marcial Quirico Amaro**, and other maritime companies will conduct marine technical presentations in the same venue.





Hydrographic Survey vessel built by Colorado Shipyard for NAMRIA

Philippine Self-Reliant Defense Posture Program

by Secretary Delfin N. Lorenzana

Defending one's homeland is one of the primordial duties of the state. Our Constitution mandates the creation of a citizen armed force that consists of a small standing army and a sizeable reserve force.

With a small regular armed force, our defense policy largely depends on three basic factors: the threats, the allies, and the technology.

As many of us have witnessed for some time now, the end of the cold war ushered the resumption of many old territorial, ethnic, racial, cultural, religious, and ideological conflicts all over the world. Our nation is beset with some of these and which affects our national sovereignty and people's way of life. These will continue to threaten our democratic institutions unless we, as a nation, work together to fully address the root causes and to create lasting and meaningful solutions.

Another factor that helps shape our defense policy is the existence of foreign allies. Some of our allies that continuously assist us are the United States, Australia, South Korea, Japan, among others.

Technology is also a critical factor in defense policy formulation while bilateral and multilateral defense exercises, as well as international military education and training given by friendly countries contribute to the knowledge base of our armed forces personnel. The lack or absence of hardware to apply those learning affects competence and morale.

Given the volatility, uncertainty, complexity and ambiguity of the security landscape, we endeavor to balance our defense systems inventory. It is in the field of technology that we anchor our self-reliant defense posture program. And this is where our maritime defense industries, which are technology-based, are now called upon to participate. We recognize the restricting provisions imposed by existing laws on procurement of major

defense equipment. But such preconditions are only meant to protect taxpayer's money and not to favor any particular group.

The revised modernization law's implementing guidelines, rules and regulations level the playing field for legitimate local industries to build major defense equipment and weapons systems for the AFP. With this development, I would like to encourage our domestic maritime industries to dedicate some resources to design, construct, upgrade, and upkeep defense materiel for our armed forces.

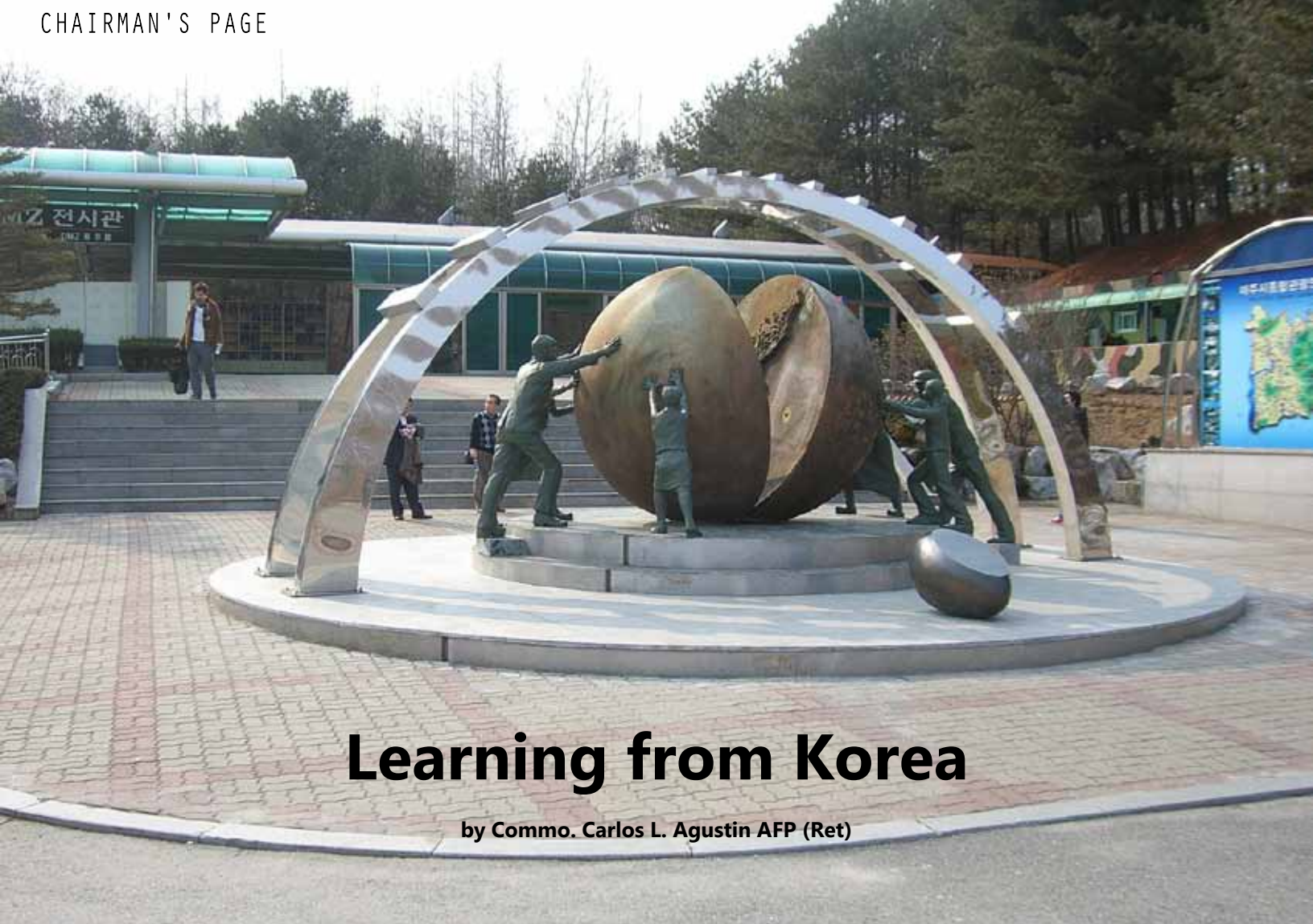
The armed forces selection of defense equipment and weapons systems require adherence to certain criteria so that the end users – our soldiers – will have protection against the nation's adversary.

We are all aware how tedious and time-consuming government procurement process is because of numerous documentary requirements and confirmatory actions. It is in this light that I would suggest to prospective suppliers to carefully study the process and avoid short-cuts. Many projects have incurred delays or contract rescinded due to questionable documents. I would also suggest that they visit and consult the acquisition project teams to clarify matters in operational and technical specifications.

Let me end by citing some words of wisdom from Dwight Eisenhower, a 20th century soldier and statesman: "Successful defense will never be possible unless you devote yourselves to this work, this study, and this preparation. Without financial remuneration, your sole reward is the sanctity of your firesides, the esteem of your countrymen, and the approval of our own conscience."



*Speech of Secretary of National Defense, Hon. Delfin N. Lorenzana
Maritime Conference 2017, SMX Convention Center, Manila*



Learning from Korea

by Commo. Carlos L. Agustin AFP (Ret)

On invitation from the ROK Ministry of Foreign Affairs, former DILG **Sec Rafael M Alunan** and I took on a very enlightening journey to revisit the Republic of Korea and review anew the various conditions and characteristics that surround the tremendous progress and development of that great country. The visit was arranged by ROK Ambassador to the PH **Kim Jae Shin** and Taekwondo Kukkiwon Chairman **Hong Sung Chon**.

I have known **Raffy Alunan** since he was Tourism Secretary during the Cory Aquino administration. I first met him when Corregidor Foundation Inc. (CFI) Executive Director Col **Alfredo Xerxes Burgos** invited me to join Alunan (who as the Tourism Secretary chaired the CFI Board), who was on his first visit to Corregidor in 1991. I was helping Col **Burgos** with the development of Corregidor and he wanted to highlight the things we did together during the Tourism Secretary's visit, thus we showed him the Corregidor Lighthouse which was under renovation, the VTS radar then being installed on the lighthouse tower, which had been replaced by a steel tower holding the solar powered system just placed there, the PCG Search and Rescue Station that was constructed downside, and the Hiking Trail being cleared by us.

I suggested the Hiking Trail to Col **Burgos** not only to provide such for visitors especially those checked in at the Corregidor Lodge operated by the CFI, but to make it easy for security guards to patrol isolated areas on the perimeter. Weeks earlier, CFI Security got reports of treasure hunters on the island but could not locate them, and asked us to help. We did a land and amphibious operation



Welcome to Seoul

and found an abandoned cave on the southwest rim of a cliff, with 2 sacks of rice, some digging tools and a portable generator left by treasure hunters who escaped during the search. To clear the foliage and overgrowth was tedious so I did it with sufficient manpower, using it as an excuse to conduct a **PCG Special Warfare Group** training exercise, augmented by trainees of the Coast Guard Training Center. But I digress.

Early in April 2017, **Alunan** texted and asked me if I could join a visit to South Korea. I called him and he told me that the ROK



At Hyundai Shipbuilding

Ambassador had invited him to visit South Korea on 25-29 May and that he was given a free hand to choose two others. Of course, I was delighted and readily agreed to join.

My first visit to Korea was in a military conference in 1979 together with MG **Ignacio I Paz**, Col **Leopoldo S Acot** PAF (who would 13 years later be CG, PAF) and Maj **Angelo T Reyes PA** (who would much later be CG, PA in 1998 and AFP Chief of Staff in 1999) where we saw the large newly-discovered tunnel dug by the North Koreans. The second visit was during the 1989 World Taekwondo Championships where we sent some AFP participants. The third was in an ASEAN Regional Forum (ARF) EEP Conference in Cheju Island in 2006 as the lone PH participant. Each visit gave me a favorable impression on the progress and growth of ROK, so I expected that this trip would have similar results.

Included in the Delegation was **VAdm Alexander P Pama**, former PN FOIC and former Director General of the NDRMMC, who unfortunately begged off at the last minute because he had a medical issue, albeit mild, that required continuous medical observation in the first 2 days of the trip. Fortunately, our Ambassador in Seoul, **Raul T Hernandez** was able to join us on the first day but could not make it for the rest of the schedule.

Alunan's objectives for the visit reflected his keen strategic insights and vision:

Politico-security matters on the Korean Peninsula, the South China Sea, security alliance concerns, PH foreign policy, PH internal security issues, PH credible deterrence direction, supplier-client risk management, and ROK urban public safety and security systems.

The first day was a look at how the Metropolitan Police handles peace, order, emergency management, including traffic control and enforcement in Seoul, hosted by **Chief Supt. Gen. Kim, Jung Hoon**, Supt. Gen. **Hur Kyung Ryul**, and **Dir. Sr. Supt. Lee, In Sang**. It shows that with a well-equipped, well-trained professional police force, you can handle traffic management, criminal law enforcement, and emergency management in an extremely efficient

manner. They are real guardians of law and order.

One thing we noted also is the use of army reservists as police auxiliary, including in traffic management. It is particularly apt for the Republic of Korea, as their citizens have obligatory military service of two years. After about a year of orientation and training, they can be idle and a good way to occupy them is through use in emergency and disaster management, and as police auxiliary. This might be a sound practice the AFP could emulate.

We have had experience in this: After the training of volunteer **PHILCAG** troops, they were used for search and retrieval after the 1-August-1968 Ruby Tower Collapse as a result of the Magnitude 7.3 Casiguran earthquake, where some 270 people were killed and an approximately equal number injured (various reports gave different numbers for the dead and injured). It was quite a good exposure as most of the volunteers were army engineers, although the work they would do in Vietnam was just a bit more hazardous. Moreover, it was the tragedy that resulted in the creation of the **National Disaster Coordinating Council** (NDCC), now the **NDRRMC**.

In the afternoon, we had discussions at lunch with Korean Council of Foreign Relations (KCFR) Chairman **Han Tae Kyu**, former ROK Foreign Minister **Myung Hwan Yu** and MOFA Second Secretary **Chung Wook Yung** where we discussed various political and security issues to include the situation on the Korean Peninsula and East and Southeast Asia and the intentions of China and the United States. This lunch meeting was followed by a visit to the **Lotte Group**, a major Korean food conglomerate that owns a majority stake of Pepsi Cola Product Philippines. We called on Lotte Chilsung Beverage President **Young Goo Lee**. Lotte is considering expanding its investments in the Philippines related to hospitality and tourism. The visit was capped off through a tour of the 123-storey Lotte World Seoul Sky Building, the 4th tallest in the world, completed just last year. We had a magnificent 360-degree bird's eye view of the city.

In the evening, we were hosted for dinner by MOFA Dep. Dir-Gen for East Asia and Pacific Affairs **Kim Eun Young** together with Second Secretary **Chung Wook Yun**.

On Saturday (27th), we visited the Demilitarized Zone (DMZ) along the 38th Parallel as guests of the U.N. Joint Commission at the Joint Security Area (JSA). We were briefed on the history of the war and the armistice and related incidents. Two blue buildings in the DMZ extended to North Korea, and were the only places visitors or residents of South Korea can enter Nokor territory (and vice versa), which we did (with photos to show). We exchanged shots through windows with Nokor soldiers outside the building (they used cameras; we used mobile phones).

On the third day (28th), we dropped by our embassy to bid goodbye and express our thanks before departing by train for Ulsan and meet with Amb. **Raul Hernandez**, Con Gen Christopher de Jesus, DAFA Col. **Francis Lardizabal** and **Anthony Cornista**, Protocol Officer and Attaché.

From there we visited the **PEFTOK Memorial**, built to honor the troops sent by the first Asian country to join the Korean War in support of the ROK (I was there in my 1979 visit), after which we had a lunch meeting with Mr **Lee Dong-gy**, Director, MOFA, SEA Division and foreign policy academicians Prof **Sa-Myung Park PhD**, Chair Board of Regents, KISEAS; Korea U Prof **Jaе Hyeok Shin**, Director, KACDC; Mokpo National U Prof. **Seok Joon Hong PhD**; Yonsei U Asst Prof. **Kim Hyung Jong PhD**, and Yonsei U Asst Prof **Sang Kook Lee**. We discussed various issues on the Korean Peninsula, prospects of

continued peace and development, the political situation in East Asia, major power rivalries and the South China Sea/WPS. They seem quite interested to learn and exchange views but generally constrained by some limitation in the English language.

From there we toured the **Korean War Museum** but due to time constraint, we just proceeded to the PEFTOK section wherein we saw memorabilia of **Lt Fidel V Ramos** and the 2nd BCT (his uniform, pistol, cap and photos and equipment of the battalion). In the war, we sent a total of 7,420 troops from 19-September-1950 to May, 1955 wherein we had 112 KIA and 229 wounded.

From the War Memorial, we proceeded to the train station at Gimpo for the "bullet train" trip to Ulsan, near Busan. It was excellent, though fortunately not as fast as the Shinkansen so it enabled us to view the beautiful, serene and ecologically enchanting countryside. If not for the unfortunate Philippine demographic growth, this could probably be the same sight to behold on the PNR.

The second (and final leg) of the visit was to view the industrial might of ROK. Our two interests were shipbuilding and aerospace, and indeed we got the best there is to see: Hyundai Heavy Industries (primarily the shipyards) and Korean Aerospace Industries (KAI).

Hyundai Heavy Industries (Ulsan)

We were met, briefed and escorted around the tightly secured the tightly secured facility by Mr **K.Y. Sung**, Sr. GM, Special and Naval Shipbuilding Division and Mr **Jae Rak Kim**, Sr. Sales Officer. We were given a briefing on the history of the Hyundai group, from its humble beginnings to its future growth to be the largest conglomerate in ROK and development to be the prime mover of South Korea's growth. Today, ROK is the top shipbuilding nation and Hyundai the no. 1 shipbuilding company in the world. Based on a wealth of capabilities and experience, HHI has delivered more than 2,200 ships all over the world. On naval shipbuilding:

- ♦ HHI Special & Naval Shipbuilding Division (SNSD) is dedicated to naval and special shipbuilding
- ♦ SNSD delivered first Ulsan-class frigate in 1980
- ♦ Plays a pivotal role in the fleet modernization of ROKN
- ♦ 2 of the 11 HHI drydock and 1 ship lift for SNSD.

Key SNSD products:

- ♦ Surface warship products: HDD series (Destroyer); HDF series (Frigate); HDC series (Corvette). HDP series (Patrol);
- ♦ Naval Auxiliary products: HAD series (Logistics support);
- ♦ HDL series (Amphibious vessel), HDM series (mine laying), HDT series (Training); and
- ♦ Submarines: HDS series (3000, 1800, 500, 400 ton).

The **Philippine Navy** has become a serious customer and this should be pursued, to further go into the submarine area and in co-production using a PH shipyard, above all.

Korean Aerospace Industries (Saechon)

We were met, briefed and escorted by KAI Sr. Exec. VP and GM **BGen Kim In Sik**, ROKAF (ret.) and 2 Sr. Mgrs of the KAI. Business Dev. Team **Jake Jaehong Kim**, and **Choi Byung Sam**. Security was even tighter in this highly technical facility but we had certain pictorials with the staff. The fast pace of development of KAI is

indeed impressive. We got to view the last two of the 12 KAI FA-50 jet fighters ordered by the PAF, being prepared for the flight to PH within 2 days.

The KAI presentation shows its development, growth and the usual corporate aspects – company description, revenue and growth (with 4,920 employees, including 1,500 in-house engineers), major programs (fixed wing, rotary wing, modification and maintenance, aero structures and aerospace). The second presentation covers proposals for PAF-KAI customer-supplier relations, to include the KAI program history and field operations and most specifically, the KAI F-50PH Program.

Our take away from the various discussions during the 4-day visit are summed up by Mr **Alunan**:

- ♦ A military solution to counter **Kim Jong Un** is not a viable option. Regime change initiated within NoKor is the most acceptable option although the probability of that happening is low at this point. More sanctions, negotiations, defiance and tensions should be expected.
- ♦ The lack of U.S. resolve in the South China Sea. Freedom of navigation operations have proven ineffective so far. China has been taking full advantage of the situation. Security relationships are being adjusted and calibrated.
- ♦ ISIS or Islamist terrorism is not a security risk factor in ROK. Questions were raised about the efficacy of martial law and the country's strategy to contain and defeat the problems of drugs and terror to protect our economic gains and boost investor confidence.
- ♦ The idea of dispersing ROK's strategic industries to other parts of the region as a safety and security measure against a hot conflict on the peninsula was tabled for discussion.
- ♦ Should ROK's shipyards and aerospace industry be destroyed by NoKor, it would cripple our Navy and Air Force and would be unable to find spare parts to repair and maintain the combat assets we're acquiring from ROK for credible deterrence.

The PH and ROK have common denominators in their security environment – the U.S., China, Russia and Japan. The conduct of diplomacy must be given careful attention.

The development of heavy industries, shipbuilding and aerospace industry must be given utmost priority by the Philippines. Competitiveness of such PH industries rely heavily on energy and marketability of the products. In the absence of sufficient consumer purchasing power, incentives must be provided to lower the cost of production and loan amortization in the case of ship owners in addition to the energy dimension.

In the next visit of the KAI executives in the Philippines, we hope to promote possible linkage with the **Philippine Aerospace Development Corporation** (PADC) for exchange of information, and perhaps some kind of cooperation.

A formal linkage between the **Korean Council for Foreign Relations** and the **Philippine Council for Foreign Relations** is also highly recommended.

Our gratitude extends to the ROK Ambassador to the PH **Kim Jae Shin** and Taekwondo Kukkiwon Chairman **Hong Sung Chon** for arranging the invitation by ROK's MOFA. We were privileged to be given a free hand to customize our agenda. We likewise thank Ms. **Julie Lee**, our most efficient charming guide provided by MOFA. 🇵🇭

Proceedings: MF's 115 & 116

115th MARITIME FORUM

MF 115 was hosted by the **PHILIPPINE COAST GUARD (PCG)**, held at the PCG Building, Port Area, Manila on 30-September-2016.

Commo **CARLOS L. AGUSTIN (Ret)**, FORUM CHAIR thanked the host **RADM WILLIAM MELAD**, CPCG, and acknowledged **HON FELIPE JUDAN**, USEC DOTr for Maritime Affairs, as well as the other agency heads present in the Forum.

RADM WILLIAM MELAD welcomed all the participants and expressed the PCG's continuing support to the FORUM. He cited that the FORUM was born right at the HQ **PCG** in the early 1990s. After a short coverage of **PCG** updates, the **PCG** briefer gave a presentation on the following:

- The current **PCG** mission, organization, functions and activities related to **ATON** (Aids to Navigation) system was presented, after which a status of **PCG ATON** projects was shown. The Chair queried on the current situation vis-à-vis ideal standard **ATON** requirements as suggested by **IALA** (International Association of Lighthouse Authorities), and it was shown that the Philippines has quite a low score in that regard. However, there are projects designed to upgrade and bring the Philippines up to par.
- **PCG Traffic Separation Schemes** highlighted southern Luzon, Visayas and Davao Gulf.

LT RODEL BARRACA PN NCWC Secretariat gave an update on the **Sea Vision** project.

The Chair said that **LTG EDILBERTO P ADAN**, former Exec Dir of the **VFA Commission**, had just left but designated Mr **DONG BENEDICTO**, President of **Benedicto Steel Co.**, to give the briefing on the **PCFR** Delegation's visit to China in relation to the **WPS** problem. He noted there were 16 in the Delegation consisting of retired Ambassadors, retired senior military and police officers, former government officials and business executives, many of whom are still in active work. A summary of Mr **BENEDICTO**'s report follows:

- The **Philippine Council for Foreign Relations (PCFR)** delegation visited Beijing on a people-to-people engagement on 13-16 September, 2016 at the invitation of the Chinese People's Institute of Foreign Affairs.
- Led by Ambassador **JOSE ROMERO**, the **PCFR** is a policy think tank devoted to academic dialogues, policy research, and strategic studies on vital foreign policy issues that include national defense and security. Composed of former Philippine ambassadors and senior diplomats, retired senior officers of the military and the police, as well as business and industry leaders and academicians, the **PCFR** aims to contribute to promoting national interests, enhancing friendly relations with other countries, and maintaining international peace and security.
- The delegation was welcomed by Ambassador **Liu Zhenmin**, China's Vice Foreign Minister, who expressed optimism for a new turning point in the bilateral relations between the two countries, citing the flourishing friendship and many years of cooperation since the opening of diplomatic relations. He welcomed Pres. **Rodrigo Duterte**'s expressed wish for an improvement of relations and noted the informal talks of former President and Special Envoy **Fidel V. Ramos** held with Madame **Fu Ying** and Professor **Wu Shicun** on 10-11 August 2016 in Hong Kong.
- The delegation met and exchanged views with several think tanks including the China International Institute for Strategic Society, the ASEAN-China Center, the China Institute of International Studies, and the Chinese People's Institute of Foreign Affairs.
- During the meetings, it was pointed out that South China Sea mari-



time and territorial disputes were only a small part of the bilateral relations between the two countries. The way to a reinvigoration of bilateral relations can start with discussions of matters of mutual interest, such as marine and environment protection, fisheries, disaster relief and promoting trade, investment, tourism, and cultural and educational exchanges.

- The meetings welcomed the Chairmanship of the Philippines of the ASEAN in 2017, considering the dynamic and robust ASEAN-China dialogue partnership.
- The trip, planned for 13-19 September, to include Beijing, Fuzhou and Xiamen, was cut short to 13-16 due to the super typhoon whose eye passed the last two cities on 17-18 September and were devastated.

Brief updates were given by various agencies concerning developments on the **WPS**. The **PN** participant stated that they have received instructions that the area should be demilitarized, to which the Chair asked if the **PCG** was prepared to take over the **Naval Station Pagasa**.

This elicited a lot of comments but finally it was suggested that the FORUM should support such action, and **COMMO PLARIDEL C GARCIA (RET)** suggested that a resolution be passed by the FORUM. There were no objections. The Chair requested Commo **GARCIA** draft the **RESOLUTION**, and the body agreed.

MARY ANN PASTRANA, Executive Vice President, **Archipelago Philippine Ferries Corporation**, gave a brief update on the **41ST Interferry Conference** (Manila, 15-19 October, 2016) as the minutes of FORUM 114 covered her earlier update. She invited participants to attend the conference.

116th MARITIME FORUM

MF 116 was hosted by the **NAMRIA** and convened at the **NAMRIA** Board Room, **NAMRIA** Compound, Ft. Bonifacio, on 28-October-2016.

Commo **CARLOS L. AGUSTIN (Ret)**, FORUM CHAIRMAN, called the forum to order at 8:21AM and thanked **NAMRIA** for hosting the FORUM. He recalled that **NAMRIA** hosted the Group in the mid-2000s when **DG DIONY A VENTURA** was then head of **NAMRIA**.

JOSE C CABANAYAN DA, **NAMRIA** apologized that the DG, Dr **PETER N TIANGCO**, had a crucial engagement. He expressed **NAMRIA**'s support for the continuing series of the FORUM.

On the matter of approving the draft **RESOLUTION** on the "**Civilianization**" of the **KCI** (Kalayaan Chain of Islands) which was distributed, the Chair asked that before we work on finalizing, we should first seek confirmation from **PN** or **DND** whether the information about the **SND** directive is accurate. No one could affirm that it had actually been issued, so the Chair asked if we could defer it for a future discussion once that matter comes out or is confirmed. It was thus agreed.

The following are the 3 topics and their respective presenters from **NAMRIA**:

I. Philippine Geoportal by **DIR JOHN SANTIAGO F FABIC**. **DIR FABIC** described the **NAMRIA National Geographic Data** sets which consist of topographic maps and nautical charts. He gave the following core functions of the Agency:

1. Geodetic reference system development
2. Topographic base mapping
3. Hydrography, physical oceanography and nautical charting
4. Environment and natural resource mapping
5. Maritime zones and boundaries mapping

6. Geospatial information management and services

NAMRIA conducts hydrographic and physical oceanographic surveys and produces nautical charts (berthing, harbor, approach, coastal, general sailing and overview charts), predicts tide and plots current tables, provides the coast pilot book and list of lighthouses, sends notices to mariners, and disseminates other nautical publications depicting the country's maritime jurisdictions.

On maritime zones and boundary mapping, **NAMRIA** delineates the varied maritime zones of the archipelago including the EEZ and Continental shelves. It spearheaded the successful submission to the **United Nations Commission on the Limits of the Continental Shelf**, the Philippine extended continental shelf in the **Benham Rise Region**. It provides technical support to various Government agencies on markers pertaining to maritime boundary delimitation and Law of the Sea issues; and to the local government units on the delineation and delimitation of the 15-kilometer municipal water boundaries.

He also described the key functions of **NAMRIA** under EO 192 and the **Geoportal Project**:

Project Phases:

- ♦ Phase 1 – Jan 2011 to Sep 2012
- ♦ Phase 2 – Jan 2013 to Mar 2014
- ♦ Phase 3 – within 2016

Objectives:

- ♦ To provide a platform for ICT-and GIS-based projects, collaboration, resource optimization and R&D initiatives;
- ♦ To promote the **One Nation One Map Advocacy** of the Government.

Dir **FABIC** went on to enumerate the **Geoportal Data** already uploaded by **NAMRIA**

and a few selected agencies that have cooperated with them, and asked all participants to consider informing their colleagues about the project so they can likewise share their own information and data in the **Geoportal**. He described the process for cooperation (data sharing) to be aptly covered by MOA. He then gave a live interactive demonstration with audience participation.

II. Sea Level Rise and its Implication to the National Territory and Maritime Zones by LCDR CARTER LUMA-ANG PCGS. The Chair noted that the presentation is based on **LUMA-ANG's** thesis topic, which is relevant and important for all participants. The Chair noted the paper states CDR **LUMA-ANG** graduated recently from NDCP. Some highlights of **LUMA-ANG's** thesis include:

- ♦ 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 a 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.
- ♦ 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.
- ♦ 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 **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.

The Chair opined that the archipelagic base point may have artificial structures extending upwards, and such structures may still be considered baselines without violating **UNCLOS**.

III. The Maritime Industry and Crowd-Sourced Bathymetry: Make

your Transit Matter by LTJG JAYA ROPERAS. The Chair stated that this presentation has navigational, environmental and charting significance as it is about "**Crowd Sourced Bathymetry**" (CSB), which is an **International Hydrographic Organization (IHO)** effort.

With the help of partners, **NAMRIA** is currently exploring the possibility for every AGENCY and organization with watercraft, including yachts, to become a contributor to the bathymetric data that eventually makes it onto the **official maritime charts**. In essence, we can have every yacht or vessel enabled to become a true survey vessel and study underwater depth in our rivers, seas, oceans and lakes.

Crowdsourcing is a great solution to the problem of every national hydrographic office: too much water and not enough mapping resources to survey comprehensively, particularly now with a huge EEZ mandate that will take centuries to survey properly, and the use of volunteers with some acoustic and GPS positioning capability (now aboard so many ships and recreational boats) is very appealing.

However, navigation safety depends on quality and accuracy of input data.

A cadre of willing but untrained volunteers using uncalibrated equipment of differing quality, with unknown software and algorithms, under varying operating conditions gathering incomplete supporting and metadata is not a substitute for controlled measurements.

Data quality, data processing and liability are important and **NAMRIA** has to carefully study before accepting third party data for use in nautical charting to help fill in the blanks.

Once collected, survey data is processed using standard procedures to arrive at a final answer and then charted to help mariners make sound navigation decisions. This is a labor-intensive process in which human judgment is intentionally applied. Experience has shown that feeding non-standard sources into this process explodes the labor required far beyond whatever **NAMRIA** could afford, so it accepts third-party data under certain conditions since accepting random data is costly and inefficient.

There is also the issue of liability as private parties may sue the government for errors in hydrographic surveying and nautical charting.

In spite of these issues, the public's interest in crowdsourcing hydrographic data is significant to ensure safe and efficient waterways. Thus, **NAMRIA** is working now on establishing a network of 'trusted partners' where it has sufficient control and standards for quality data.

The Chair thanked the presenter, LT JG **RAPERAS** but opined that a better name for the activity would be "Multi-Sourced Bathymetry, but accepted the explanation that the NOAA and the IHO have adopted the term CSB which has become standard.

Finally, the Chair requested all participants to inform their heads of agencies and companies concerned to study this and cooperate; and also enjoined **NAMRIA** to continue training and coordinating on this project as it is certainly significant.

Update on the West Philippine Sea (DFA, PN, PCG, BFAR) Update on the West Philippine Sea (DFA, PN, PCG, BFAR, PCFR). The PCG representative confirmed that there is no action on Scarborough Shoal; and that some fishermen from Zambales have gone there and were not molested.

The Chair went on to announce that in the last meeting, the FORUM was informed that in conjunction with the 25th Anniversary of the Maritime League, the presentation of MARITIME AWARDS to selected companies has been slated, and that while a Committee has been designated to formalize the selection, he desired confirmation of the composition as follows:

- ♦ Chairman: RADM **Quirico Evangelista** (Ret)
- ♦ Member: COMMO **Mariano Sontillanosa** (Ret)
- ♦ Member: CAPT **Robert Patrimonio** PCG

The Chair asked if the PCG had no objection on CAPT **PATRIMONIO's** designation, and there being no objection raised, the panel composition was thereby confirmed. ⚓





An UNCLOS-based Durable Legal System for Regional Maritime Security and Ocean Governance for the Indo-Pacific Maritime Region

(An enhanced maritime awareness agenda for the Maritime Forum)

Introduction

The maritime issues under consideration in this article relates to the establishment of a legal order and durable regional ocean governance mechanism addressing non-traditional maritime security concerns, initially concentrated on the South China Sea giving prominence to a narrowed ASEAN-China context, but eventually extrapolated to a large maritime setting that is the seas of the ASEAN and the Central Indo-Pacific. The overarching concern is in regard to a search for a legal framework and governance system to underpin a durable regional ocean governance cooperation impacting on the management of

the marine environment and resources, taking into account the South China Sea disputes situation. The proposition being advanced herein is for the prompt implementation of **UNCLOS Part IX** to establish a legal order for cooperative ocean governance and institution-building for the South China Sea but impacting on the larger Central Indo-Pacific addressing non-traditional maritime security concerns, as aforesated.

At this moment in contemporary history, the 1982 United Nations Convention on Law of the Sea (**UNCLOS**) is generally accepted as the **Constitution for the Oceans** that could provide the durable legal order and governance mechanism for regional maritime security. In the conflict situation of the South China Sea, however, the UNCLOS

provisions being invoked by the Philippines that impacts on maritime territorial sovereignty and sovereign rights might not be the appropriate recourse considering the nature of the disputes situation. Beyond the quarrel in regard to the characteristics of the marine geological features in the South China Sea, there is also the matter of the varying legal and/or historical bases for the respective sovereignty claims that are attached with sovereign rights entitlements under the UNCLOS. Indeed, The Hague PCA arbitration ruling of 12 July 2016, a year ago to date, has not contributed in any manner or form to the peaceful resolution of the disputes. An alternative approach under an UNCLOS legal framework might need to be considered.

Nature of the disputes situation

All sovereignty claims involving marine geological features in the South China Sea have pre-UNCLOS origins, and now complicated with added sovereign rights entitlements under the UNCLOS that renders the overall disputes situation incapable of a resolution solely pursuant to the UNCLOS. Parenthetically, the South China Sea disputes situation would seem to fall squarely under The Hague PCA Rules of Procedure at Section IV thereof, entitled "The Award". In Article 27 (2) thereof in regard to "The Award Settlement or Other Grounds for Termination", it is so provided that "If, before an award is made, the continuation of the arbitral proceedings becomes unnecessary or impossible for any reason x x x the Arbitral Tribunal shall inform the Parties of its intention to issue an order for the termination of the proceedings." From early indications, the disputes are seemingly only capable of being managed or resolved through a political solution, whether interim or permanent.

A possible way forward

An alternative UNCLOS-based formula must be explored for a durable legal order and institutionalized governance system to address the ocean governance aspect of non-traditional maritime security concerns in the South China Sea, that also necessarily projects to the immediately surrounding regional sea areas, to guarantee maritime peace, good order and safety/security. Necessarily, this direction would entail "a bifurcation" of the contentious issues following the approach of The Hague PCA i.e., "shelving" of sovereignty issues and addressing sovereign rights, and thereafter resorting to and jointly constructing among parties directly concerned a norm-based regional ocean governance cooperation system. A norm-based cooperative regional ocean governance system that can be instituted under the UNCLOS for the seas of the ASEAN and Central Indo-Pacific is necessary and indispensable for connectivity in a linked-together enclosed/semi-enclosed seas and archipelagic waters.

The broad legal and scientific framework for a compelled cooperation among States bordering enclosed/semi-enclosed seas is already established under the **UNCLOS Part IX** thereof. And most of the participating States of the ASEAN and the Central Indo-Pacific are Parties to the UNCLOS and thereby bound to cooperate together in ocean governance. There is therefore no further need for the participating States concerned to go through the laborious process of organization inasmuch as the cooperation framework and mechanism in its legal

and scientific aspects is already established under **UNCLOS Part IX** and merely needs implementation. An UNCLOS-imbedded ocean cooperation scenario and perspective for regional States bordering the seas of ASEAN and the Indo-Pacific interconnected enclosed/semi-enclosed seas would include the following: **Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Vietnam, Singapore, Thailand, Bangladesh, China, India, Papua-New Guinea, Timor-Leste and Sri Lanka.**

Additionally, UNCLOS Article 123 provides that Member States may "invite, as appropriate, other interested States or international organizations to cooperate with them in the furtherance of the provisions of this article". The foregoing proviso in UNCLOS Article 123 allows for another layer of stakeholder participation short of membership, or so-called **open-regionalism**. In the context of the Central Indo-Pacific seas, the major extra-regional interested States that would be appropriate to invite, as examples and among others the principal members may choose, would be **Australia, EU, Japan, Republic of Korea, New Zealand, Russia** and the **United States of America**. Relevant international organizations that may be invited to join under UNCLOS Article 123 in any appropriate category (e.g., observers, etc.) would be the IMO, FAO, and IHO, among others that the principal State parties would deem to invite. Additionally, duly

accredited non-governmental organizations (NGO's) can possibly join upon invitation or application. This proviso guarantees inclusivity in stakeholder participation in the joint and cooperative governance of enclosed and semi-enclosed seas.

Regional seas coverage

An enclosed/semi-enclosed sea is defined in **UNCLOS Part IX** in Article 123 as "a gulf, basin or sea surrounded by two or more States and connected to another sea or the ocean by a narrow outlet or consisting entirely or primarily of the territorial seas or exclusive economic zones of two

or more coastal States". The regional seas coverage for Central Indo-Pacific would therefore encompass the South China Sea, the Gulf of Thailand, the Straits of Malacca and Singapore, the archipelagic waters of Indonesia, Papua-New Guinea, Philippines, the southern Indian Ocean, the Andaman Sea and the Bay of Bengal (among others that can be identified later). These are interconnected enclosed and semi-enclosed seas subsuming interconnected archipelagic waters within. A holistic ocean governance mechanism for the aforementioned seas is essential and indispensable for ASEAN integration and connectivity for AEC 2015, and initiated under **ASEAN Vision 2025**. The collective regional core interest of the ASEAN Central Indo-Pacific countries which relates to maritime peace, good order, safety/security, and the scientific conservation and management of the marine environment and resources, biodiversity, and the coastal zone, can therefore be more simply and effectively served in a coherent and integrated cooperative scheme under the **UNCLOS**, particularly at **Part IV** and **Part IX**, thereof.

A regional cooperation scheme

In regard to joint ocean management of enclosed/semi-enclosed



seas as an aspect of non-traditional maritime security concerns, **UNCLOS Part IX** lays down the principal collective obligation, a coordinating function, among States bordering such seas; that such States should cooperate as follows:

- ♦ to coordinate the management, conservation, exploration and exploitation of the living and non-living resources of the enclosed and semi-enclosed sea;
- ♦ to coordinate the implementation of their rights and duties with respect to the protection and preservation of the marine environment; and
- ♦ to coordinate their scientific research policies and undertake, where appropriate, joint programs of scientific research in the area.

Such States bordering enclosed and semi-enclosed seas, in regard to the performance of the above general obligations, are also duty-bound to implement the specific obligations incumbent upon all States as laid out in **UNCLOS Parts XII, XIII and XIV** related to the same ocean governance concerns aforesaid, among all others elsewhere in the UNCLOS, as general obligations and duties of States Parties.

UNCLOS Part IX presents two options in the performance of the collective obligations contained therein, among States bordering enclosed/semi-enclosed seas, namely:

- ♦ directly among States bordering enclosed and semi-enclosed seas, or
- ♦ through an appropriate regional organization.

In the context of the seas of ASEAN and the Central Indo-Pacific, a humongous sea area having common characteristic regional features (UNCLOS Article 197) and complicated by the South China Sea maritime disputes situation, is the only practical and effective way to guarantee a durable ocean governance system is through an appropriate regional organization. Coordinating marine scientific research policies and undertaking joint programs of scientific research might be the easier but no less daunting task relating to pure science and involving scientists. On the other hand, coordinating the conservation and exploitation of the living resources of the sea, and coordinating the implementation of the rights and duties of Member States in regard to the protection and preservation of the marine environment, and in general all the other rights, obligations and duties of States under the UNCLOS, is an infinitely complicated and sensitive balancing act with impacts on regional peace and security.

Maritime security concerns in the context of the seas of the ASEAN and the Central Indo-Pacific region is in regard to ocean governance as non-traditional maritime security concerns, as said earlier. The ultimate



argument for an appropriate regional maritime organization for the purpose of undertaking joint cooperation under **UNCLOS Part IX** is that it would be the best guarantee for governance stability and durability. It must be realized that instituting joint management and sharing of resources in the context of the regional seas of the ASEAN and the Central Indo-Pacific as enclosed/semi-enclosed seas is not a one-off effort. It requires continuous and dynamic cooperative ocean governance management for sustainable regional economic integration, and in order to forestall socio-economic issues from compromising the cooperation arrangement in all its aspects, including security.

Conclusion

UNCLOS Part IX is about joint and cooperative ocean governance of enclosed and semi-enclosed seas and the collective obligation of States bordering such seas to cooperate and coordinate in the protection of the marine environment and biodiversity, and the management and exploitation of its resources. What cannot be argued about, however, is that joint exploitation of the resources of the ocean have generated contentious socio-economic and

political issues that have been seen to create international disputes threatening regional (or international) peace and security. The foregoing socio-economic scenario that can threaten international peace and security was never anticipated nor foreseen for the pre-UN Charter and pre-UNCLOS conferences. It is however a factual and present concern in the ever-contentious maritime security situation obtaining in the interconnected enclosed/semi-enclosed seas of the ASEAN and the Central Indo-Pacific region.

This proposed possible area of conflict management relating to ocean governance must be given higher prominence in a wider regional setting. Its wide-ranging governance spread extends to trans-border activities under **UNCLOS Part XII** such as control of marine pollution, among so many others that can promote peace, good order and maritime safety and security but which at the same time could also develop into threats affecting international peace and security. Even a rather innocuous sounding international law principle of freedom of navigation in the high seas has become a highly contentious issue added on to the South China Sea disputes situation.

Finally, implementation of **UNCLOS Part IX** that promotes cooperation in addressing and managing non-traditional maritime security concerns unarguably would result in a reduction or down-playing of political tensions that can help facilitate a peaceful resolution of the regional conflict situation.



This paper was presented at the 119th MARITIME FORUM held at Cebu Ports Authority on 9-February-2017.



Take Defense Treaty Action for Philippine Sovereignty In South China Sea

by Anders Corr

China is building militarized islands in the South China Sea and ignoring international law, including in Philippine territory. Experts think China plans to build a new base on strategic Scarborough Shoal. That calls for economic sanctions, and triggering of the U.S.-Philippine defense treaty.

On Monday (10-April-2017), Reuters reported China Coast Guard and industrial fishing ship operations at **Scarborough Shoal**, the Philippines, which are arguably a violation of Philippine territorial sovereignty. The report said China is now allowing Philippine fishermen at the shoal, but restricting full access to the lagoon. The ratio of Chinese to Philippine fishing boats on Monday was about 10:1. The China Coast Guard ships are typically armed, and have shown to be armed at the shoal. Chinese ships at the shoal on Monday included at least two approximately 75-meter industrial fishing trawlers. In addition, according to Reuters, the Chinese Foreign Ministry confirmed that the China Coast Guard was at the shoal to “administer fishing and preserve the peace.” This is arguably a direct violation of Philippine sovereignty at what The Hague’s Permanent Court of Arbitration (PCA) found to be an “island” last year. The **U.S.-Philippine Mutual Defense Treaty of 1951** applies to “islands”, and so should be triggered by China’s continued armed occupation of Scarborough.

China’s occupation is an affront to the Philippine sovereignty, territorial integrity, and the Constitution of 1987, according to which “*The State shall pursue an independent foreign policy. In its relations with other states, the paramount consideration shall be national sovereignty, territorial integrity, national interest, and the right to self-determination,*” and that “*The State shall protect the nation’s marine wealth in its archipelagic waters, territorial sea, and exclusive economic zone, and reserve its use and enjoyment exclusively to Filipino citizens.*”

If allowed to continue, Chinese occupation of the shoal degrades the Philippine environment, sovereignty, and the likelihood that it will eventually regain control of the shoal. The longer China has control of the shoal, the more likely it is to build planned military facilities there, and the less likely it will return **Scarborough Shoal** to the Philippines. It is critical for the natural habitat at **Scarborough**, and for the



A Filipino fisherman is seen past the US Navy amphibious transport dock ship USS Green Bay (LPD-20) during an amphibious landing exercise on a beach at San Antonio in Zambales province on April 21, 2015, as part of annual Philippine-US joint maneuvers some 220 kilometres (137 miles) east of the Scarborough Shoal in the South China Sea. The Philippines voiced alarm April 20 about Chinese ‘aggressiveness’ in disputed regional waters as it launched giant war games with the United States that were partly aimed as a warning shot to Beijing. Photo Credit: TED ALJIBE/AFP/Getty Images

Philippines' sovereignty and territorial integrity, that the Philippines, U.S., and allies immediately increase pressure on China, through economic sanctions and activation of the defense treaty if necessary, to **vacate the shoal and return it to Philippine administration.**

China is in the process of large-scale environmental destruction at Scarborough Shoal and other parts of the South China Sea (SCS), including through widespread destruction of endangered coral and harvesting of endangered species such as giant clams and sea turtles. China has been turning barely-submerged shoals in the South China Sea into militarized artificial islands, replete with military runways and docks large enough for aircraft carriers and nuclear missile submarines. Some analysts think China may eventually create underwater submarine bastions or harbors in the South China Sea, including at **Mischief Reef** and **Scarborough**. A Chinese military source and maritime experts said last year that China plans to turn **Scarborough** into a military base.

I visited Scarborough Shoal in June 2016, Philippine Independence Day, on a "Freedom Voyage" organized by the **Kalayaan Atin Ito** activist group. Two 2,580-ton China Coast Guard cutters with light cannon, and another medium-sized China Coast Guard boat, made numerous dangerous passes, charges, chases, and blocking maneuvers of our 30-meter wooden fishing boat. In one case, the medium-sized China Coast Guard boat charged us to about 4 meters, then began rocking in a way that made our boat pitch violently up and down. Once we made it past the larger Coast Guard boats to the shoal, Filipino activist swimmers carrying Philippine and U.N. flags swam towards the shoal, and could have been killed on multiple occasions as two China Coast Guard speed boats circled them aggressively and backed their spraying propellers towards the swimmers within about 3 feet of slicing into their flesh.

Over the course of about an hour, five very brave swimmers were undeterred, and as swimmer and leader of the expedition Joy Ban-eg diverted two China Coast Guard speed boats, from which she was forced to push off on multiple occasions, swimmer Mariel Ipan made it past the Chinese to raise a small Philippine flag on the shoal that day. I was there and I saw it happen. The next day, Ms. Ipan wrote on Facebook, "*My near death experience at **Scarborough Shoal**; could've been the Sweetest Death.*"

Kalayaan Atin Ito's 2016 protest of China's occupation of **Scarborough** was not official, but it had a maximum of heart and patriotism. It was one way in which the Philippine people continued



This picture taken on April 23, 2016 shows a member of the Indonesian navy standing before the Chinese trawler 'Hua Li-8' (L) in Belawan, North Sumatra. Indonesian warships detained a Chinese trawler allegedly operating illegally in Indonesian waters, just weeks after a confrontation between vessels from the two countries caused tensions, the navy said on April 24. Photo Credit: ABIMATA HASIBUAN/AFP/Getty Images.



A pro-China protester throws eggs at photos of US President Barack Obama and torn copies of the ruling by the Permanent Court of Arbitration in The Hague against Beijing's extensive claims in the South China Sea, outside Hong Kong's United States Consulate on July 14, 2016. About 50 pro-China activists marched to Hong Kong's United States Consulate holding placards that read 'Ruling is a piece of paper', 'US sowing discord and stirring up trouble', as they shouted slogans such as 'No Compromise on South China Sea' and 'Shameless US'. The protesters also threw eggs on pieces of paper placed on the ground -- featuring the picture of US President Barack Obama -- outside the consulate. Photo Credit: ANTHONY WALLACE/AFP/Getty Images

to demonstrate non-acquiescence to China's claim and aggressions, and to show the Philippine government that they demand continued assertive measures to maintain Philippine sovereignty, an independent foreign policy, and the territorial integrity of the Philippines. **Official non-acquiescence** is critical to the maintenance of the Philippines' claims to sovereignty over **Scarborough**, and the rest of the Philippines' territory and exclusive economic zone (EEZ) within China's nine-dash line.

According to the PCA Award in the Philippines v. China case, "*In practice, to establish the exclusive historic right to living and non-living resources within the 'nine-dash line', which China now appears to claim, it would be necessary to show that China had historically sought to prohibit or restrict the exploitation of such resources by the nationals of other States and that those States had acquiesced in such restrictions.*" Some international lawyers will argue that China's actions over the last 20 years, now that the dispute has started, will not adversely affect the Philippine sovereignty claim. But China is progressively destroying the shoal. To be on the safe side of the sovereignty issue, and to increase political as well as legal pressure, I think it critical to physically demonstrate regular official as well as popular non-acquiescence to China's claim. It is a political as well as legal issue, so the duty to defend the sovereign territorial rights of the Philippine nation requires frequent public demonstration.



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Anders Corr has worked in military intelligence for five years, including topics on nuclear weapons, terrorism, cyber-security, border security, and counter-insurgency. He covered and visited Africa, Asia, Europe, Latin America, and the Middle East; and worked in Afghanistan for one and a half years. He holds a Ph.D. in Government from Harvard University, and a B.A. and M.A. in international relations from Yale University (Summa cum laude). His company, Corr Analytics, provides political risk analysis to commercial, non-profit, and media clients, and publishes the Journal of Political Risk. He is editing a series on the South China Sea conflict. The author is a Forbes contributor.



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Statement of Justice Carpio on China's threat to go to war with the Philippines

The United Nations Charter outlaws the use or threat of force to settle disputes between states. In the West Philippine Sea dispute, an arbitral tribunal created under the United Nations Convention on the Law of the Sea (UNCLOS), to which China is a party, has already ruled with finality that the **Reed Bank is within the Exclusive Economic Zone (EEZ) of the Philippines and only the Philippines can exploit the natural resources within Philippine EEZ.**

The threat of China to go to war against the Philippines if the Philippines extracts oil and gas in the **Reed Bank**, or in any area within Philippine EEZ in the West Philippine Sea, is a gross violation of the United Nations Charter, UNCLOS, and the Treaty of Amity and Cooperation in Southeast Asia to which China and the Philippines are parties.

As a nation that under its Constitution has renounced war as an instrument of national policy, the Philippines' recourse is to **bring China's threat of war to another UNCLOS arbitral tribunal**, to secure an order directing China to comply with the ruling of the UNCLOS arbitral tribunal that declared the **Reed Bank is part of Philippine EEZ. The Philippines can also ask for damages for every day of delay that the Philippines is prevented by China from exploiting Philippine EEZ.**

The Philippines can also bring China's threat to go to war against the Philippines before the United Nations General Assembly by sponsoring a resolution condemning China's threat of war against the Philippines and demanding that China comply with the ruling of the UNCLOS arbitral tribunal. China has no veto in the General Assembly.

The Philippine Constitution mandates that the "State shall protect the nation's marine wealth in its EEZ, exclusive economic zone." Since the Philippines has renounced war as an instrument of national policy, **the President has the constitutional duty to use all legal means under international law to protect Philippine EEZ.**

In the face of China's open threat of war to seize Philippine EEZ in the West Philippine Sea, an area larger than the total land area of the Philippines, the President cannot simply do nothing, or worse acquiesce to China's action, for **inaction is the opposite of protecting Philippine EEZ.**

Under international law, acquiescence is the inaction of a state in the face of threat to its rights under circumstances calling for objection

to the threat to its rights. Acquiescence means the Philippines will lose forever its EEZ in the West Philippine Sea to China.

China's blatant threat of war against the Philippines demands that the Philippines strengthen its defenses and alliances. In particular, **the Philippines must strengthen its alliance with the United States**, the only country with whom the Philippines has a mutual defense treaty. The United Nations Charter recognizes the right of states to mutual self-defense against armed aggression.

The Philippines can ally with the **United States** because the **United States** does not claim the West Philippine Sea or any Philippine territory. The Philippines cannot ally with China because China wants to grab for itself the West Philippine Sea and the **Spratlys**.

As long as China threatens the Philippines with war over the West Philippine Sea, the Philippines can never lower its guard in its dealings with China.

Among all the countries in the world, **only China has threatened the Philippines with war over Philippine EEZ in the West Philippines Sea.** The other claimant states in the **Spratlys** — Vietnam, Malaysia, Brunei — recognize Philippine EEZ, including Reed Bank, in the West Philippine Sea. The only dispute of the Philippines with Vietnam and Malaysia is

on high-tide elevation rocks and their 12 nautical mile territorial seas in the **Spratlys**, which are more than 100 nautical miles from **Reed Bank**. Vietnam and Malaysia are certainly not claiming the **Reed Bank**. The Philippines has no dispute with Brunei.

Reed Bank is vital to Philippine national interest. It is the only replacement for **Malampaya**, which supplies 40 percent of the energy requirement of Luzon. **Malampaya** will run out of gas in less than 10 years. Unless the Philippines develops Reed Bank, Luzon will suffer 10 to 12 hours of brownouts daily 10 years from now. This will devastate the Philippine economy.

China's threat of war against the Philippines over the West Philippine Sea reveals the aggressive design of China against the Philippines. No less than **Chinese President Xi Jinping** has delivered the threat personally to **Philippine President Rodrigo Duterte**. This extremely troubling development calls for all Filipinos to unite to defend the West Philippine Sea in accordance with the Constitution, international law, and UNCLOS. 🇵🇭





The Three Shining Moments of Philippine History

by Former President Fidel V Ramos

Since becoming a nation 119 years ago, Filipinos have strived to live in freedom, an atmosphere of enduring peace and sustainable development towards a better and brighter future for us and our offspring.

This brighter future is to be shared by generations of Filipinos – living and dead – who fought for freedom, dignity and prosperity, and also by us, their descendants.

Three defining beacons in Philippine history should guide Filipinos: the revolutionary Spirit of **1896 at Pugad Lawin**; the patriotic Spirit of **1942 at Bataan and Corregidor**; and the liberating Spirit of **1986 at EDSA**.

The “Cry of Pugad Lawin” that Andres Bonifacio and his fellow Katipuneros sparked on 23-August-1896 lit the flames of the Philippine revolution. In tearing up their cedula or tax certificates, our forebears did not merely repudiate the claims of Spanish colonial power over their persons and their possessions. It was a symbolic act of a few brave men for all our people – the 6.2 million Filipinos then living.

From that day onward, the story of our people would forever be rooted in **Pugad Lawin** along our quest for nationhood – and never again would the history of our country be the same.

REVOLUTIONARY SPIRIT OF 1896

On 12-June-1998, we celebrated the **Centennial of Philippine Independence**, together with other Filipinos throughout the world. At that time, FVR recalled to our countrymen and countrywomen that 100 years before, our nation’s founders gathered to declare with one heart, one mind and one voice our freedom from the yoke of colonial tyranny.

As Jose Rizal visualized in his essay, *The Philippines A Centenary Hence*, “The new Filipinas would generate a breed of Filipinos who would derive energy from their pre-colonial past. They would create a future by their labor; work the land, the mines; and revive the maritime and trading skills of their forefathers... They would be strengthened by the recovery of their old virtues, and ultimately attain a prosperous and independent existence.”

As part of that historic celebration, the President issued Proclamation 1266, “Declaring the Historical Sites Which Have Played Supportive Roles in the Country’s Struggle for Independence as Centennial Freedom Trail (CFT).” By so doing, we became more than a mere collection of tribes, or a chorus of tongues. We became, in spirit and reality, a sovereign nation – a people united by the common purpose of a better future for all Filipinos.

The National Centennial Commission (under VP Salvador Laurel) identified such historical sites, particularly:

- ♦ 07-June-1892, Tondo, Manila: the revolutionary society Katipunan was founded;
- ♦ June 1892 to July 1896, Dapitan, Zamboanga del Norte: Jose Rizal was exiled;
- ♦ 23-August-1896, Pugad Lawin, Quezon City: the Philippine Revolution erupted led by Katipunan Supremo A. Bonifacio;
- ♦ 30-August-1896, Pinaglabanan, San Juan: the first major battle between Katipunan rebels and Spanish colonial forces;
- ♦ 11-November-1896, Binakayan, Cavite: the first major victory by Katipunan units took place;
- ♦ November-December 1896, Fort Santiago, Intramuros, Manila: Rizal was tried for treason;
- ♦ 30-December-1896, Bagumbayan, Manila: Rizal was executed by musketry;
- ♦ 17-February-1897, Zapote Bridge, Cavite: Katipunan rebels repelled large Spanish force Gov-Gen Camilo de Polavieja;
- ♦ 22-March-1897, Tejeros, Cavite: Katipuneros elected a revolutionary government under Gen. Emilio Aguinaldo;
- ♦ 14-December-1897, Biak-na-Bato, Bulacan: a truce was forged between Filipino and Spanish forces;
- ♦ 28-May-1898, Alapan, Imus, Cavite: after a major victory by Aguinaldo, the Philippine flag was first displayed;
- ♦ 12-June-1898, Kawit, Cavite: Philippine Independence from Spain was proclaimed;
- ♦ 17-November-1898, Santa Barbara, Iloilo: the Philippine flag was first raised outside Luzon island; and
- ♦ 23-January-1899, Barasoain Church, Malolos, Bulacan: the Malolos Congress set up Asia's first democratic Republic.

BATAAN-CORREGIDOR: PATRIOTIC SPIRIT OF 1942

More than 70 years have passed since World War II. When devastation and death once reigned over the land, we now have overall peace, opportunity and hope for a brighter future for younger generations of Filipinos. And precisely because of the better conditions we now enjoy, we must look back, and acknowledge once again our everlasting debt to those who gifted us with freedom. The **Bataan Death March** took 5 excruciating days – under the scorching sun, and without life's barest necessities, it may as well have been eternity.

Many fell from sheer exhaustion, wounds, disease, hunger, and cruelty of the conquering army. Others died in the **Capas Concentration Camp** itself, under the most horrible conditions. In one day alone, a total of 383 prisoners died in camp. By 25-July-1942, more than 15,000 Filipino and 2,500 American POWs had died in captivity.

These are staggering figures that boggle the minds of those of us who have never had to suffer the privations of war and the horrors of imprisonment. But war, of course, has always been the most unnatural and most cruel of disasters. It is entirely man-made, and has often made a mockery of man's finest talents and moral achievements. Many centuries ago, a sage observed that, *"In peace, the sons bury their fathers; but in war, the fathers bury their sons."*

To most, it may seem paradoxical that it is the soldier/policeman who yearns for peace more than others because our public servants in uniform and their families know from firsthand experience the cruelties of war and violence – what sufferings are inflicted upon

combatants, their loved ones, and innocent civilians caught in the crossfire.

Those heroic Filipino men and women of World War II fought not for their own glory – as rousing and moving as the stories of their exploits are to us today – but for something many of them would never see with their own eyes: the peace and the growing prosperity that their descendants now live under. Perhaps they understood what Aristotle meant when he said, more than two thousand years ago, *"the goal of war is peace."*

THE LIBERATING SPIRIT OF 1986 AT EDSA

In the renewed nationwide solidarity that burst out during those four pulsating days at **EDSA** in February 1986, Filipinos redeemed the sacrifices of our departed forebears and fallen heroes by regaining our birthright of freedom, justice and national pride. We became united in our fortitude and determination, not merely to throw out an authoritarian regime that failed to govern democratically, but also to win a better future. Today, we realize that **EDSA** has a much deeper meaning. Filipinos were galvanized to direct action by their desire to reestablish a society of human dignity and liberty, in a land not torn apart by strife and at peace with itself, with a representative democratic government that is effective/accountable, and an overall dynamic, competitive and bountiful nation.

EDSA was not just a 4-day phenomenon in 1986, neither a 1-day commemorative event each year. **EDSA** straddles several generations of heroic struggles. It is part of a continuing revolution – one fine block added each year to the never-ending task of nation-building – an unfulfilled vision that Filipinos must win and continue to sustain. Its most significant result is the annual opportunity to infuse our people with new God-given resolve to make the Philippines greater than before. Filipinos should take great pride in that, in recent years, the collective power of common people and our spirit of **EDSA** touched off similar peaceful uprisings for political liberation and human justice around the world.

A SHRINE FOR EMPOWERED FILIPINOS

The greatest loss to our posterity would be our failure to impart the values of transcendent events in nation-building to those who now bear the torch of national leadership and our younger generations. Today, as we prepared to celebrate once again our Independence Day, we reiterate our suggestion that the **EDSA People Power Commission** collects and centralizes the significant memorabilia, writings and other historical artifacts in one accessible location (call it the **People Power Freedom Learning Center**) to facilitate the education of Filipinos about **EDSA** – following the example of the South Korean Government which put up the **Philippines-Korea Friendship Center** at Fort Bonifacio last 2012 on land, made available by the Department of National Defense, to honor the **Philippine Expeditionary Forces to Korea (PEFTOK)**. For our people's continuing spirit of patriotism and better future, the President and Commander-in-Chief should now make available a respectable, permanent space accessible in Camp Aguinaldo adjacent to our **People Power Monument** on **EDSA** as the site of our **People Power Freedom Learning Center** that shall inspire heroism and sacrifice in younger Filipinos. They need to know – and from time to time, have to be reminded, what their elders had fought and died for in the service of God, Country, People, and the Environment.

KAYA NATIN ITO!



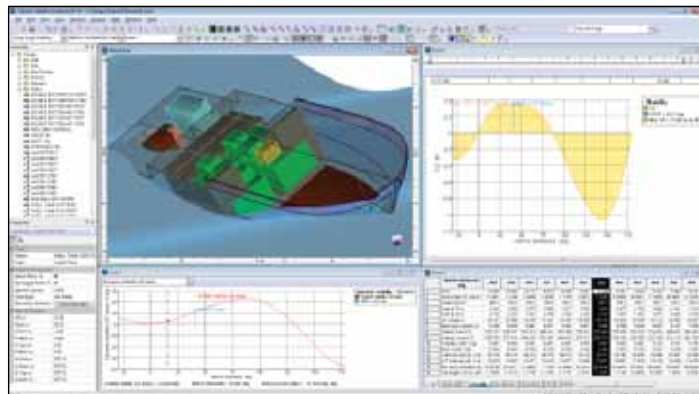
Please send any comments to fvr@rpdev.org. Copies of articles are available at www.rpdev.org.

PRS Supports MARINA with Latest Technology on Probabilistic Damage Stability Calculations

The **Philippine Register of Shipping (PRS)** signed a Memorandum of Agreement (MOA) last 26-September-2016 with the **Maritime Industry Authority (MARINA)** and the **Society of Naval Architects & Marine Engineers, Inc. (SONAME)** to further support **MARINA** in its capacity-building for the full implementation of this important **MARINA Circular 2015-08** on Rules and Regulations on Subdivision and Damage Stability Requirements.

In this **MOA**, the PRS as a duly recognized organization, will be giving free access of its **Maxsurf Enterprise Suite** software to **MARINA**, while **SONAME** will be giving free **Maxsurf** training to **MARINA** personnel, and in so doing, our single maritime administration can effectively review and approve all submitted calculations from ship-owners.

MARINA Circular 2015-08 entitled "Rules and Regulations on Subdivision and Damage Stability Requirements for Philippine-Registered Domestic Ships" outlines the requirements under



Screen capture from Bentley Systems' Maxsurf Stability software.

Resolution MSC.216(82), adopting the regulations on subdivision and damage stability in SOLAS Chapter 11-1 which are based on the probabilistic concept and using the probability of survival as measure of ships' safety in a damaged condition. Implementation of said Circular requires powerful analytic tools to assist **MARINA** in reviewing the expected hundreds of submissions for approval of Probabilistic Damage Stability calculations from shipping companies.

The **Philippine Register of Shipping, Inc. (PRS)** is the first and leading Filipino Classification Society established in 1989. **PRS** is driven by the most competent technical professionals from the Philippine maritime industry and is backed by the **Society of Naval Architects & Marine Engineers Inc. (SONAME)**.

The **SONAME** is the only professional organization accredited by the **Professional Regulations Commission (PRC)** for Filipino naval architects. This group began way back in 1950, rebranded itself in 2007, and this year celebrates its 67th anniversary since inception.

The **Maxsurf Enterprise Suite**, Bentley's most comprehensive marine product, provides the Naval Architect with powerful analytical tools, including probabilistic damage stability, advanced motions prediction, and dynamic structural analysis. For passenger vessels and larger ships, the probabilistic damage stability in the Maxsurf's Stability Enterprise module provides easy-to-use graphical tools for defining and managing hundreds of damage conditions.

To facilitate compliance with the IMO (International Maritime Organization) stability criteria, MAXSURF Enterprise includes a built-in criteria library and graphical tools for defining and viewing damage zones. Maxsurf includes a comprehensive library of stability criteria, as well as the ability for users to define their own criteria. To assist with creating stability booklets, a unique templating system allows you to define the report format using a Microsoft Word template document. The tables, graphs, and images are then automatically sent to the report. ⚓



Upper left to right: Engr. Danilo Santos, Mr. Vladimer Gaspar, Engr. Edna Dela Cruz, Engr. Maria Teresa D. Mamisao, Engr. Thaddeus Jovellanos, Engr. Jerome Manuel. Lower left to right: Engr. Rolando Abella, Capt. Alfredo Vidal Jr., Engr. Sammuel Lim, Engr. Ramon Hernandez



Left to right: Engr. Maria Teresa D. Mamisao, Engr. Edna Dela Cruz, Engr. Rolando Abella, Capt. Alfredo Vidal Jr., Engr. Ramon Hernandez, Engr. Sammuel Lim, Engr. Thaddeus Jovellanos



Leaders of shipping and innovators discuss the quantum leap in technology at the Transas conference.

Shipowners should expect a Quantum Leap in IT and Automation

by Martin Wingrove

Shipping should expect a quantum leap in technology adoption over the next 10 years as ships are built with more automation and IT systems. **Anglo Eastern Group's** Capt **Pradeep Chawla** said shipowners should be training seafarers to use the technology now. He is managing director for quality, health, safety, training and the environment at the ship-management group.

Capt **Chawla** said greater adoption of IT technology in shipping would help the shipping sector to attract a new generation of high-tech seafarers. "I expect there will be a quantum leap in the next 10 years in technology that goes into ships," he said at the **Transas Global Conference** in St. Julian, Malta. "We will need to train people now, for 10 years from now."

However, training should not forget the traditional methods, such as teaching core navigation skills as well as operating ECDIS, said

Thomas Miller P&I loss prevention advisor **George Devereese**.

"The technology can be fallible and crew can be surprised when there is a fault. Seafarers still need to look out of the window for situational awareness and use the instruments as an aid to navigation," **George Devereese** explained.

Training expert **Christian Hempstead**, owner of **Hempstead Maritime Training** said his cadets are taught to be aware of situations outside of the technology. "It takes time to look at ECDIS and radar, and reduces time for situational awareness," he said, adding: "They can get an understanding of this through simulation training."

Christian Hempstead said training should provide seafarers with the knowledge of how to ask the right questions from the instruments. "We teach traditional navigation so they can ask how they can get those answers," he added. ⚓

INMARSAT and Norway's BLUE MARITIME CLUSTER join forces in digital Disruption Push

by Jonathan Sinnatt

INMARSAT is working with the Blue Maritime Cluster to formulate how digital disruption will transform the traditional shipping industry and open up new opportunities for ship owners, marine technology companies and others in the network for innovation.

Based in Norway's Møre region, the **Blue Maritime Cluster** is recognized by government as a global centre of expertise. Many of its marine technology suppliers are leading the drive to exploit shipboard sensors to monitor and manage equipment remotely. Over 20 Cluster partners joined senior **INMARSAT** management for a Digital Disruption workshop in Ålesund on 21 March to explore **INMARSAT**'s future bandwidth programs, encouraging 3rd party innovators and disrupters to develop applications to exploit the capability of high-speed broadband services via **Fleet Xpress**. "The global, high speed, always-on connectivity offered by **Fleet Xpress** has proven to be a game-changer in the 12 months since launch, with thousands of ships committed to its unrivalled Ka-band plus L-band for back-up combination," said **Gert-Jan Panken**, VP Application Sales, at **INMARSAT Maritime**. "Reaping the true data and performance rewards of the network requires both an advanced platform, industry focus, innovation and cooperation," **Panken** added.

A 2016 **Futureautics** paper suggests 50% of shipowners already undertake analytics based on sensors installed on ships. **Gert-Jan Panken** said **Fleet Xpress** would enable the maritime industry to join the connected world and leverage the more than 25 billion apps, embedded software packages or intelligent systems, which **International Data Corporation (IDC)** is projecting to be present by 2020. "In **Fleet Xpress**, we have delivered a platform to create a new ecosystem for maritime solution providers and application developers to build new relationships that can disrupt the maritime industry."

"The **Blue Maritime Cluster** seeks to consolidate its role as a global hub for safe, sustainable, advanced and smart technology," said **Frank Støyva Emblem**, Communications Manager, of **Blue Maritime Cluster**. "The best way to embrace new generation connectivity is by working as a collective maritime force," he said.

"The calibre of participants at the workshop showed the significance **Blue Maritime Cluster** members are giving to

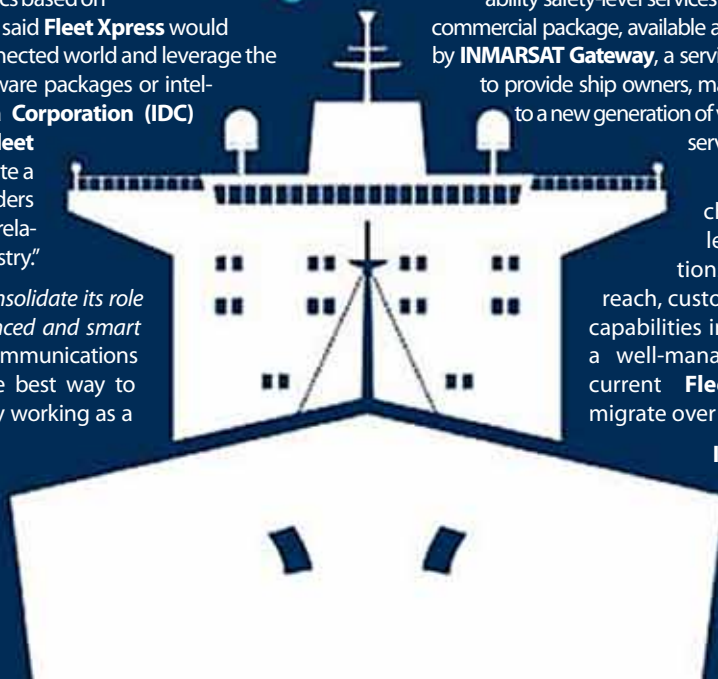
INMARSAT's application services," he said. **University of Aalborg's** Professor **Morten Lund** offered insight into digital disruption in other industries, while **Bjørn Idar Remøy**, Managing Director, **Bourbon Offshore Norway** is recognized for envisioning the **Connected Ship**.

"The showing by **Blue Maritime Cluster** members at this event demonstrates that owners and suppliers at the leading edge in the shipping, offshore and fishing sectors will drive and be partners in, rather than spectators of, the digital maritime future. Partnership with forward-looking networks like the **Blue Maritime Cluster** will help make the maritime data revolution a reality. Now is a critical moment for ship/shore connectivity, calling for thought leadership and disruption inside the industry, as well as disruption from outside", concluded **Gert-Jan Panken**.

Fleet Xpress delivers a unique, fully integrated dual capability of high speed, high capacity services called **Global Xpress**, together with high reliability safety-level services called **FleetBroadband** in a single commercial package, available anywhere. **Fleet Xpress** is enriched by **INMARSAT Gateway**, a service enablement platform designed to provide ship owners, managers and operators with access to a new generation of value-added maritime applications, services and solutions.

INMARSAT's maritime channel partners include all the leading maritime communications resellers, providing global reach, customer intimacy and value-added capabilities in support of **Fleet Xpress**, and a well-managed pathway for **Inmarsat's** current **FleetBroadband** customers to migrate over time up to **Fleet Xpress**.

INMARSAT is the leading provider of global mobile satellite communication services since 1979. 





Internet of Things in Logistics and Shipping

By Julius Patrick Apud

In previous articles, we have discussed general applications of information technology in the maritime industry. We had an overview of technologies that are being used in modern ships. In this article, we will explore a new and evolving technological trend that is making an impact not just in the home and the workplace, but also in the logistics and shipping industries.

The Internet of Things (IoT) is an interconnection of everyday physical objects such as appliances, “smart devices” (e.g. TVs, refrigerators, phones), vehicles, and other items that are embedded with electronics, sensors, software and network connectivity to store and exchange information.

It is also important to know how to make sense of the stored and transmitted information, and to put that information to good use. On a small to medium scale, a ship captain may be notified when his coffee is ready, when his ship is in need of resupply, or when parts are in need of replacement. On a much larger scale, considering that over 90 percent of world trade is carried by sea (according to the International Maritime Organization), this technological trend would help facilitate transfer of goods.

Monitoring of Shipments

Shipping and logistics companies would benefit a great deal in IoT. Shipping containers equipped with sensors, single-board computers and communications modules would help determine whether a certain container is empty or full, whether or not a container has been opened by unauthorized persons, or when a container has been loaded onto

a ship and at what part of the ship it has been loaded. Refrigerated containers equipped with temperature sensors help ensure that perishable goods remain fresh. With help from satellite navigation systems, shippers can locate the goods at every leg of the journey.

Route Optimization

On land, trucks equipped with IoT devices and GPS tracking can get to their destinations with an optimized route, thus reducing idle time on the road and at the port. At sea, shipping routes can also be optimized. Using multiple streams of data from weather forecasting services, GPS, and other ships within a large area of the sea, shorter routes can be plotted and changed accordingly. This helps to reduce fuel consumption, minimize delays, and to avoid collisions; which then translates to more cost savings and safer transfers.

Opportunities for Growth

Given that the Philippines is among the top producers of seafarers, and Filipinos are quick to adopt the latest technologies, this trend presents opportunities for maritime students and seasoned mariners to learn and further enhance their skill sets. Local information technology firms can design hardware and develop software, specifically embedded systems, for use in logistics and shipping operations. Maritime students and seafarers would greatly benefit from familiarization with the technology, as more shipping companies in developed nations adopt it for their use. With this emerging technology and Filipino ingenuity, the Philippine maritime industry will greatly advance, keeping pace with the rest of the world. 📍



Frigate Proven Design Criteria

by Captain Tomas D. Baino PN (Ret)



INTRODUCTION

Ship acquisition program is a very sensitive issue, thus the choice of a proven design warship tops the list. The cost of Frigate acquisition is very prohibitive that it requires a careful evaluation and analysis of the **Ship Systems Work Breakdown Structures (SSWBS)**, an itemized cost distribution of various components of the ship versus the desired requirements and capability engineered to suit the doctrine requirements of a Navy. This article attempts to enumerate and discuss the criteria that would make up a Frigate with proven design. This is the second of 12 articles on operability and combat effectiveness of a Frigate.

PROVEN DESIGN

A pedigree of ship design where all the aspects of design consideration have the background for a proven design vessel that possesses the combat reputation performance of an existing warship that has been tested in battle, and has survived the test of the time. The ultimate proof of any warship built for naval purposes is actually gained in actual combat or similar simulated situation.

The following discussion will describe in more detail the criteria that should be taken into consideration when assessing the risks through the levels of design in any given warship proposal for acquisition.

- ♦ **The hull form must be within plus or minus 15% of the length waterline, which is the true length of the ship,** or a minimum 10% of the length to breadth ratio. The design must have been tested as a model at the resistance tank testing stage.

The block, prismatic, area of waterplane, midship coefficient, center of floatation, longitudinal center of buoyancy displacement, etc. would also have to be within 0.05 of those of the previous form



Figure 1. Tank Testing Basin with Scaled Ship Model

for the new hull to be regarded as “proven.”

The tank testing of the scaled ship model of the ship design in question must display in the tank test the aspects of performance such as ideal and acceptable minimal resistance, bow wave, stability, seakeeping, etc., in order to have an accurate prediction and integrate the findings to the actual ship to be constructed. This is how British Naval Architect William Froude and US Navy Admiral Taylor devised the time-honored practice in ship design in order to avert costly and embarrassing mistakes. This method is now adopted worldwide by reputable ship designers/shipbuilders through the International Standard of Tank Test Conference (ITTC)

- ♦ **Structural Framing System.** The keel, frames, platings, stiffeners, etc. must be within plus or minus 15% of the overall structural design philosophy and validated for strength by an independent authority (ministry of defense ship design study) through a classification society and which also validates practicability of a ship built by a shipyard. In principle, the structural philosophy is defined as being “very close” to the original mothership design of the same class of warship.

Design load and strength criteria must be taken from the same code (that some of these will, by code, be dependent on length or some areas of operation and climatic condition) and same materials should be used, in general, in the same quality and grade of steel.

- **Propulsion System.** The design and selection of a propulsion system must be based on how we are going to utilize the system by establishing an operating profile based on doctrine in ship operation that needs to be established beforehand. These questions must be asked: Why CODOG, CODAG, CODLAG or COGOG? Why do we need top speed of 24 knots MCR for a 24-hour speed, when speed is relatively very expensive? What is the total patrol area in square miles of our Areas of Responsibility (AOR)? How many square miles do we want to accomplish per patrol deployment? What is the distance of patrol area from point A to point B? Speed is a function of time and distance, and it consumes resources such as fuel, a very valuable commodity in any shipping operation.

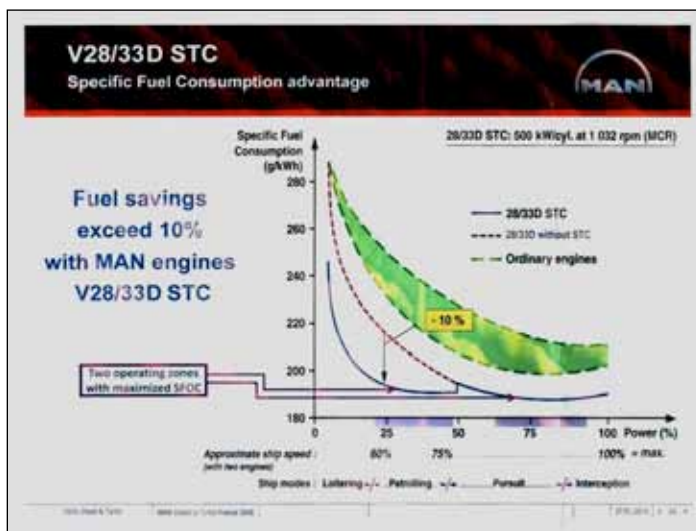


Figure 2. Main Propulsion System Operating Profile

The engine is the heart of a warship. Running at full speed means a maximum load factor is imposed on the engine. The engine would not last long at such constant pressure and would lead to undue stress to the internal combustion plant. A variable speed such as 20% maneuvering loitering, 70% transit/patrol and 10% interception by percentage allocation of maximum load factor of the engine brake horse power at a given period of the patrol time will naturally attain the Mean Time Between Overhaul (MTBO) of the engine's life of 12,000 hours.

The choice of propulsion plant equipment and accessories must be based from a proven series of engine that can suit the ratings of the ship operation profile. The shipbuilder should have experience in the specification and selection of all components of the propulsion train such as the propellers, gearboxes, control system, etc. and these should be specifically drawn from experience of equipment in service and in similarly of almost the same displacement of warship designed for operation in a similar environment. Various

ship signature threshold such as noise, vibration, electromagnetic signature threshold, shock, water-tightness and blast must be taken into consideration seriously.

- ♦ **Combat Systems Requirements.** The choice of weapon primarily reflects on the operational requirements, which must be threat-driven, and the weapons should actually be in service, at the equipment modification state, or a version in a proven warship. The weapons layered defense, priority of weapons utilization by the Order of Battle (ORBAT), must be clearly outlined and identified, the characteristics and lethality of a threat is a must to achieve a high degree of success to defeat the threat either by hardkill or softkill.
- ♦ **The Electro Magnetic Spectrum.** Evaluation and analysis of the electromagnetic signature threshold of the Frigate must be also given priority for this will determine the effectiveness of the countermeasure either by decoy, seduction or distraction in order to avoid being lock-on, when hit by ordnance munitions with electronic guidance system (active, passive and beam riding guidance system). In a modern war at sea, Electronic warfare capability is a necessity.
- ♦ **Repair, Maintenance and Operating Cost.** An analysis of the budgetary requirement to maintain the availability and readiness of a battleworthy Frigate must be within the range of budgetary expenditures with almost identical doctrine in warfighting.
- ♦ **Seakeeping Performance Index (SPI).** Determination of the ship SPI will predict various seastate conditions and avoid the SPI Limitation wherein the ship will encounter functionality degradation and still achieve minimum degradation by changing course to a suitable heading.
- ♦ **Electrical Power Demand.** The percentage demand factor both for continuous and intermittent power load must be as low as possible, supplying power requirements during normal patrol run, maneuvering during entering and leaving the harbor, dock at port, helicopter operations, use of combat systems and sensors, surveillance, etc. This will contribute drastically to fuel economy of operations.
- ♦ **Survivability.** This is the key element in Frigate design. Floodable length that even if the ship is flooded with seawater, she has sufficient buoyancy and flotation to remain under damage condition at the surface of the sea. The ship must be able to stop the spread of damage incurred from being struck by weapons ordnance, and protect its crew and vital equipment from damage. She must be designed and equipped with system and sub-system redundancy by duplication, separation and segmentation to provide basic utility services during extremely hazardous situations.

CIRCULAR OF REQUIREMENTS

The Circular of Requirements (COR) is derived from the Frigate Warfighting Doctrine that would identify the capability and performance we need. This is a product of a war-gaming process, which is threat-driven so that the Frigate would have the right capability to defend and strike against hostile forces at sea. The COR is the responsibility of a Navy based on a doctrine prepared beforehand. The Navy must concentrate on the formulation of the doctrine, which is their core competence, rather than focusing attention on technical specification, which is the work of the ship designer/shipbuilder. Ship acquisition through the Warfighting Doctrine is the accountability of the Navy to the Filipino people.

TECHNICAL SPECIFICATIONS

Technical Specifications is the duty and responsibility of the ship designer/shipbuilder. This is the product of their scientific and engineering approach such as tank testing/ship modeling, calculation on stability, strength of materials, electrical engineering, signature threshold analysis, speed and power, economy of operation, survivability, operability, trim, moment distributions, stress concentration, quality control, weapons engineering, cost trade of analysis, etc. thus the Navy should not share the responsibilities with the designer/shipbuilder, as those tasks are their responsibilities and what they are essentially paid to do. The end product of this effort is performance and capability that would be in compliance with the COR of a Navy.

CONCLUSION

A warship is the largest manmade vehicle ever created that operates on a very complex hostile environment. She must be perfectly designed in order to operate independently to assert influence at sea.

A ship with a proven design is identical to a designed and built ship engineered to suit exactly the Warfighting Doctrine of a particular Navy. There will be some design flaw but they must be within tolerable limits. If the flaws are obvious especially on ship performance, then she will have that bad performance reputation throughout her serviceable lifetime in the fleet, which is very costly and sheds doubtful capability in combat. Ship acquisition cost is very prohibitive that we must do it right the first time in order not to waste the Taxpayer's money.

The absence of a Doctrine of a warship will make a Navy blind to what it really intends to possess to carryout her mission effectively, as well as to what concept it is really heading for, to obtain the ship we intend to acquire for our national security. *A WARSHIP IS A NATIONAL INVESTMENT.*

RECOMMENDATION

It is not enough that a Frigate used by one or two countries Navy will answer the proven design warship. This can mislead us. We must scrutinize diligently what we are looking for in a ship suited to our needs. The foregoing discussion enumerated in this article can be tools of ship selection management **that can lead us to a proven design warship.**

It is recommended that the existing AFP modernization law on proven design be reviewed for inclusion of the parameters of ship acquisition and technical selection. Implementing rules and parameters mitigate the levels of technical and financial risks of the project.

These are just some basic but important information that I can share on ship acquisition program of the government.



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Dear Editor,

I am submitting this unique idea that can be considered under the subject of "Concept of extraterritoriality."

---Atty. Fernando C. Campos

Concept of Extraterritoriality

Extraterritoriality is a concept similar to the 2 Separate Administrative Regions of China —the MAINLAND and HONGKONG. It is a unilateral declaration of CHINA as a sovereign State and was accepted by GREAT BRITAIN as a co-equal Sovereign State paving the way for acceptance by the whole UNITED NATIONS.

A unilateral declaration by the Philippines of extraterritoriality in favor of the BIMP/EAGA to put-up the first multi-ethnic, multi-racial and multi-religious Administrative region under the aegis of the UNITED NATIONS. After ratification by the Philippine Senate could become a valid treaty obligation and if ratified by the separate legislatures of the BIMP would then be a genuine separate Administrative Region administered not by any of the four countries but by the UN Specialized Body.

It will not be difficult to visualize the coordination of the new townsites because from its conception to its completion and actual occupancy the 4 participating countries would be involved in a cooperative manner. Being a corporation owned by the 4 participating countries, its administrative organs will be shared by the 4 stockholders but constituted as an Administrative Body under the UN.

In case of breakdown of law and order, unlike in ALEPO where the armies of the 5 warring factions receive orders from their political patrons, the Commanders of the 4 security forces would be under the UN, not under their respective governments, hence, carnage could be avoided.



Atty. FERNANDO C. CAMPOS is an advocate of the BIMP/EAGA integration into townsites development as nucleus of multi-racial, multi-ethnic & multi-religious integration to stop expansion of ISIS.



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Fisherfolk and Agri Officials Sail to Benham Rise, Stake PH Claim with Fishing Markers

by DA-BFAR and Fisherfolk Coordination Unit



On board the government's multi-mission research vessel, **M/V DA-BFAR**, fisherfolk and officials from the **Department of Agriculture and Bureau of Fisheries and Aquatic Resources (DA-BFAR)** sailed to Philippine Rise on 06-May-2017 and deployed fish aggregating devices, commonly called **payao**, to stir up more fishing in the region. A traditional Philippine payao is a simple bamboo raft with a superstructure at or just below the waterline, commonly constructed with palm fronds. Using hand-line fishing, fishermen take advantage of the pelagic fish' attraction to floating objects. Large tuna can be caught using a **payao** at depths of under 300 meters.

Agriculture Secretary **Emmanuel "Manny" Piñol** led the sailing mission of **M/V DA-BFAR** to stake the country's claim over the region and develop its potential as an alternative fishing ground for Filipino fishermen. The 13-million hectare **Philippine Rise**, formerly Benham Rise, is teeming with tuna and other high-value fish species.

"The President gave me his go-ahead to explore the **Philippine Rise**. It was his directive to assess the potential of the region and to find out what I can about its natural fisheries resources," said Secretary **Manny Piñol**. The agency is eyeing the development of **Philippine Rise** as a **Special Fisheries Management Area**, an exclusive food supply zone, to optimize its fisheries potential.

Furthermore, **BFAR** is planning to come up with a **Comprehensive Fisheries Management and Development Plan for Philippine Rise** to ensure protection and sustainable use of fisheries resources there. This is in parallel with the plan of the fisheries sector to seek alternative fishing grounds for Filipino fishers to ease up fishing pressure on the country's traditional fishing grounds.



Fisheries Support for the Fisherfolk

15 **payaos** were deployed in the vicinity of the 35-meter deep Benham Bank, which together with the whole **Philippine Rise** region was declared by the United Nations as within the **Philippine Extended Continental Shelf (ECS)** in 2012. Another 14 **payaos** will be distributed soon and dropped in locations set by fisherfolk recipients.

15 fisherfolk from **Central Luzon and Calabarzon** joined the sailing mission and helped in mapping the devices' coordinates. Aside from **payaos**, they were also given 15 thirty-meter **Fiberglass Boats** and other fishing paraphernalia.

"We had local fishermen show us where they wanted to place the **payaos**. We also gave them the necessary fishing gears, such as boats and handlines, so they could check on their **payaos** and profit from them," **BFAR** National Director **Eduardo Gongona** said, referring to the **BFAR's** regular livelihood assistance sorties and the **National Payao Program (NPP)**, which seek to provide marginalized fisherfolk with equipment to jumpstart their income.

Government to Protect Philippine Rise and Filipino Fishers

Director **Gongona** said the government through **BFAR** shall support Filipino fishermen setting out to **Philippine Rise** and ensure their protection against foreign vessels poaching on Philippine waters. The **DA-BFAR** recommends the installation of a floating structure on **Philippine Rise** to serve as a research station and docking station for Philippine vessels. The structure will make way for easy-access air transportation through a helipad and increase Philippine government visibility in the region. 📍



Giant and Reef Mobula Rays in the Philippines

by Vicky Viray Mendoza

There are two species under the *genus Manta*: ***Manta birostris*** and ***Manta alfredi***. Both manta ray species are found in the Philippines, and are closely related to sharks, skates, and other rays. Collectively, they are *Elasmobranch* fish because they have skeletons made of cartilage instead of bone. Although related to Sting-rays, the manta rays have no stingers on their long whip-like tail, do not attack, and are not dangerous to humans. The manta rays do not have a spiny tail as the Devil ray, a close relative from the *genus Mobula*. Manta rays are gentle giants. The mouths of manta rays are right at the front, while the other rays have its mouth on the underside of the head. Manta rays and Devil rays are the only ray species that have evolved from bottom feeders to filter feeders (Dean & Bizzarro, 2007).

Manta birostris was first described by J.J. Walbaum in 1792 and J.A. Donndorff in 1798; while ***Manta alfredi*** was first described by J.L.G. Krefft in 1868. Up until 2009, ***Manta alfredi*** was lumped with ***Manta birostris*** until differences in morphological features, habitat, and behaviors were pointed out. Both manta species belong to family *Mobulidae*.

The manta got its name from the Portuguese or Spanish word meaning “mantle,” and a type of blanket-shaped trap traditionally used to catch rays. The ***Manta alfredi*** was named after Queen Victoria’s son Prince Alfred, who survived an assassination attempt in Clontarf, Sydney in 1868.

Manta birostris is called the **Giant Manta Ray**, while the ***Manta alfredi*** is called the **Reef Manta Ray**. The **Reef Manta Ray** lives inshore,

near corals, rocky reefs and shallow waters along the coastline, while the **Giant Manta Ray** is oceanic, lives offshore, and highly migratory. Rare sightings of the **Giant Manta Ray** suggest it undergoes significant seasonal migrations. The **Giant Manta Ray** is elusive while the **Reef Manta Ray** is curious and friendly, will approach, and locally migratory in short distances. The **Giant Manta Ray** is similar in appearance to the **Reef Manta Ray**. However, there are distinguishing features. The first difference is in size, as the adult **Giant Manta Ray** is much bigger

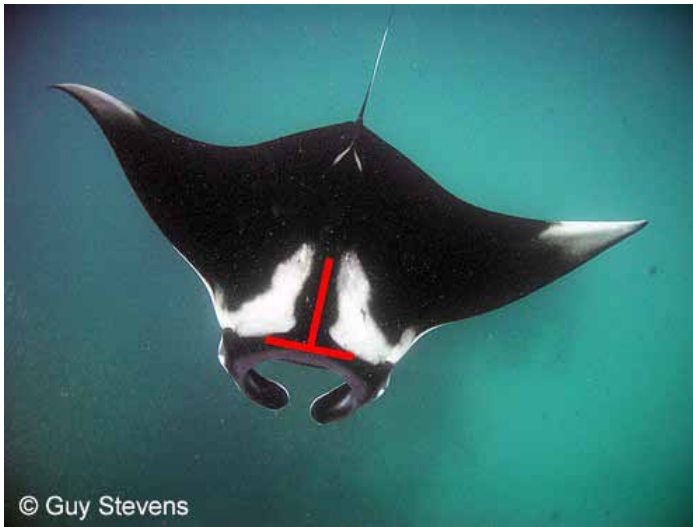


Reef Manta Ray (dorsal side)

© Guy Stevens

than the adult **Reef Manta Ray**. Color pattern is a more effective way to distinguish one from the other, as well as their spots and markings, which are also used to identify individual rays in the wild.

The **Reef Manta Ray** has a dark **dorsal** side with usually two lighter areas on top of the head, looking like a nuanced gradient of its dark dominating back coloration from whitish to greyish, and the



Giant Manta Ray (dorsal side)



Reef Manta Ray (ventral side)



Giant Manta Ray (ventral side)

longitudinal separation between these two lighter areas forms a "Y." The **Giant Manta Ray** has a much darker dorsal side, with two white areas sans a gradient effect. The line of separation between the two white areas forms a "T." (Manta Trust)

The **Reef Manta Ray** has a white **ventral** belly with spots between the gill slits and across the edge of its pectoral fins and abdomen. The **Giant Manta Ray** has a white ventral belly with spots in the lower abdomen and a wide gray margin along its pectoral fins. Its cephalic fins on both sides the mouth and gill slits are black, while those of the **Reef Manta Ray** are white. Cephalic fins help draw plankton to the mouth. The eyes are behind the cephalic fins. Behind each eye is a spiracle, an opening that draws in oxygenated water without having to use its gills.

The **Giant Manta Ray** can span 22 feet, wingtip to wingtip and weigh over 3,500 lbs., making them the largest ray of more than 500 species of rays and skates. The **Reef Manta Ray** is smaller, can span 18 feet, wingtip to wingtip, and can weigh up to about 3,000 lbs, making them the second largest ray among the rays and skates. **Giant Manta Rays** have a circum-tropical and semi-temperate distribution throughout the world's major oceans. However, actual populations are sparsely distributed and highly fragmented due to their specific resource and habitat needs. They are, thus, rarely seen compared with the **Reef Manta Ray**, despite their larger distribution across the globe.

The **Giant Manta Ray** is a seasonal visitor to both coastal and offshore sites, brought on by upwelling of nutrients. While they may seem solitary, they can aggregate in large schools of >30 individuals to feed, mate, or clean. The few sightings of the **Giant Manta Rays** are seasonal or sporadic, but in a few locations, their presence is a common occurrence. It is capable of deep dives and has been tracked down to depths exceeding 3,280 ft. (Marshall *et al*, 2011). The **Reef Manta Ray** can dive to depths exceeding 1,300 ft. (Braun *et al*, 2014).

The **Giant Manta Ray** occurs in tropical, sub-tropical and temperate waters of the Atlantic, Pacific and Indian Oceans, and is sighted in oceanic island groups, offshore pinnacles, and seamounts while visiting cleaning stations to have parasites removed, or to feed at the surface. The Reef Manta Ray has a widespread distribution in tropical and subtropical waters worldwide, and is sighted in their inshore coastal habitats. The **Reef Manta Ray** lives in an identical wide area with some short migrations in pursuit of zooplankton. They therefore exhibit a sedentary behavior with precise areas for cleaning and feeding in close proximity to coasts, reefs or islands (Marshall *et al*, 2015).

Lifestyle. Manta rays have a pelagic lifestyle, spending much of their time near the water's surface, swimming continuously through the water column instead of resting on the sea floor like other rays. They may take to the air. When **manta rays jump out of the water** in groups, it is a spectacle. They jump out of the water to play or dislodge parasites off their skin. They can sail several yards underwater to avoid predators at an escape speed of 15 mph.

Feeding. Manta rays are filter feeders that primarily eat microscopic plankton and krill. As a manta ray swims, it takes in seawater with the help of its cephalic fins on both sides of its mouth. The water then passes through the manta's comb-like gill rakers, tiny projections on the gills that filter food while water exits through the gills. A full-grown adult can consume about 60 lbs of food daily. As mantas have the largest brain to body weight ratio among shark or ray species, they remember the best feeding grounds (Ari & D'Agostino, 2016).

Reproduction. The mating season is triggered by a full moon and initiated by the pursuing male. The manta ray gives birth to a live pup that hatches and develops from an egg inside the mother. Thus, the

manta ray is ovoviviparous, meaning, the fertilized egg develops within the mother's oviduct and is enclosed in an egg case as the developing embryo feeds on the yolk. After the egg hatches, the pup remains in the oviduct and receives nourishment from a milky secretion (Marshall & Bennett, 2010). Since the pup does not have an umbilical cord to its mother, the pup obtains oxygen and nutrients through the uterine wall (Tomita et al, 2012). Manta rays only reproduce at 8 to 10 years of age. The gestation period takes about a year, and only one pup is born every 2-3 years. One female may give birth to only 10 pups in her lifetime, and this low reproductive rate is one reason why the manta ray population is Vulnerable. When fully developed, the pup is 4 ft 7" in width, and weighs 20 lbs. It is expelled from the mother's oviduct, usually near the coast, and remains in shallow-waters for a few years while it grows (Marshall & Bennett, 2010). Research indicates that manta rays can live to at least 50 years of age, if not over-fished.

Sightings in the Philippines. The rare **Giant Manta Rays** have been sighted living near the islands of **Pamilaan** and **Malapascua** in **Cebu**, and in the **Sulu Sea**. The **Reef Manta Rays** have been sighted living near the coastlines of **Bohol Sea**, and **Donsol** in **Sorsogon**; **El Nido Islands**, and **Tubbataha Reef Park** in **Palawan**. The **Bohol Sea** is an important habitat for large marine animals that benefit from the seasonal upwelling of cold, nutrient-rich water from the deep to the upper layers. Both manta species can be found at the **Manta Bowl** at **Ticao Pass, Masbate**. The **Manta Bowl Shoal** is an underwater atoll, which covers about an 8-hectare flat area. The shoal is in the middle of the ocean and has little protection from winds or waves. **Manta Bowl** is the **Manta Ray** capital of the Philippines, the habitat of the world's biggest ray. **Ticao Pass** has one of the world's highest concentration of plankton due to the strong currents from the San Bernardino Strait. These currents push large groups of plankton and other organisms to gather in the area, making this an ideal cleaning and feeding station for the manta ray.

Threats. Manta rays are killed or captured by harpoon, netting, trawling, gaff hooks, hand spears, gillnets, longlines, driftnets, and purse seines. They are easy to target because of their large size, slow swimming speed, aggregative behavior, predictable habitat use, and lack of human avoidance. **Over-fishing** is the main threat to manta rays around the world, whether the fishing is artisanal, targeted, or bycatch, since many manta ray fisheries are unregulated or underreported. Certain monitored subpopulations of **Giant Manta Rays** have been depleted as a result of sustained pressure from fishing. Of particular concern is the targeting of **Giant Manta Rays** at critical habitats or well-known aggregation sites where numerous manta rays can be targeted with relatively low catch-per-unit-effort (CPUE).

A study in **Pamilaan Island, Cebu** reported that up to 1,000 rays, particularly **Giant Manta Rays** and a few species of the *genus Mobula* (e.g., *Devil Ray*) are harvested annually in directed fisheries. Over 35 villages participated in this fishery. The season is from September until June the following year, and peaks in November and December. Although these targeted fisheries have been active for generations, some claiming since the 1800s and others since the mid 1950s, the fishermen noted that CPUE and overall number of rays have declined significantly in recent times. Japanese sports divers suggest that the **Giant Manta Rays** population at one site in the **Sulu Sea** fell by 50%-66% in 7 years from the end of the 1980s (M. Nishitani). The Fishermen reported a decrease in catch and landings since the record landings in the 1960s.

Manta rays are in high demand in international trade markets. Their cartilage is used as filler in shark fin soup, and their skin is used to produce shoes, wallets, and sandpaper. In many traditional Chinese communities, manta ray gill rakers are believed to treat a variety of ailments, including cancer, without any proven scientific basis (Manta Trust, 2016). Because of high medicinal demand, manta gill rakers can

sell for \$200 per pound. A single dead manta ray can fetch \$50. Other threats to manta rays include boat strikes, habitat loss, climate change, and pollution. Global populations have decreased by more than 30%, or 80% in some regions, over the last 75 years.

Conservation. The **International Union for Conservation of Nature (IUCN)** 2016 redlists both **Giant and Reef Manta Ray** species as **Vulnerable** because of their rapid decrease in population due to over-fishing, uncompensated by their late sexual maturity and low birth rate. The **Convention on the Conservation of Migratory Species of Wild Animals (CMS)** Appendices I and II lists the **Giant Manta Ray** as a species of international concern. The Philippines has taken steps to protect manta rays although these laws are not always enforced. The **Convention on International Trade in Endangered Species (CITES)** Annex II provides protection to both the **Giant and Reef Manta Rays** in the **Philippines**.

Dive tourism involving manta rays is a growing industry and has demonstrated that sustainable tourism significantly enhances their economic value in comparison to short-term returns from fishing. The estimated value of a single manta ray over its lifetime is \$1M because it provides repeated ecotourism opportunities. The estimated yearly value for the **gill raker trade** is \$11M compared to the yearly estimated value of **manta dive tourism**, which is \$27M. Despite its higher ecological and economic importance than trade, manta rays are still increasingly threatened by human activity.

The **Philippine Manta Ray Project** finds there is inadequate enforcement of the manta ray fishing ban, and that new target fisheries are on the rise to supply the gill raker trade. Not only does this trend have severe implications for the manta species and the country's ecosystem health, but it may also lead to economic hardship for coastal communities that rely on manta meat for income, **food security**, and manta tourism. Manta ray fishing was banned in the Philippines in 1998, but was lifted in 1999 due to pressure from fishermen. In a yearlong survey covering March 2002-2003, there were 156 **Giant Manta Rays** caught between November and January. Since then, the manta ray ban has been reinstated, and manta rays are now rare in the Philippines, especially in **Bohol Sea** where the fishery study was focused (Manta Trust). Planktonic productivity occurs from November to April in **Bohol Sea** (Cabrera et al, 2011; Gordon et al, 2011) and coincides with seasonal visits of large planktivorous *elasmobranchs* such as manta rays (Rayos et al, 2012).

Although manta rays have been traditionally fished for centuries for food, the increase in landings is suspected to supply the gill plate trade instead. Most of this catch is illegal, unregulated, and unreported. The **Philippines** has an excellent **Fisheries Code** (R.A.8550) but it struggles to implement the act particularly at the **Municipal Government level**, which has responsibility for waters within 15 km, where the majority of fishing takes place. According to catch data, most rays are being landed at **Municipal waters**. Thus, the **Philippine Manta Ray Project** recommends that since manta rays have such high vulnerability to fishing pressures, incidents of increased landings need to be reported, confirmed, and acted upon swiftly if the remaining populations of these rays are to survive within this region (Manta Trust).

In the 2013 **Redlist Assessment for Marine Mammals** published by **Marine Wildlife Watch of the Philippines (MWWP)** and **DENR-BFAR-DA**, it finds that when whale sharks and manta rays are beached, they suffer from asphyxiation as they can only respire in water. Exposure to the sun can dehydrate and overheat their body quickly, and their skin is susceptible to abrasions when out of the water. When a live manta ray is beached, it should be immediately placed back in the water to allow respiration to take place, and, the manta should be facing the sea since it cannot swim backwards. Manta rays are very delicate and can easily perish, thus time is of the essence during beaching incidents. ⚠️

Telemedicine on Vessels would save Lives, say 98% of Seafarers

by Martek Marine

Seafarers are the lifeblood of the shipping industry and are critical to its future sustainability. That said, are we doing enough to ensure the welfare of those at sea? Furthermore, could major improvements to crew welfare save the shipping industry millions of dollars per year?

Is crew welfare key to a safe voyage? A seafarer's state of well-being can make the difference between a safe transit and an incident with resulting major cost to a shipping company. It's not then surprising that shipowners are looking for innovative new ways to improve crew welfare and avoid unnecessary disruption and costs. Loneliness, depression, fatigue and stress all add to the problem and are a growing and huge scale problem at sea, due in part to the fast turnaround of ships which has significantly reduced crew's interest to go ashore.

Improved crew welfare inspires productivity & efficiency. Efforts are being made to improve crew welfare: it is becoming common for ships to have a crew member who is responsible for the welfare of those onboard, such as a 'welfare officer' and new initiatives and charters are starting to emerge aimed at improving the welfare of those at sea. Last year, the **Sustainable Shipping Initiative (SSI)** introduced a charter to encourage shipowners to take crew welfare beyond **Maritime Labour Convention (MLC)** requirements. Owners that meet the charter's criteria will be demonstrating that they recognize the value of their crew. SSI expects these owners will attract and retain the best talent, which will inspire more productivity and efficiencies within operations.

In terms of crew health, shipowners are obliged under **MLC 2006**, to ensure that they provide, 'access to prompt and adequate medical care whilst working on board.' Seafarers should also be provided, 'with medical care as comparable as possible to that which is generally available to workers ashore.' That said, the average merchant vessel is staffed by less than 25 people, meaning it's not mandatory to have a doctor onboard the vessel and this being the case, the vast majority of ships do not have access to a medical professional when they are offshore. Therefore, when a crewmember falls ill, a tough decision often has to be made by the crew.

Without a doctor and diagnostic equipment, judging the severity of a condition can be very difficult. Continuing a voyage when a crewmember falls ill could result in conditions worsening, yet diverting, or arranging a medical evacuation could lead to significant costs and delays. According to a study by the **International Maritime Health Association (IMHA)** on 23,299 commercial ships with 420,000 crewmembers, 1 in 5 ships are forced to divert due to crew illness each year and the average cost per ship diversion is \$180,000.

Many costly and disruptive diversions are unnecessary. Difficult to diagnose conditions such as gastroenteritis add to the problem. Despite being responsible for a huge number of diversions & medical evacuations, patients typically recover within a few days of going ashore, making the costly and disruptive diversions unnecessary. Another key and growing issue, is the challenge surrounding ongoing monitoring of patients in the case of chronic conditions, or mental health concerns, particularly important on longer voyages.

Telemedicine is the answer according to 98% of seafarers. In fact, results released in a recent seafarers' survey carried out by

maritime professionals' trade union **Nautilus International** and global maritime technology innovator **Martek Marine**, indicated that 98% of seafarers thought that a greater provision of **telemedicine** on vessels would not just improve crew welfare, but actually save lives at sea.

Telemedicine is the remote diagnosis and treatment of patients by means of telecommunications technology. On a vessel, monitoring devices are used with wireless sensors, such as a blood pressure monitor; pulse oximeter; IR forehead thermometer; ECG monitor and a glucometer. The sensors are attached to a crewmember to record their vital signs. The vital signs data is transmitted via wireless connection to an onshore doctor, and this data, combined with high-definition, one-to-one video service between the doctor and the patient, enables the clinician to make an accurate, informed diagnosis using real patient data, combined with the patient's medical history.



Martek Marine offers the first complete telemedicine solution available for a monthly fee. Setting the system apart from other telemedicine services, **iVital** is a complete solution: offering the necessary hardware, software and specialist clinical service, which provides access to a team of medical experts who specialize in the health of seafarers. Foolproof, the medically certified hardware and software can be used by anyone. Wireless sensors are attached to the patient and vital signs data is transmitted to the clinician onshore. The clinician then uses the data, combined with the patient's medical history and one-to-one video consultation with the patient, to make a quick and accurate diagnosis. **iVital** advances offshore medical care & ultimately save lives.

Further benefits offered by **iVital** include, improved crew retention, reduced lost time, and reduced unnecessary medical evacuations and diversions. Available with no capital investment, **iVital** is cost-effective and accessible, costing under \$10 per day for the complete solution. Maritime professionals' trade union **Nautilus International** and global maritime technology innovator **Martek Marine's** 2017 survey of seafarers, indicates that much more must be done to improve the accessibility and quality of healthcare services onboard seafaring vessels.

The **Maritime Labour Convention (MLC)** states that all ships carrying over 100 crewmembers and passengers for voyages of three days or more must have a medical doctor onboard. However, the

majority of merchant vessels are crewed by fewer than 25 people and therefore don't benefit from an onboard healthcare professional offshore. When asked if seafarers felt that they had the same quality of healthcare at sea as they did onshore, 82% of those surveyed stated "no" and the main reasons given related to the lack of access to a GP. Results of the survey also indicated how common medical evacuations and diversions are at sea: alarming considering the average cost of a ship diversion is \$180,000. "We divert, speed up, slow down, whatever is needed to help if there is a serious enough medical issue," said one seafarer, who explained, "it's not always clear how urgent a case is."

In fact, a staggering 68% of those questioned had been on a vessel that was forced to divert due to a medical emergency and 70% had been on a vessel where there had been a medical evacuation. Emergencies experienced at sea ranged from severed limbs and broken bones, to gunshot wounds, tropical diseases, allergic reactions and Sudden Cardiac Arrest. In the event on an injury or illness at sea, when asked what their main concern would be, nearly half of those questioned specified the lack of adequate healthcare provision offshore. In addition, 66% of people stated that they would be concerned about their own ability to handle a medical emergency.

In contrast, 69% of people surveyed said they would be confident making a decision on whether an injury, or illness was severe enough to warrant a diversion, or evacuation, if they had a trained medical consultant on the end of the phone. "There should be a means where increasing connectivity can be taken advantage of, like a video chat to enable trained health personnel to see the casualty, or patient and advise," said a participant. "An instantly advisable system via video link to a qualified medical practitioner would be beneficial," said another.

Many crew rely on a physical copy of the Ship Captain's Medical Guide for medical guidance when working on board a ship. When asked what

would make them feel safer at sea, 82% of those questioned specified the ability to transfer live vital signs to a UK based medical professional who can diagnose patients and offer advice. 98% of seafarers agreed that a greater provision of telemedicine on vessels would save lives. "In this day and age, it is crazy that I should be flicking through an outdated book to try and diagnose appendicitis, when there is technology available to let an expert diagnose it for me," said one seafarer.

Martek Marine offers the first marine approved, wireless telemedicine solution available for a monthly fee. **iVital** advances offshore medical care and saves lives. Available with no capital investment, **iVital** is cost-effective and accessible. The impact on safety of life at sea is huge, with benefits including; increased patient engagement and better patient care quality; quicker and more convenient clinical access; a reduction in lost time through illness and injury, an improved crew retention, and a greatly reduced, unnecessary patient evacuations.

"The survey results show that crew, often with little medical training, are often left with an impossible decision to make when someone falls ill offshore," says **Paul Luen, Martek Group CEO**. "They're forced to judge the severity of a condition, typically without any diagnostic equipment, leaving them with the choice of risking the wellbeing of the crew member, or substantial diversion costs. Telemedicine is the answer. **iVital** gives seafarers access to top level healthcare at a small cost, meaning it's an accessible way to safeguard the wellbeing of those onboard ships and dramatically reduce the amount of unnecessary diversions and medical evacuations."

"This is truly an informative survey and such information assists **Nautilus** in seeking an improvement to medical provision at sea. **Telemedicine** is essential for today's shipping industry. As well as establishing the need for appropriate treatment of seafarers and ensuring that they get it, the use of **telemedicine** may reduce the need for deviation," said **Allan Graveson, Nautilus Senior National Secretary**. ⚓



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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.

Testing Assessment Center of TESDA

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AMOSUP Seamen's Training Center



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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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