



MARITIME REVIEW

A PUBLICATION OF THE MARITIME LEAGUE

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Sept-Oct 2019

CHINA'S MARITIME CAMPAIGN IN THE SOUTH CHINA SEA

Also Inside:

- ▶ **The Navy - Coast Guard Quandary**
- ▶ **The Right of Innocent Passage**
- ▶ **MARINA Pushes Phasing-Out of Wooden-Hulled Ships**
- ▶ **The Port Management Office of AGUSAN (PMO-AGS)**

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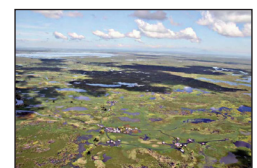
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About the Cover:

China's maritime campaign in the SCS is likened to a game of chess in a gray zone.



MARITIME EVENTS CALENDAR

SEPTEMBER '19

- 3-6 SPE OFFSHORE EUROPE (ABERDEEN EXHIBITION AND CONFERENCE CENTER, ABERDEEN, UK)
- 3-6 GREENTECH IN SHIPPING USA 2019 (BLUE LAGOON DRIVE, MIAMI, FL, USA)
- 10-11 OPERATING UNDER THE SULPHUR CAP CONFERENCE (SOFITEL LONDON ST JAMES, 6 WATERLOO PLACE, ST JAMES, LONDON, UK)
- 10-11 WOMEN IN SHIPPING SUMMIT (MARY WARD HOUSE CONFERENCE AND EXHIBITION CENTER, TAVISTOCK PI KINGS CROSS, LONDON, UK)
- 10-12 SHIPPING, MARINE SERVICES & OFFSHORE FORUM (ONE MOORGATE PLAZA, LONDON, UK)
- 10-12 48TH TURBOMACHINERY AND 35TH PUMP USERS SYMPOSIA (GEORGE R BROWN CONVENTION CENTER, HOUSTON, TX, USA)
- 11-13 SEATRADE EUROPE (HAMBURG MESSE, HAMBURG, DE)
- 14-19 MAST ASIA (MAKUHARI MESSE, TOKYO, JP)
- 16-20 OCEANOBS' 2019 (HAWAII CONVENTION CENTER, KALAKAUA AVE, HONOLULU, HAWAII, USA)
- 17-19 MARINE MILITARY EXPO (QUANTICO STATION, QUANTICO, USA)
- 17-19 GASTECH 2019 (JAKARTA INTERNATIONAL EXPO, JAKARTA, ID)
- 17-19 SHIPPING TRANSFORMATION ASIA 2019 (NOVOTEL CLARKE QUAY, SINGAPORE, SG)
- 17-20 NEVA 2019 (EXPOFORUM CONVENTION AND EXHIBITION CENTRE, SAINT PETERSBURG, RU)
- 18-21 MARINETEC INDEONESIA (JAKARTA INTERNATIONAL EXPO, JAKARTA, ID)
- 19-20 LNG NORTH AMERICA CONGRESS 2019 (HOUSTON, TX, USA)
- 23-25 BIMCO OFFSHORE AND HEAVYLIFT CHARTERING SEMINAR (ADMIRALTY CONFERENCE CENTER 18F TOWER 1, ADMIRALTY CENTER, HARCOURT RD, ADMIRALTY, HK)
- 23-25 SEATRADE OFFSHORE MARINE & WORKBOATS (ABU DHABI NATIONAL, ABU DHABI, UAE)
- 20 MARITIME FORUM #149 (NATIONAL DEFENSE COLLEGE OF THE PHILIPPINES (NDCP) NDCP HONOR HALL, CAMP AGUINALDO QUEZON CITY)**
- 25-26 GLOBAL SUSTAINABLE SHIPPING AND PORTS FORUM (KONGENS NYTORV 34, COPENHAGEN, DK)

OCTOBER '19

- 2-3 OILCOMM AND FLEETCOMM 2019 (HOUSTON MARIOTT WESTCHASE, HOUSTON, TX, USA)
- 7-8 DEFENCE SAFETY CONFERENCE 2019 (COPTHORNE TARA HOTEL, SCARSDALE PLACE, KENSINGTON, LONDON, UK)
- 7-9 OFFSHORE ENERGY EXHIBITION AND CONFERENCE 2019 (RAI AMSTERDAM EUROPAPLEIN 2-22, AMSTERDAM, NL)
- 8-9 4TH INTERNATIONAL GREEN AND SMART SHIPPING SUMMIT (MAINPORT BY INNTEL HOTEL, ROTTERDAM, NL)
- 5-9 INTERFERRY 2019 (INTERCONTINENTAL LONDON, LONDON, UK)
- 10-12 CHINA INTERNATIONAL LOGISTICS & TRANSPORTATION (SHENZHEN CONVENTION & EXHIBITION CENTER, SHENZHEN, CN)
- 11-12 GREEN APPLE SPILL RESPONSE EXERCISE & MITIGATION CONVERENCE (COURTYARD MARIOTT JERSEY CITY NEWPORT, 540 WASHINGTON BLVD, JERSEY CITY, NJ, USA)
- 17-18 3RD ANNUAL SEADATACLOUD (SHENZHEN CONVENTION & EXHIBITION CENTER, SHENZHEN, CN)
- 17-19 GLOBALHAB 2019 (VICTORIA CONFERENCE CENTER, VICTORIA, BC, CA)
- 18 MARITIME FORUM #150 (DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (DENR))**
- 21-22 EUROPEAN LNG INFRASTRUCTURE DEVELOPMENT SUMMIT (BARCELONA, SP)

- 21-23 NORTH AMERICAN GAS FORUM 2019 (THE WESTIN WASHINGTON DC CENTER, WASHINGTON DC, USA)
- 24-26 SHIPTEC CHINA (DALIAN WORLD EXPO CENTER, DALIAN, CN)
- 13-15 OIL AND GAS VIETNAM (PULLMAN VUNG TAU, VUNG TAU, VN)
- 28-31 OCEANS 2019 (WASHINGTON STATE CONVENTION CENTER, SEATTLE, WA, USA)

OCTOBER - NOVEMBER '19

- 29-2 SNAME MARITIME CONVENTION (GREATER TACOMA CONVENTION & TRADE CENTER, TACOMA, WA, USA)
- 5-8 EUROPORT 2019 (ROTTERDAM AHOY, ROTTERDAM, NL)

NOVEMBER '19

- 1-3 SHIPPING & LOGISTICS INDIA (CHENNAI TRADE CENTER, CHENNAI, IN)
- 5-6 IMPA SINGAPORE 2019 (SUNTEC SINGAPORE, RAFFLES BLVD, SUNTEC CITY, SG)
- 5-6 FUTURE FUELS FOR SHIPPING SEMINAR (INTERNATIONAL MARITIME ORGANIZATION BLDG, LAMBETH, LONDON, UK)
- 5-7 EAGC - EUROPEAN ANNUAL GAS CONFERENCE 2019 (2 RUE SCRIBE, PARIS, FR)
- 15 MARITIME FORUM #151 (DEPARTMENT OF TRANSPORTATION (DOTR))**
- 18-20 EUROPORT 2019 (ROTTERDAM AHOY, ROTTERDAM, NL)
- 12-14 HWY H2O CONFERENCE (HILTON TORONTO AIRPORT HOTEL & SUITES, MISSISSAUGA, CA)
- 13-15 OIL & GAS VIETNAM 2019 (PULLMAN VUNG TAU, VUNG TAU, VN)
- 19-21 LATIN AMERICAN CONGRESS OF PORTS (INTERCONTINENTAL MIAMI, MIAMI, FL, USA)
- 21-23 PACIFIC MARINE EXPO 2019 (CENTURYLINK FIELD, SEATTLE, WASHINGTON, USA)
- 26-27 TANKER SHIPPING & TRADE CONFERENCE (AMBA HOTEL MARBLE ARCH, BRYANSTON STREET, LONDON, UK)
- 28-29 LNG & LPG SHIPPING SHIP/SHORE INTERFACE CONFERENCE (LONDON, UK)
- 28-29 STRATEGIC CONGRESS ON OIL, LPG, LNG AND PETROLEUM SHIPPING, REFINING, AND TRADING (ST PETERSBURG, RU)

DECEMBER '19

- 3-5 MARITIME PORT SHIPPING EXPO (INTERNATIONAL CONVENTION CITY BASHUNDARA, DHAKA, BD)
- 3-6 THE CWC 20TH ANNUAL WRLD LNG SUMMIT AND AWARDS NIGHT (ROME CAVALIERI, ROME, IT)
- 3-6 MARINETEC CHINA 2019 (SHANGHAI NEW INTERNATIONAL EXPO CENTRE, SHANGHAI, CN)
- TBD MARITIME FORUM #152 (UNIVERSITY OF THE PHILIPPINES-INSTITUTE FOR MARITIME AFFAIRS AND LAW OF THE SEA (UP-IMLOS))**
- 20-22 ICSA INTERNATIONAL CONFERENCE (UNIVERSITY OF NOTTINGHAM NINGBO, NINGBO, CN)

JANUARY '20

- 10-12 NAFE WINTER CONFERENCE 2019 (LA JOLLA MARRIOTT, SAN DIEGO, CA, USA)
- TBD MARITIME FORUM #153 (DEPARTMENT OF FOREIGN AFFAIRS (DFA))**

CHINA'S MARITIME CAMPAIGN IN THE SOUTH CHINA SEA

by VAdm Emilio C Marayag Jr AFP (Ret)

The construction of military-grade bases in three artificial islands (**Subi, Fiery Cross and Mischief Reefs**), posting of troops with missile defense capability in four others (Cuarteron, Gaven, Hughes and Johnson South Reefs), conduct of regular naval and coast guard patrols, and use of paramilitary fishing units in the South China Sea are clear indications that China's maritime campaign has fully developed a new form of warfare to achieve its political objectives. Some observers argue that this type of engagement –**hybrid warfare**– emanated from **Mao Zedong's** revolutionary strategy of protracted war, but now applied in the maritime domain.

There is no single definition of **hybrid warfare**. Some broadly refer to it as a kind of warfare that is beneath the level of conventional warfare and above the limit of unconventional warfare. One security expert defines it as "the simultaneous and adaptive employment of a fused mix of conventional weapons, irregular tactics, terrorism and criminal behavior in the battlespace to obtain political objectives." **Hybrid warfare** commences long after the start, continues during, and ends before the conclusion of the political warfare. In some instances, conventional warfare is used in short duration so calibrated as to avoid a full blown conflict. China's employment of this kind of warfare, both on land and at sea, is evident in many cases.

After Mao's takeover of the mainland, and while aiding the North Koreans in early 1950s, the Chinese embarked on annexing Tibet to bolster its western border defense. China extensively used information campaigns before, during and after the assault of its 20,000 regulars resulting in the killing of 5,700 poorly trained Tibetan troops. China also infiltrated

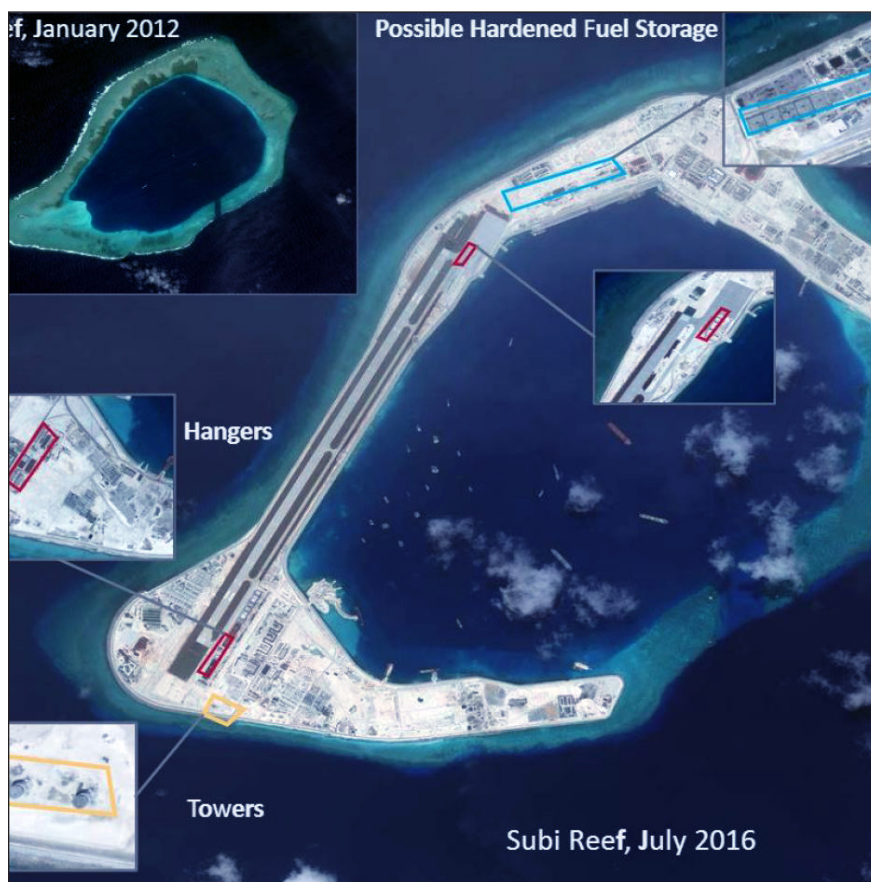
the major religious groups to sow dissension, thus, making the country too disorganized to resist. This eventually led to Tibet's occupation and transformation into a political system dictated by the invaders. The campaign demonstrated China's superior military power and willingness to fight while depriving the targeted nation the ability to fight back.

Following the conclusion of the Korean War and wanting to export its new revolutionary framework, China supported the insurgencies in Vietnam (against the French, and later the Americans) and Thailand (aiding the Communist Party of Thailand to prevent Thailand's

support to US forces based there during the Vietnam War). China's assistance came in the form of ideological training, financial support, propaganda and military hardware. The communist leaders in Laos, Cambodia, Malaysia and the Philippines also received some assistance to undermine their government and way of life, to further Mao's ideology.

When the US forces withdrew from Vietnam in 1975, the communists took control of Vietnam, Laos and Cambodia. They formed a regional

federation that had a Soviet inclination. Cambodia, however, resisted Vietnam's attempt to dominate the alliance because of some border disputes. Alarmed by the Soviet's growing influence in its two southern neighbors, China saw this crack between Vietnam and Cambodia and exploited the situation. China engaged Vietnam militarily in the late 1970s in land and at sea, and supported Cambodia in fomenting insurgency



Satellite images show Subi Reef in South China Sea before Chinese installations in 2012 and after in 2016. Photo: Google Maps/Ross Babbage.

within Vietnam's territory. In 1991, Vietnam's counterinsurgency war against Cambodia ended in success, and thereafter, both countries normalized their diplomatic ties.

One recent case of China's employment of **hybrid warfare** is in Bhutan in 2017. Both claimed by Bhutan and China, the Doklam Plateau is included in Bhutan's map. The small territory also lies along India's Himalayas border and is considered a strategic chokepoint. The Chinese used legal rhetoric to make it appear that Doklam Plateau is within Chinese territory. They eventually crossed the border and destroyed the Bhutan army bunkers there, and started constructing roads escorted by regular PLA troops. This prompted India to deploy army units to block the road construction and crossed the Chinese border. This led to a two-month standoff. India's entry to the scene was in its capacity as unofficial security ally of Bhutan. After a negotiation, both India and China later withdrew their troops in the area. This case illustrated China's testing the security relations between India and Bhutan using methods short of a shooting war.

China's maritime application of **hybrid warfare** in Senkaku Islands is worth mentioning to compare its use in South China Sea. With conflicting arguments on the ownership of the islands, Taiwanese and Chinese fishing vessels have entered the EEZ waters since 2006 and some even have had collisions with Japanese Coast Guard vessels. A few years later, some Taiwanese and Hongkong activists, on separate occasions, escorted by Chinese Coast Guard approached within territorial seas of the main island to assert sovereignty. In response, Japanese activists also sailed to the islands without government permission and succeeded in planting a Japanese flag in one of the islands.

In 2012, there were numerous maritime and aerial incursions. Both sporadic and frequent incursions came about only in early 1970s when scientific surveys revealed the existence of energy resources in the area. To escalate the situation, China implemented in 2013 an Air Defense Identification Zone around the islands. Apart from mobilizing its paramilitary, civilian, military and infrastructure, China has sustained its information campaign in print, broadcast media, and in cyberspace to create perceptions favorable to its political goal. Japan in turn strengthened its relations with the US that declared the Senkakus under the coverage of the existing US-Japan defense treaty.

The South China Sea is where China completely achieved the aim of **hybrid warfare**. Before 2013, China's seven detachments in various features in the Spratlys were no different from other claimants' troop installations. It upgraded 3 detachments into modern, military-grade bases and strengthened the others to take effective control of the internal portions of the sea.

To placate the surrounding and claimant nations, China established a maritime rescue center in Fiery Cross Reef and permanently stationed search and rescue vessels in Subi Reef. Its Mischief Reef airfield can accommodate jet fighters, light bombers and transports. The development of these military installations came about without any physical resistance from the claimant states. Those attempting to improve their detachments faced China's formidable paramilitary fishing fleet with its coast guard and naval units nearby to render support upon request.

For example, when the Philippines continued the repair of its airstrip in Pagasa Island in April 2019, some 600 Chinese fishing boats encircled the island to prevent the delivery

of construction materials and supplies. The Chinese also prevented Philippine supply ships to re-provision Filipino soldiers stationed in Ayungin Shoal three years earlier. In 2013, the Chinese also established full control of the Scarborough Shoal, a rich fishing ground of the Philippines located north of the Spratlys and west of Luzon Island, and well within the Philippine EEZ.

By all indications the Chinese decided to control the South China Sea when their energy and food resources became insufficient to sustain their economic objectives including the realization of their Belt and Road Initiative. This creeping invasion happened while they engaged, politically and economically, the littoral states whose leaders fail to foresee the implications of China's seemingly benign intentions.

The Chinese actions in the above conflict situations reflect all or some of Mao's strategic principles in pursuing a protracted war. **Ross Babbage** identified these principles as: establishing clear goals, making ambit claims, designing a compelling narrative, asserting inevitable victory, correlating contending forces, generating a "sea" of supporters, engaging in intense political warfare, fostering international friendship, seizing initiative, exploiting political weaknesses, tightening party discipline, dominating the media, avoiding frontal operations, striking empty spaces, observing strategic patience, and employing the 3 primary phases of protracted war (strategic defensive, strategic stalemate, and strategic offensive). Some of these principles are variations of **Mahan's and Corbett's** maritime strategies. Interestingly, it is only in the South China Sea campaign that the Chinese applied all these principles in their **hybrid warfare** operations.

While it appears that Chinese control over the South China Sea is "rock solid" to the extent that it can continuously disregard an international arbitral court ruling in 2016, some strategists view that China's sea control is only limited to peacetime. It could use its military might to disrupt the flow of trade estimated at 3 trillion US dollars annually. But it would be temporary. China could lose trading partners and may not be able to effectively parry the collective action of the affected nations. The multilateral naval exercises by some littoral states, the freedom of navigation operations including aerial surveillance patrols of the US Navy, and the plan of other advanced navies to show their flags in the South China Sea appear to irritate China.

From military standpoint, under conventional warfare scenario, the geographical distance of China's artificial island installations from their major supply base in Hainan, 500 miles away, presents both logistical and operational challenges. With some reports that China cannot station its advanced tactical fighters in Mischief Reef due to maintenance and operational problems, its air superiority would be unsustainable. Static targets such as those island bases are easy to neutralize by missile attacks or special warfare operations. Likewise, the surrounding chokepoints located in the littoral states that are beyond China's influence could greatly reduce China's ability to maneuver in certain sea areas.

China's **hybrid warfare** operations in South China Sea have attracted the attention of the world community. How the United Nations could compel the member states to abide by the rule of law and to behave within the well-established norms of conduct would be a great challenge. Reducing if not removing the tension in that vital waterway would certainly benefit all. 📍

THE NAVY-COAST GUARD QUANDARY

by Commo Carlos L Agustin AFP (Ret)



Reviewing some of my past email, I came across a June 23, 2011 query from a Philippine Marine reserve officer, **Frank Suha**, who has been living in the United States for many years:

*There is recent news that **PCG** is planning to buy brand-new high endurance cutters/vessels - this will be a big help in the West Philippine Sea issue. It has already ordered 6 German helicopters. In relation to this, how is the relationship between the **PN** and **PCG** today? Is there rivalry between the two to the point of undermining government objectives? Or is it a healthy friendly rivalry? Or there is no rivalry- just cooperation and camaraderie?*

*Does the 4 star rank of the **PCG** commander have any effect on **PCG**'s relationship with **PN**'s 3 star rank? Or it has no effect?*

My reply was:

Ofcourse not. All (AFP) service commanders will, sooner or later be O-10 (4-star general/ flag officer) but that is not a priority for the

moment, given our many problems.

*Use of **Coast Guards** in contested areas has the advantage of being considered police action – not hostile to another country's military force.*

*The **Navy** can show the flag in less contested areas not too far away.*

*Let us build a strong **Navy** (and **Coast Guard**). Not the ningas cogon variety, but in a determined way, using our ship-building capability.*

Revisiting this, I realized that I did not really answer, or perhaps tended to avoid, the question of rivalry, which somehow came up. In my interview by Rappler Editor-at-large **Marites Vitug** on Monday, July 15, 2019, to discuss the government's next actions on the **Recto Bank** incident and the overall situation in the **West Philippine Sea**, the question of rivalry versus cooperation came about many times reflecting the perception of many outside the military organizations..

My reply was, and will always be that there is really no rivalry and while in the minds of a few **Navy** officers, there is still a question on

2 Philippine Navy Vessels, BRP Davao del Sur and BRP Andres Bonifacio joining the RIMPAC 2018 in Hawaii. Photo Credit: Naval PIO

the rationale for separating the **Coast Guard**, in essence the Navy leadership and majority of the officer corps of the **Navy** have accepted the reality of the existence of the PCG as a separate and distinct maritime agency. The succession of **Navy** Chiefs from **VADM Mariano J Dumancas** on supported it, and it is, I believe fait accompli. Except perhaps for the very few who miss the **Coast Guard** as a part of the **Navy** organization, which expands the navy mission to include that of a non-combat organization intended not for war fighting but maritime security, safety and environmental protection.

Why can't the **Navy** do both? The fact is it cannot, as its intrusion into another country's territory or enforcement action against a rival country in international waters can be construed as aggression, whereas for the **Coast Guard** it is law enforcement in accordance with international law and an IMO mandate as the authority of the port state.

This issue on encroachment is why there was such an outcry from DFA Sec **Teodoro Locsin**, Defense Sec Sec **Delfin Lorenzana**, Supreme Court Senior Associate Justice **Antonio Carpio**, and, convinced to say something after years of trying to appease China, President Rodrigo Roa Duterte. who, however, again visited Beijing early September to avoid "escalating the moment" (His report to the nation was aired that Friday after his arrival: <https://www.youtube.com/watch?v=cig01LMt2k>).

Views expressed by all sectors show some misunderstanding of the issue. Most harped on encroachment into Philippine territorial waters, in which innocent passage is firmly established under international law. But I submit that yes, while they can do that, it is a matter of "tit for tat" as China likewise requires other countries to seek permission to enter their territory.

What is not highlighted in many expert opinions, however, is that the PLA Navy intrusions included passage through INTERNAL waters (e.g., the Sibutu Strait case), in which clearly, the coastal state has absolute jurisdiction.

As an optimist, I still believe that we can resolve this via continuous dialogue with China, as I have expressed many times that practically the whole world supports the arbitral ruling, including Russia, the EU, Japan, divided ASEAN and the United States, but who for the moment mostly do lip service to avoid war.

Finally, on the **Navy-Coast Guard Quandary**, I have seen the near-realization of the answer in my mind since I wrote the article, "**Philippine Coast Guard: Quo Vadis?**" in the early '60s. It can be summed up in the rationale we all had in mind, including the PCG Family and that of our former President who made it happen.

From the recollections of former **Coast Guard Commandant RAdm William Melad PCG** as cited in <https://news.mb.com.ph/2017/12/16/separation-of-the-pcg-from-the-navy/>:

Enhancing our maritime sector

Rear Admiral Melad recalls that turnover event in April 1998 "clinched the deal" for the PCG. We would never look back again.

*We owe it primarily to an understanding, progressive, maritime oriented and decisive Commander-in-Chief who put this project in his development agenda, and the statesmanship and professionalism of the **PN Flag Officer-in-Command, Vice***



Admiral Dumancas.

*As the experience of the **Bajo de Masinloc (Scarborough Shoal)** standoff in 2012 showed, **FVR's** decision to pursue the existence of a separate "white ship" agency proved to be well-conceived and timely in the light of the critical developments in the West Philippine Sea and current trends in maritime safety administration.*

*On the third week of November 2017, the **PCG** hosted and chaired the **ASEAN** chiefs of coast guards forum at Misibis, Albay. Clearly, the **ASEAN** and regional players have seen it necessary to establish a common link in accomplishing law enforcement, search-and-rescue, marine environmental protection as well as patrolling each country's EEZ. The **Coast Guard** organization has become a common caring, sharing and daring institution among countries in East Asia.*

*Japan has renamed its Maritime Safety Agency (**JMSA**) as the Japan Coast Guard (**JCG**), the Vietnam Coast Guard (**VCG**) has metamorphosed similarly from a maritime police in 2006, and Indonesia has reorganized its Directorate General for Sea Communication (**DGSC**) and created its Indonesian sea and coast guard, albeit contending with "Turf War Issues." Malaysia's Maritime Enforcement Agency (**MMEA**) is being slowly transformed to Malaysian coast guard. The **PCG**, looked upon as one of the more mature **coast guards** that had carried that name as a government bureau since 1901, has been cited as a good example among Asian Countries.*

Coast guard organizations around the world

*These coast guard organizations belong to various groupings in addition to the **ASEAN** chiefs of coast guards forum. They bond together during meetings of the **International Maritime Organization (IMO)** in London, as well as during regional sectors organized under the many maritime conventions of **IMO** – regional meetings and exercises under the Search and Rescue (**MSAR**) convention, port state control, prevention of Marine Pollution (**MARPOL**), and the 20-nation regional cooperation agreement on combating piracy and armed robbery against ships in Asia (**RECAAP**).*

*"It is certain the **Coast Guard** organization is here to stay. The **PCG** will forever be grateful to **FVR**," concludes **Rear Admiral Melad**. ⚓*



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TWO RARE BOAT BURIALS FROM THE VIKING AGE DISCOVERED IN SWEDEN

by Arkeologerna

A sensational find of two boat burials from the Viking Age have been discovered in Uppsala. One of the two graves was intact with remains of a man, a horse and a dog. "This is a unique excavation, the last excavation of this grave type in Old Uppsala was almost 50 years ago," says archaeologist Anton Seiler.



The remains of a man discovered in the boat.

The two boat burials were found during an excavation at the vicarage in **Old Uppsala** (Gamla Uppsala) an area outside the town of Uppsala last autumn. A cellar and a well dating to the Middle Ages were excavated, and one of the boats was observed beneath the more modern structures. The two boat burials were excavated during the last month, and the results are sensational.



Osteologist Ola Magnell and Archaeologist Anton Seiler excavating boat grave.

In Sweden, only around 10 boat burial sites of this kind is known previously, mainly in the provinces of Uppland and Västmanland in mid Sweden. "It is a small group of people who were buried this way. You can suspect that they were distinguished people in the society of the time since burial ships in general are very rare," says Anton Seiler, who works at The Archaeologists, part of National Historical Museums in Sweden.



Part of a shield and an ornate comb found close to the dead man.

One of the two newly discovered graves was intact while the other was damaged, probably when the much later cellar, dating from the 16th century, was built. Remains of a man were found in the stern of the intact boat burial. A horse and a dog accompanied him in death and these were found in the bow of the boat. Archeologists also uncovered personal items including a sword, spear, shield, and an ornate comb.

Wood and clinch-nails of iron that were used in the construction of the boats were also found. The fact that it's an intact grave undisturbed by plundering, makes this a particularly interesting opportunity to study these kind of rare burial traditions with modern scientific analysis methods and documentation techniques. This is the first time in Sweden these kinds of methods are used in relation to this grave type.

"It is extremely exciting for us since boat burials are so rarely excavated. We can now use modern science and methods that will generate new results, hypotheses and answers. We will also put the boat burials in relation to the very special area that is Old Uppsala and the excavations done here before," says **Anton Seiler**.

Selected parts of the find will go on display at **Gamla Uppsala Museum** and **Stockholm's Swedish History Museum**.



All photos are courtesy of The Archeologist.

INDUCTION OF NEW MARITIME LEAGUE MEMBERS AT SMX PHILMARINE 2109 CONFERENCE



From left to right : Alejandro Cruz, Gil Loquiliano PA (RET), Col Lindsey Rex Sagge PN (M), VADM Alexander P Pama (RET), Engr Thaddeus T Jovellanos, Engr Deo Jose G Villanueva, Capt Rey Valeros Jr, Edgar Tan, Engr Ramon Hernandez, Engr Felicisimo Serato Jr., Capt Lino Paderanga. Officially inducted by USEC Eduardo Gongona (far left) during the Annual General Meeting of The Maritime League held at SMX Convention Center Manila on June 20, 2019.



Members and Trustees of the Maritime League (top) together with the newly inducted members (bottom).
From left to right (Top) : Commo Mariano Sontillanosa AFP (Ret), VAdm Edmund Tan PCG (Ret), VAdm Emilio Marayag AFP (Ret), Vicky Viray Mendoza, LTJG Christian Chua PN (Res), Commo Carlos Agustin AFP (Ret), John Paul Agustin, Dr Cora Claudio, Commo Eduardo Gongona PCG (Ret), VAdm Eduardo Ma Santos PN (Ret), Delfin Wenceslao, Commo Gilberto Rueras PCG (Ret), Joshua Rafael Tolin, Former Secretary Joseph Emilio Abaya, and RAdm Margarito Sanchez AFP (Ret).

DRAFT OF NEW LEGALLY BINDING UN LAW OF THE SEA REGULATIONS RELEASED

by World Ocean Council



The First Draft of the **UN Law of the Sea “BBNJ” Agreement on Biodiversity in Areas Beyond National Jurisdiction** has been released for review 28-June-2019. The initial version of the new legally binding instrument on the conservation and sustainable use of marine life in areas **beyond national jurisdiction (BBNJ)** is available from U.N. at: https://www.un.org/bbnj/sites/www.un.org.bbnj/files/draft_text_a_conf_232.2019.6_advanced_unedited_version_corr.pdf.

The **World Ocean Council (WOC)** has been participating in the BBNJ process since it began to ensure that the ocean business community is present and engaged in this effort to develop the most important new legal regime for the ocean since the establishment of the **UN Law of the Sea**.

The **WOC** will participate in the third round of **BBNJ** negotiations at the U.N. Headquarters in New York in August 2019. The **WOC** is an accredited observer to the **BBNJ** negotiations and has been the only ocean industry organization consistently and actively involved in the **BBNJ** process over the past decade. **The legally binding BBNJ will create new international high seas regulation on:**

- ♦ **Environmental impact assessments (EIAs);**
- ♦ **Area-based management tools including marine protected areas (MPAs);**
- ♦ **Capacity-building and transfer of marine technology; and**
- ♦ **Marine genetic resources (MGRs) including benefit sharing.**

The **WOC** is working to develop the “**BBNJ Business Coalition**” as a means for coordinated industry involvement in the **BBNJ** process. This will advance interaction both: a) among the sectors of the diverse ocean business community; and b) between the private sector and other stakeholders.

The **BBNJ Business Coalition** will seek to develop coordinated industry input to ensure that the **BBNJ** will be practical, implementable and engender constructive ocean business community engagement in the conservation and sustainable use of marine life in international waters.

The **Coalition** participants (as well as **WOC** Members) will receive expert review and analysis of the **BBNJ** process, covering the negotiation progress and dynamics, priority **BBNJ** issues, concerns and input of governments and other stakeholders, and the evolving content of the draft new legally binding agreement. There is still time for ocean industries to engage and have a voice in this critical ocean governance process that will affect business access and operations in the high seas for the foreseeable future by participating in the **WOC BBNJ Business Coalition**.

Industry involvement is critical and can help ensure that policies and regulations are developed with full and balanced information, is based on good science and risk assessment, are practical and implementable and engender the involvement and support of the ocean business community.

In preparation for the start of **BBNJ** Negotiations, **WOC** released in 2018, “[Ocean Governance and the Private Sector](#)” – a review of major international ocean policy organizations and processes, past and ongoing efforts for engaging the business community and priorities for the future, especially for **WOC** in its role as the global, multi-industry organization on ocean sustainable development.



Source: IMO, hellenicshippingnews.com

MAPPING THE IMPACT OF ILLICIT TRADE ON THE SUSTAINABLE DEVELOPMENT GOALS: AN EXECUTIVE SUMMARY

by Transnational Allegiance to Combat Illicit Trade (TRACIT.org)

Illicit trade and the UN Sustainable Development Goals (SDGs). From smuggling, counterfeiting and tax evasion, to the illegal sale or possession of goods, services, humans and wildlife, **illicit trade** is compromising the attainment of the **UN SDGs** in significant ways, crowding out legitimate economic activity, depriving governments of revenues for investment in vital public services, dislocating millions of legitimate jobs, and causing irreversible damage to ecosystems and human lives.

Business is a partner for achieving the SDGs. As illicit trade weakens the viability and sustainability of industries, it simultaneously dilutes private sector contributions to achieving the **SDGs**. For example, **illicit trade** is a form of unfair competition that undermines private sector contributions to economic growth and employment. It chokes off market growth, sabotages global supply chains, squanders natural resources and endangers market security. Fake products and inferior materials in supply chains harm consumers and tarnish consumer perception of a **corporation's social responsibility (CSR)** performance. In some cases, it poses significant threats to the safety and security of personnel and facilities, all adding to the increasing costs of doing business. Where proliferating **illicit trade** creates socio-economic instability, it dampens private sector investment, holds back **research and development (R&D)** and discourages technology transfer.

For these reasons, the private sector has a vital interest in defending against illicit trade, helping itself across industry sectors and playing an active role in promoting the SDGs.

The **Transnational Alliance to Combat Illicit Trade (TRACIT)** provides a platform for business and governments to collaborate holistically to mitigate the encumbrance of **illicit trade** on the SDGs. Mapping the impacts of **illicit trade** on the **UN Sustainable Development Goals** is part of **TRACIT's** contribution to the partnership approach embodied in **SDG 17** and a means by which business, the public sector and civil society—working in partnership—can more effectively achieve the **SDGs**.

Mapping the impacts of illicit trade against the UN SDGs in order to help governments and business better understand how their efforts to achieve sustainable development must account for the negative forces of **illicit trade**, **TRACIT** has mapped the **17 UN SDGs** against the following sectors: agri-foods, alcohol, fisheries, forestry, petroleum, pharmaceuticals, precious metals and gemstones, pesticides, tobacco, wildlife and all forms of counterfeiting and piracy. These sectors were chosen because they participate significantly in international trade and are particularly vulnerable to **illicit trade**. Trafficking in persons is also examined as a particularly abhorrent phenomenon affecting supply chains and basic human rights as well as contributing to **illicit trade** practices.

Key findings from the report The socio-economic impacts of illicit present significant deterrence to all 17 of the SDGs – holding back progress, increasing costs, and pushing achievement of the goals further away.

There are notable “macro” impacts where **illicit trade** cuts deeply across many of the **SDGs**, undermining achievement of the economic goals for poverty reduction, decent jobs, economic growth (SDGs 1, 2, 3, 4, 8), and robbing governments of taxable income that can be invested in public services (SDGs 9, 17). When it generates revenue for organized criminal and terrorist groups, **illicit trade** undermines goals for peace and stability (SDG 16). Most forms of **illicit trade** plunder natural resources (SDGs 6, 14, 15), abuse supply chains, and ultimately expose consumers to fake and potentially harmful products (SDG 12).

While findings show that **illicit trade** poses a threat to all **17 SDGs**, nowhere is the nexus as evident than in SDG 16 (Peace, Justice and Strong Institutions), and **SDG 8** (Decent Work and Economic Growth).

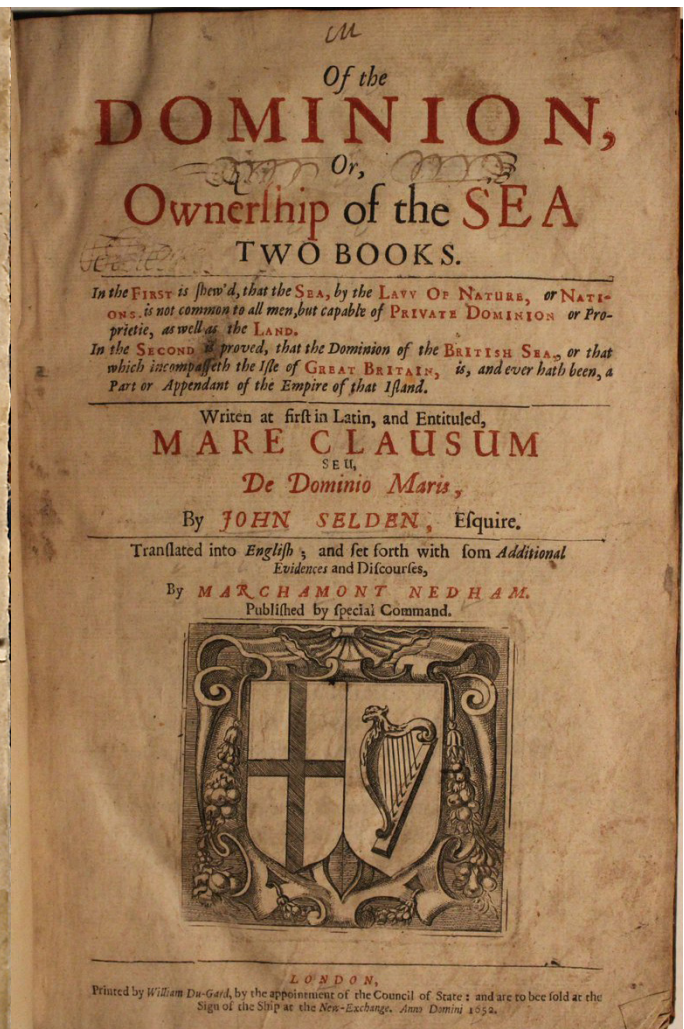
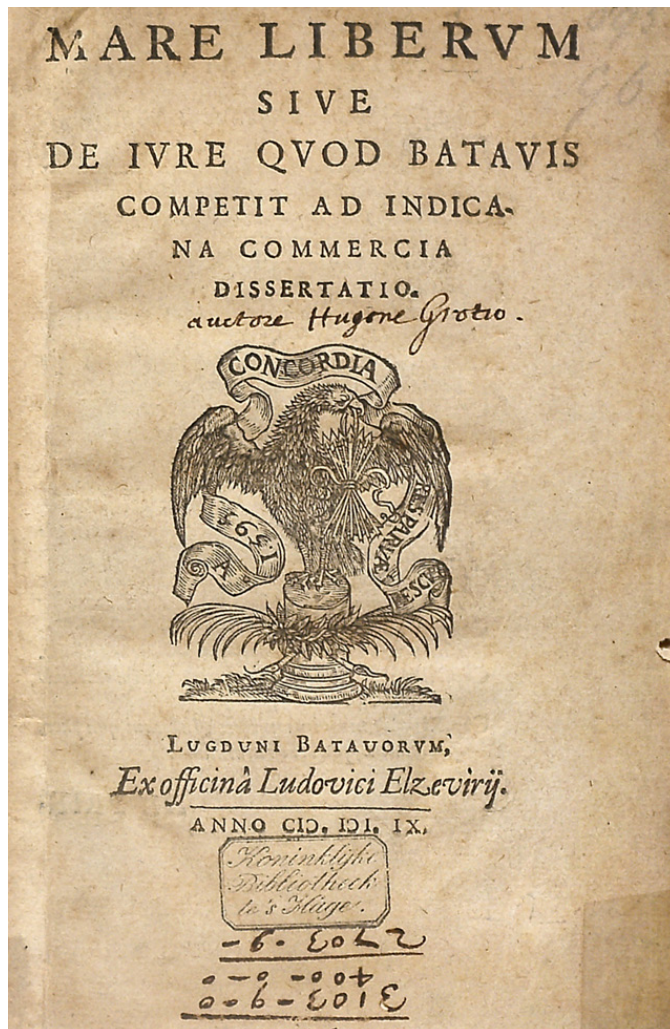
Illicit trade – in all its forms – stands in direct juxtaposition to **SDG 16**, by feeding violence and breeding corruption, undermining trust in institutions and the rule of law, and generating enormous illicit financial flows. Moreover, the links between **illicit trade** and organized crime are well established, from human trafficking networks and tobacco smuggling, to fuel theft by drug cartels and the involvement of the mafia and organized criminal groups in the trade of counterfeit products. Perhaps most frightening are links to terrorist financing that heighten threats to national and global security.

All types of **illicit trade** threaten inclusive economic growth and significantly hinder achievement of **SDG 8**. Lost taxes rob governments of revenues intended for schools, infrastructure and other public services. Illegal and unfair competition reduces sales and dampens the ability of companies to create lasting and dignified job opportunities. Taken together, economic leakages across the sectors susceptible to **illicit trade** create an annual drain on the economy of US\$2.2 trillion and present a triple threat to financing the necessary “billions to trillions” dollar gap needed to reach the **SDGs**.



Links to documents:

- ♦ *Executive Summary:* http://www.tracit.org/uploads/1/0/2/2/102238034/tracit_sdg_summary_16pg_highres.pdf
- ♦ *Full report:* http://www.tracit.org/uploads/1/0/2/2/102238034/tracit_sdg_july2019_highres.pdf



So Gratian out of Augustin faith, 'It is to bee observed how the war of the Israelites became juft against the Amorites: For they were denied an inoffensive passage, which ought in all equitie to lie open by the Law of human Societie.' – Selden, *Mare Clausum*

THE RIGHT OF INNOCENT PASSAGE

by Atty Julius A. Yano, JD, LL.M

The right of innocent passage refers to the right of foreign vessels to freely navigate in the territorial sea of another State without conducting activities that prejudice said State's interests.^{1,2} It is akin to an easement or servitude whereby one has a right in relation to another's property. Innocent passage through the territorial sea of a State over which it has sovereignty is not to be deemed a violation of the dominion or sovereignty of said State over said maritime space; the recognition of such right in favour of foreign vessels is made in the interest of navigation.

The 'Battle of the Books' – *Mare Liberum* and *Mare Clausum* and the right of passage

Certainly, if anyone is to talk about the law of the sea, a reference to the great 'Battle of the Books'³ is indispensable. As a consequence of the division of the world between Spain and Portugal by Pope Alexander VI, the Dutch East India Company requested the Dutch

scholar and lawyer **Hugo Grotius** to publish in 1609 (or 1608) *Mare Liberum* (*Mare Liberum sive de iure quod Batauis competit ad Indicana commercia* or *Freedom of the Seas or the Right which belongs to the Dutch to take part in the East Indian trade*.) Such treatise was to 'refute the unjustified claims of Spain and Portugal to the high seas and to exclude foreigners therefrom.'⁴ Thus, in opposition to claims of ownership over the seas by Spain, Portugal and even England, the Hollander Grotius argued that the seas – their vastness rendered them indivisible and the resources of which were inexhaustible – were free for all and could not be subject to the control of any ruler.

This concept of free seas did not pass unopposed – other thinkers including the English **John Selden** espoused the idea that 'the sea, by the law of nature or nations, is not common to all men, but capable of private dominion or property as well as the land; that the King of Great Britain is lord of the sea flowing about, as an inseparable and perpetual appendant of the British Empire.'⁵ In response to Grotius' *Mare Liberum*, Selden published *Mare Clausum* (*Mare clausum seu de*

dominio maris or *Of the dominion or ownership of the sea*).

In Chapter II of *Mare Clausum*, Selden took note of the concern over the impairment of the law of commerce and travel (law of nature) on the freedom of commerce, passage and travel, if ownership of the seas was permitted. Thus, in Chapter XX entitled *An Answer to the objection, concerning Freedom of Passage to Merchants, Strangers and Sea-men*, he explained that 'the offices of humanity require that entertainment be given to strangers, and that inoffensive passage be not denied them'. He continued to explain that in allowing such passage, the dominion of the thing is unaffected – 'But what is this to the dominion of that thing, through which both merchants and strangers are to pass? Such a freedom of passage would no more derogate from it. [...]'

As early as the 17th century, and even to an advocate of ownership of the sea, the idea of passage through such owned seas had been recognised in the interest of commerce. The following century, in his treatise on international law, the *Law of Nations*, **Monsieur Emerich de Vattel** would acknowledge this concept of free passage through the coastal waters pertaining to a nation thus:

These parts of the sea, thus subject to a nation, are comprehended in her territory; nor must any one navigate them without her consent. But, vessels that are not liable to suspicion, she cannot, without a breach of duty, refuse permission to approach for harmless purposes, since it is a duty incumbent on every proprietor to allow to strangers a free passage, even by land, when it may be done without damage or danger.

Right of innocent passage in the territorial sea under the modern law of the sea

In the codification attempts of international law, the centuries-old idea of innocent passage through the territorial sea would be accepted as a limitation to the sovereignty of the coastal State over said waters. At the 1930 Hague Conference for the Codification of International Law, together with the agreement on the sovereignty of the coastal State over its territorial sea, 'the right of innocent passage of foreign ships through [said sea] was generally recognised because of the importance of the freedom of navigation.'⁶ This concept would be codified in the **1958 Geneva Convention on the Territorial Sea and Contiguous Zone**, and later in the **1982 United Nations Convention on the Law of the Sea (LOSC)** thus:

*Subject to this Convention, ships of all States, whether coastal or land-locked, enjoy the right of innocent passage through the territorial sea.'*⁷

Indeed, the right of innocent passage is a firmly established rule of international law.

Warships and the Right of Innocent Passage

Whilst there is no express provision in this regard in the **LOSC**, it is understood that foreign warships likewise enjoy the right of innocent passage. This idea is inferable from other related provisions of the **LOSC**, particularly Subsection A, Section 3 of Part II that reads 'Rules Applicable to All Ships' (underscoring supplied), Art 19(2) that lists activities that include those normally performed by warships and Art 20 on submarines which are generally military vessels.⁸

Further, subsequent to the adoption of the text of the **LOSC** in 1982 and to settle their flip-flopping positions on the matter, the United States of America (USA) and the Union of Soviet Socialist Republics (USSR) jointly issued in Wyoming, USA in September 1989 the *Uniform Interpretation of Rules of*

International Law governing Innocent Passage. Paragraph 2 of said rules expressly mentions warships as likewise having the right of innocent passage thus:

2. All ships, including warships, regardless of cargo, armament or means of propulsion, enjoy the right of innocent passage through the territorial sea in accordance with international law, for which neither prior notification nor authorization is required. (Underscoring supplied)

It is important to note that the foregoing notwithstanding, State practice in regard to the exercise of the right of innocent passage for warships has neither been uniform nor consistent. In a fairly recent publication⁹, a list is made of some 40 States, including the Republic of the Philippines¹⁰, that require prior authorisation, notice, notification or permission in relation to a foreign warship's right of innocent passage.

Conclusion

The right of innocent passage is universally recognised in international law in the interest of navigation; this right exists for both merchant ships and warships. *Inoffensive passage* – to borrow the words of the English **John Selden** – should not be restrained as it does not in any way impair the sovereignty of the coastal State. The nuances between the exercise of the right of innocent passage of merchant ships and that of warships do not however appear to have been fully expressed in the conventional rules of the **LOSC**. Indeed, State practice assumes great importance in this discourse.



About the Author

Atty. Yano is an Associate at the Del Rosario & Del Rosario Law Offices, a member of the Institute of Maritime and Ocean Affairs and presently the Vice-President for Special Projects of the Maritime Law Association of the Philippines. The views and opinions expressed in this article are those of the author, and do not necessarily reflect the official policy or position of any organisation or his affiliations.

Sources

1. *Passage in waters not covered by State sovereignty is passage simpliciter and not the exercise of the right of innocent passage but of freedom of navigation.*
2. *The right of innocent passage is likewise exercisable in archipelagic waters and certain straits used for international navigation.*
3. *First use of the term is attributed to Professor Nys*
4. *Introductory Note of James Brown Scott to The Freedom of the Seas (1916)*
5. *Ibid.*
6. *Yoshifumi Tanaka, The International Law of the Sea, Second Edition, p. 20*
7. *Art 17, LOSC*
8. *Tanaka, p. 91*
9. *J. Ashley Roach and Robert W. Smith, Excessive Maritime Claims, Third Edition, pp. 250-251*
10. *See note 109 to Innocent Passage of Warships International Law and the Practice of East Asian Littoral States, published in the Asia-Pacific Journal of Ocean Law and Policy in 2016; this requirement was expressed in the aide-mémoire of 23 September 1968 from the Department of Foreign Affairs to the British Embassy. Therein the Philippine State communicated that '[...] the [...] combined units of British and Australian armed public vessels, or any other armed foreign public vessel for that matter, cannot assert or exercise the so-called right of innocent passage through the Philippine territorial sea without the permission of the Philippine Government.'*

NEW GUIDANCE ON ABDUCTION OF CREW IN SULU-CELEBES SEAS RELEASED

by ReCAAP ISC

The ReCAAP ISC has released its latest publication in 2019: *“Guidance on Abduction of Crew in the Sulu-Celebes Seas and Waters off Eastern Sabah.”*

This Guidance focuses on the incidents of abduction of crew from ships for ransom in the Sulu-Celebes Seas and in the waters off Eastern Sabah. It provides the guidance and analysis based on the information collected from past incidents in order to assist the shipping industry and ships to enhance their situation awareness and avoid such incidents. This guidance complements the general guidance contained in the **“Regional Guide to Counter Piracy and Armed Robbery against Ships in Asia”** [available at www.recaap.org]. The Sulu-Celebes Seas region covers the tri-boundary area of the Philippines, Malaysia and Indonesia. It is strategically located and most international shipping passes through its maritime sea lanes. In the **Sibutu Passage** alone, an average of 14,000 ships passes yearly. Prior to 2016, there were kidnaps for ransom on land in the region carried out by the **Abu Sayyaf Group (ASG)**, an Islamic extremist group based in Southern Philippines. On 26-March-2016, the first abduction of crew from ship was reported. It involved the tug boat, *Brahma 12* and 10 of the Indonesian crew on board the boat were abducted. Since then, spates of abduction of crew incidents were reported in 2016, 2017, 2018 and 2019.

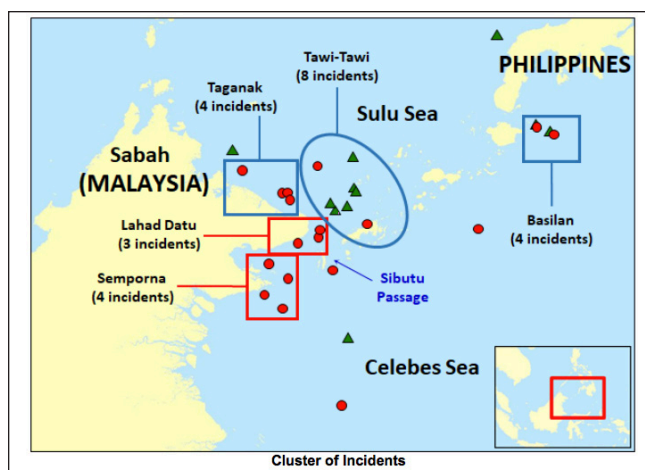
During the period of 2016 to June 2019, **Philippine Coast Guard (PCG)** reported to **ReCAAP ISC** a total of 29 incidents of abduction of crew (comprising 18 actual incidents and 11 attempted incidents). In 2016, a total of 18 incidents of abduction of crew (comprising 12 actual incidents and 6 attempted incidents) were reported. In 2017, the number of incidents reduced to 7 (3 actual incidents and 4 attempted incidents). In 2018, the number of incidents further reduced to 3 (2 actual incidents, and 1 attempted incident). There was one actual incident reported in June 2019. In the 18 actual incidents, 75 crew were abducted. Among them, 65 were released/rescued, and 10 crew were killed/died. No crew was held in captivity.

Despite the decrease in number of incidents, and military and law enforcement efforts by the Philippine authorities, the perpetrators of the **ASG** remain active in the region, looking for any opportunity to abduct crew from ships.

Targets. Tug boats and fishing boats were the main victims of abduction of crew, due to their slow speed and low freeboard. Of the 18 actual incidents, the perpetrators who abducted the crew boarded 15 tug boats and fishing boats. Among them, 9 incidents involved fishing trawlers/fishing boats and 6 incidents involved tug boats of 60-363 GT. The other 3 ships of actual incidents were 2 bulk carriers (less than 300 GT) and 1 general cargo ship (11,391GT). There were 11 attempted incidents, involving bigger ships. These included 6 bulk carriers of 18,000-93,200 DT, 2 container ships, 1 product tanker (5,600 GT), 1 general cargo ship (1,600 GT) and 1 ferry boat.

Clusters. Of the 29 incidents, there were incidents that occurred in close proximity to each other. The incidents are grouped in the following clusters: off Tawi-Tawi, Philippines (8

incidents; 2 actual, 6 attempted); off Taganak, Philippines (4 incidents; 3 actual, 1 attempted); off Basilan, Philippines (4 incidents; 2 actuals, 2 attempted); off Semporna, East Malaysia (4 incidents; all actual); off Lahad Datu, East Malaysia (3 incidents; all actual).



Although the number of incidents in the cluster off Tawi-Tawi is the highest with 8 incidents, 6 of these incidents were attempted incidents where the perpetrators were not successful in boarding the ships. Most of the attempted incidents occurred further away from the coast, and involved bigger ships that adopted evasive maneuvers and successfully escaped from the pursuing perpetrators' boats.

Location. Of the 18 actual incidents, incidents involving tug boats (9) and fishing boats (6), mostly occurred in the northwest and southwest of the **Sibutu Passage**. Majority of these incidents occurred close to shore. The other 3 actual incidents involved 2 bulk carriers and 1 general cargo ship, which took place further away from the shore. The map below shows the locations of abduction of crew of the 18 actual incidents.

Time. Of the 29 incidents, 20 occurred during daylight hours (69%) and 9 incidents occurred during darkness (31%). Among the 20 incidents reported during daylight hours, the frequently targeted hours were 1000-1059 hrs (3 incidents), 1200-1259 hrs (3 incidents) and 1700-1759 hrs (3 incidents). Contrary to the other incidents of piracy and armed robbery against ships in Asia, which take place mostly during darkness, most of the incidents of abduction of crew in the Sulu-Celebes Seas and waters off Eastern Sabah occurred during daylight hours.

Rationale. In the 18 actual incidents, the perpetrators abducted crew for ransom money. Three incidents reported that, in addition to abducting crew, perpetrators stole crew's cash and personal belongings, ship GPS, VHF radio, navigational equipment and ship compass. It is clear that the main motive of the perpetrators is to abduct crew to demand **ransom money**.

Weapons. Of the 29 incidents, 8 incidents involved groups of 5

men. The number of perpetrators in the other 20 incidents varied between 2 and 20 men. Most of the incidents involved perpetrators armed with firearms (26 incidents). The firearms were not discharged in most of the incidents except for 3 incidents where shots were fired to force the victim ships to stop, or to open the cabin doors, or during a shoot-out between the perpetrators and the Philippine authorities.

Ship of Perpetrators. In most incidents, the perpetrators used speed boats to chase after the victim ships. In the 18 actual incidents, 13 incidents reported that the perpetrators used speed boats, 3 incidents used jungkong pump boats, 1 used a motor banca, and 1 with no information available. The speed boats used were of different colors e.g., grey, white, blue, green with white stripes, green and grey, white and blue, and orange and white.

The **ASG**, an Islamic extremist group based in southern Philippines, claimed most of the incidents of the abduction of crew from ships. The **ASG** is responsible for the spate of said incidents wherein most of the kidnap victims were held in captivity in the hinterlands of Sulu for ransom. The **ASG** is known to utilize jungkong type of boats to prey on low freeboard and slow-moving ships. Specifically, the group operates within Sulu and Tawi-Tawi, which are considered to be their lair. Allegedly, the ASG has strong networking with other lawless elements based in Malaysia and Indonesia. Recently, members of the ASG group pledged allegiance to Abu Bakar Baghdadi (**ISIS**).

On 16-February-2018, container ship, *Kudos 1* was underway at approximately 4.4 nm southeast of **Sibago Island**, Basilan, Philippines, when 3 motorized bancas with 3 perpetrators on board, each banca maneuvered to the portside amidship of *Kudos 1*. Armed with firearms, the perpetrators attempted to board the ship using ropes and hooks. The master and crew splashed hot water onto the perpetrators who opened fire at the ship for about 2 minutes and re-positioned themselves at about 400-500 meters away from the ship. The master also activated 2 flares. The perpetrators escaped quickly in the motorized bancas and sped heading towards **Basilan**. Three crew suffered minor injuries on their hands due to the glass debris from the ship's porthole mirror, which shattered due to gun shots.

The Philippine authorities were alerted to the distress signal and immediately responded by deploying assets to the location of the incident. The **PCG** boarded the ship and provided medical treatment to the injured crew. The **PCG** and **Philippine Navy** escorted the ship safely towards the port of Zamboanga City.


Transit Corridors and **Notice to Mariners (NOTAM)** by the Philippines and Malaysia. On 14-July-2016, Indonesia, Malaysia and the Philippines signed the **Trilateral Cooperative Arrangement (TCA)** to address security challenges in the maritime areas of common concern. The 3 countries agreed to encourage operationalization of the Standard Operating Procedure (SOP) for maritime patrol: operating guidelines on information and intelligence sharing; and the combined communication plan. The 3 countries established the **Maritime Command Centres (MCCs)** in **Tarakan** (Indonesia), **Tawau** (Malaysia) and **Bongao** (Philippines) for this purpose. The **MCCs** serve as the operational command and monitoring stations for these countries. Under the **TCA**, the Philippines and Malaysia established the transit corridors within the **Area of Maritime Interest (AMI)**, covering the common maritime areas. The transit corridors serve as safety areas of passage for commercial ships, and are patrolled by the 3 countries. The transit corridor established by Philippines is in "**NOTAM 148-2017**" issued by the **PCG** on 12-September-2017. The transit corridor established by Malaysia is in "**NOTAM 14-August-2017**" issued by Malaysia's **Marine Department**.

Advisory by ReCAAP ISC. Considering the continued existence of abduction of crew threats and violent nature of the

perpetrators causing fatality of 10 seafarers, the ReCAAP ISC maintains its advisory issued via the **ReCAAP ISC Incident Alert** dated 21-Nov-2016 as follows: Reroute from the area, where possible; Otherwise, ship masters and crew are strongly urged to exercise extra vigilance; and Report the incident immediately to the **Operation Centres of the Philippines and Eastern Sabah Security Command (ESSCOM)** of Malaysia.

In the event that the ship master is not able to establish contact with the **Operation Centres of the Philippines** as listed in the **ReCAAP ISC Advisory**, contact the **Philippine Coast Guard Command Centre** at: +63-2-5273877 (direct), +63-2-527-8481 to 89 (ext: 6136/37), +63-917-724-3682 (mobile), +63-929-825-3207 (mobile); email: pcgcomcen@coastguard.gov.ph

The contact details of the **Operation Centres of the Philippines** and ESSCOM of Malaysia are as follows.



1	Philippine Coast Guard District Southwestern Mindanao Tel: +63 998 585 7972 +63 917 842 8446 VHF: Channel 16 with call-sign "NEPTUNE" Email: hcgdswm@yahoo.com
2a	Philippine Coast Guard Station, Bongao (Central Tawi-Tawi) Tel: +63 998 585 7941 +63 917 842 8402 VHF: Channel 16 Email: cgd_tawi2@yahoo.com
2b	Philippine Navy - Littoral Monitoring Station (LMS), Bongao, Tawi-Tawi Tel: +63 955 714 0153 VHF: Channel 16 Email: jointtaskgroup@gmail.com
3	Eastern Sabah Security Command (ESSCOM) Tel: +60 89863181/016 Fax: +60 89863182 VHF: Channel 16 with call-sign "ESSCOM" Email: bilikgerakan_esscom@ipm.gov.my

Ship masters and crew are further advised to:

- ◆ Enhance vigilance, maximize alertness of lookouts, and increase watch keeping;
- ◆ Maintain continuous communication with shipping company and enforcement agencies for monitoring and immediate responses in any eventualities;
- ◆ Look out for advisories on **NAVTEX**;
- ◆ Refer to the latest information available at **ReCAAP ISC** website (www.recaap.org) and other organizations;
- ◆ Sound alarm when sighted suspicious boats in the vicinity or suspicious persons on board ship;
- ◆ Avoid confrontation with perpetrators;
- ◆ Report all incidents to the nearest coastal States and flag States in accordance with the IMO Circular MSC.1/Circ 1334.

The shipping companies and ship masters are also advised to adopt precautionary measures from the general guidance contained in "**Regional Guide to Counter Piracy and Armed Robbery against Ships in Asia**" such as risk assessment, company planning, master's planning, ship protection measures, measures when ships are under attack, etc.

The **ReCAAP ISC** in collaboration with the **PCG** supported by **Asian Shipowners' Association and Singapore Shipping Association** produced the "Guidance on Abduction of Crew in the Sulu-Celebes Seas and Waters off Eastern Sabah" in July 2019.



View the full report at: [http://www.recaap.org/resources/ck/files/guide/Guidance%20on%20Abduction%20of%20Crew%20in%20Sulu-Celebes%20Seas%20\(26%20Jul%202019\).pdf](http://www.recaap.org/resources/ck/files/guide/Guidance%20on%20Abduction%20of%20Crew%20in%20Sulu-Celebes%20Seas%20(26%20Jul%202019).pdf)



PCG'S FIRST OFFSHORE PATROL VESSEL FORMALLY LAUNCHED IN FRANCE

by PCG News

The **Philippine Coast Guard's** first **Offshore Patrol Vessel (OPV)** was formally launched in **OCEA** shipyard in France on July 17. **PCG Commandant Admiral Elson E Hermogino**, with the Deputy Chief of **PCG** Staff for Strategic Studies and Modernization, **Captain Ferdinan B Picar**, **PCG** Spokesperson **Captain Armando A Balilo**, and officials from **Department of Transportation (DOTr)** and **Maritime Industry Authority (MARINA)** attended the launching.

The OPV, which will be commissioned in the PCG service as **Barko Republika ng Pilipinas (BRP) Gabriela Silang**, is the first vessel fully designed as an **offshore patrol vessel (OPV)**. It incorporates a characteristically modern design with a low radar cross section to minimize reflectability, and a modern hull design capable of ocean voyage and operations in rough sea conditions.

It will be utilized in patrolling the **West Philippine Sea**, **Benham Rise**, and in other anti-piracy and terrorism campaigns of the government in Southern Philippines. This 83.6-meter long vessel has a maximum speed of 20 knots, with an endurance that can take up to 22 days, and can accommodate 64 crew onboard.

This **OPV** is equipped with a **mission management system (MMS)** with a dedicated command and control center, which integrates the vessel's sensors such as radars, **automatic identification system (AIS)**, communications equipment, surveillance equipment, day and night vision camera, etc. The **MMS** utilizes advanced technologies in computer and radio techniques to signify improved operational efficiency of users providing a multi-user system that can compile and maintain a tactical **Common Operation Picture**, allowing even the onboard rigid inflatable boats to have access to the situation picture and to improve the control of operations. It is also capable of situation awareness, target detection, tracking and information, record and replay,

information display, and exchange of information with other units

This **OPV** is also capable of responding to marine environmental pollution such as oil spills using its onboard containerized anti-pollution equipment. Moreover, its Hyperbaric Chamber will be useful for treating diving sickness, and its survivor room is capable of accommodating rescued persons.

In addition, the vessel has 2 onboard 9-meter **Rigid Hull Inflatable Boats (RHIBs)** with a speed of 40 knots especially designed for law enforcement, to include visit and boarding of other vessels.

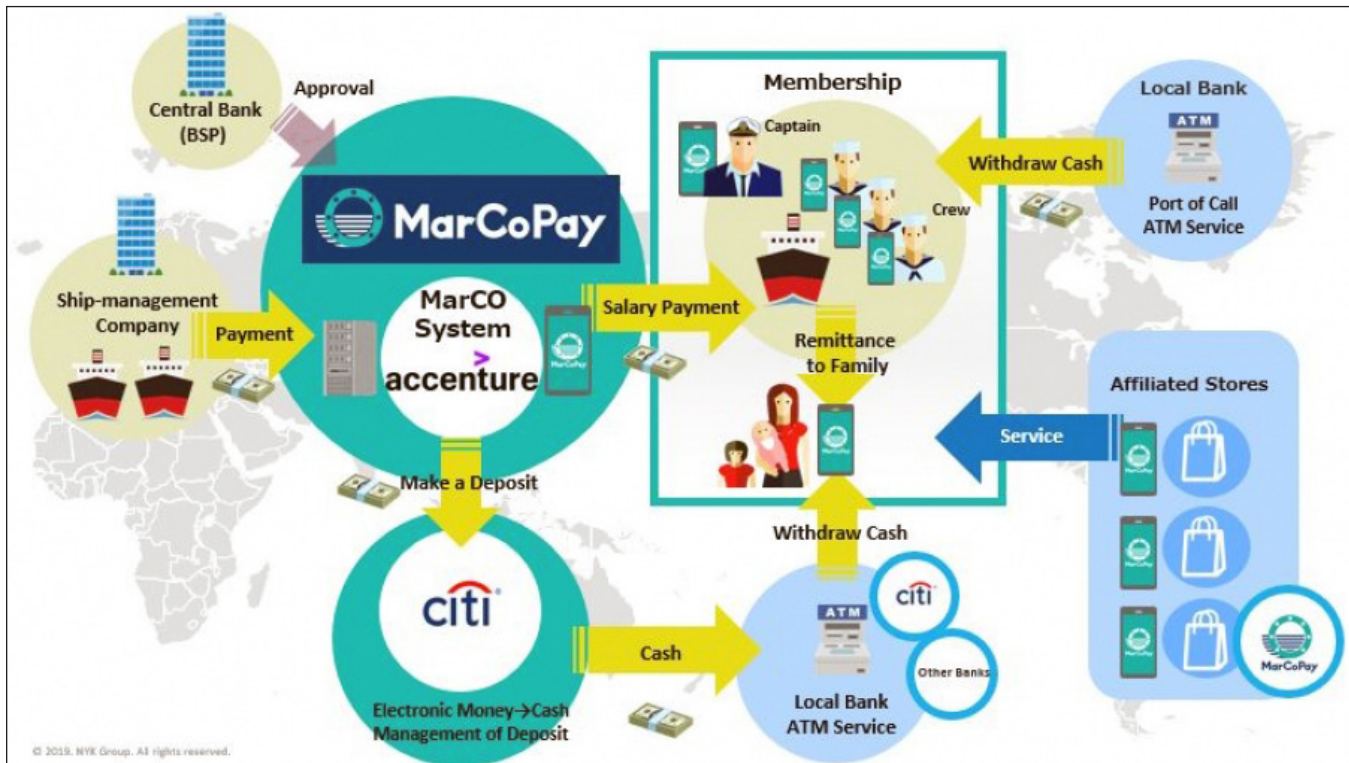
Its main engine is a hybrid engine of diesel-electric type, which is the first vessel under **PCG** to utilize diesel electric engine. Included as well in the contract is the **Integrated Logistics Support**, which pertains to spare parts supply and maintenance services for 5 years.

The **OPV** is made by the **OCEA** shipbuilder in France under the **Philippine Ports** and **Philippine Coast Guard Capability Development Project** with **Department of Transportation** as the implementing agency.

It was signed into contract last 09-September-2014 with contract cost of €97,032,507 equivalent to Php5,593,623,382. To finance the implementation of this project, President Rodrigo Duterte issued a Presidential Authority on 10-January-2017 authorizing the Department of Finance **Secretary Carlos G Dominguez** to enter into financing agreement with **BNP Paribas** (France). Included in this project are four 24-meter **Fast Patrol Boats** that were already completely delivered last year.

The **OPV** is expected to arrive in Manila on the first week of December this year after completing the provisional requirements, and the training of 18 PCG personnel as its sailing crew starting September 1 up to the last week of October. ⚓

NYK ESTABLISHES ELECTRONIC PAYMENT PLATFORM FOR SEAFARERS



Nippon Yusen Kaisha (NYK) in collaboration with **Accenture** and **CITI**, and a joint venture with **Transnational Diversified Group (TDG)** developed **MarCoPay** for seafarers.

Software, Big Data & IoT reports in **Digital Ship**: “NYK has formed a joint venture with Philippines-based TDG to launch electronic money platform **MarCoPay** for seafarers. MarCoPay is an electronic money platform designed mainly for seafarers hired outside Japan to make digital settlements with QR codes, international remittances, and withdraw cash on a smartphone app. By using **MarCoPay** to receive their salaries and purchase daily supplies on ships, crew members can go cashless onboard and send money to their home countries, and withdraw cash from ATMs anywhere in the world. While foreign seafarers generally earn more than the average population in their home countries, they’re often not fully recognized and valued socially and economically. This attributes to the state of the financial infrastructure and local credit systems in their countries are in, and their unique term contract. **MarCoPay** aims to contribute to an environment where seafarers can obtain favorable conditions for bank loans and insurance coverage with an electronic money platform. **NYK** plans to expand the network where **MarCoPay** can be used by shipowners and ship-management companies outside **NYK**, add new

functions, and collaborate with diverse retailers and service providers.”

Safety4Sea reports, “**NYK**, amongst other technology innovations, is aiming to make seafarers’ life easier and efficient by **digitizing** their **currency**. The platform was established on 22-July-2019 and will be launched in January 2020. **NYK** highlights that the name **MarCoPay** comes from “Maritime Community.” **NYK** plans to offer the platform to other shipowners and ship-management companies around the world. Despite technological development in the shipping industry, the majority of seafarers is paid in cash or has their wage transferred into their bank account. Since seafarers come from various backgrounds, many times they have to transfer their money from one country to another. On the contrary, digital cash gives them the opportunity to track and spend their salary.”



Sources:

- *Software, Big Data & IoT*, “NYK establishes electronic payment platform for seafarers,” *Digital Ship*, 01-August-2019.
- *Safety4Sea*, “NYK to launch digital payment for seafarers,” 26-July-2019.
- *NYK Line News*, “NYK Establishes “MarCoPay,” an Electronic Money Platform Business to Expand Globally,” 25-July-2019.



WORLD MARITIME THEME FOR 2020: "SUSTAINABLE SHIPPING FOR A SUSTAINABLE PLANET"

by IMO News

Sustainable shipping for a sustainable planet has been selected as the World Maritime theme for 2020. This will provide an opportunity to raise awareness of the United Nations' **Sustainable Development Goals (SDGs)**, and showcase the work that the **International Maritime Organization (IMO)** and its Member States are undertaking to achieve the targets.

The **IMO Council**, meeting for its 122nd session at **IMO Headquarters** in London, endorsed the theme, following a proposal by **IMO Secretary-General Kitack Lim**.

"I believe that this theme will provide flexibility to the Secretariat and the Member States in highlighting the myriad topics and challenges in meeting the 2030 Sustainable Development Agenda. At the same time, it will provide excellent opportunities to highlight the already significant contributions of shipping and the IMO to building that sustainable future," Mr. Lim said.

"The year 2020 will mark the beginning of a decade of action and delivery. It will be a decisive decade not only for the shipping industry, but for life on the planet," Mr. Lim said. He noted that September 2019 would see a gathering of Heads of State at the **United Nations** in New York, to take stock of how far the world has come in realizing the sustainable development commitments.

The **SDG Summit**, the **Climate Action Summit** and further high-level meetings planned for 2020, such as the **Our Ocean** and the **UN Ocean Conferences**, will provide opportunities for leaders from various sectors, including shipping, to both reflect on the work done and the urgent steps they further plan towards a sustainable future.

*"The shipping industry, with the support of the IMO regulatory framework, has already started the transition towards this sustainable future. We have adopted and continue to develop measures to cut greenhouse gas emissions, reduce the sulphur content of ships' fuel oil, implement the **Ballast Water Management Convention**, protect the polar regions, reduce marine litter, improve the efficiency of shipping through the electronic exchange of information, meet the challenges of the digitalization of shipping and enhance the participation of women in the maritime community," Mr. Lim said.*

"We are strategically equipped, in line with the approach laid out in the IMO Secretariat's SDGs Strategy, to showcase our contribution to the SDGs and to act upon untapped opportunities of

technologies, finance and new partnerships for the future benefit of the shipping industry and humankind," Mr. Lim said.

United Nations Sustainable Development Goals

In 2015, 193 countries adopted the **2030 Agenda for Sustainable Development** and its **17 Sustainable Development Goals (SDGs)**.

This **2030 Agenda** calls for action by all countries to eradicate poverty and achieve sustainable development by 2030 worldwide – and the SDGs are seen as an opportunity to transform the world for the better and leave no one behind.



As part of the United Nations family, **IMO** is actively working towards the 2030 Agenda for Sustainable Development and the associated SDGs. Indeed, most of the elements of the **2030 Agenda** will only be realized with a sustainable transport sector supporting world trade and facilitating global economy.

IMO's Technical Cooperation Committee has formally approved linkages between the Organization's technical assistance work and the SDGs.

While **SDG 14** is central to **IMO**, aspects of the Organization's work can be linked to all individual SDGs. 🚢

FIRST BARRACUDA-CLASS NUCLEAR ATTACK SUBMARINE LAUNCHED BY FRANCE

by Vicky Viray Mendoza

The French Naval Group has launched *SNA Suffren*, the first of 6 nuclear submarines for the French Navy. The black steel submarine was launched at a ceremony in the northern port of Cherbourg on 12-July-2019. *SNA Suffren*, the first of the **Barracuda-class** series, is a highly complex vessel that was built using a modular system. They are designed to replace the French Navy's aging fleet of **Rubis-class** submarines that were built in the 1980s as part of France's Cold War defense forces.

An order for a sixth **Barracuda-class** submarine was formally announced at the *SNA Suffren's* launching ceremony. The names of the first 5 submarines would be: *Duguay Trouin*, *Tourville*, *De Grasse*, *Rubis*, and *Casabianca*. The first 4 submarines are to be delivered by 2025 to begin the gradual replacement of the French Navy's existing submarines over the next decade.

The **Naval Group** is the overall prime contractor of the submarine's architecture and **TechnicAtome** is the prime contractor for the nuclear reactor. The construction of the *SNA Suffren* is a collective accomplishment, the result of a robust cooperation with long-standing partners: the French Navy, the French Defence Procurement Agency (DGA), the Atomic Energy and Alternative Energies Commission (CEA), **TechnicAtome**, and all the manufacturers of the sector.

SNA Suffren is a modern attack submarine with a high degree of stealth. "When combined with her advanced detection capabilities, it guarantees acoustic superiority," says **Naval Group**. The **Barracuda-class** is much stealthier than its predecessor due to its propeller pump, instead of the conventional screw. It has improved general acoustics, increased maximum silent speed, and better maneuverability. Its optronic periscope masts don't penetrate the hull and are equipped with high-definition daytime cameras, infrared, and light intensification instead of a thread of prisms and lenses. A high level of automation also allows the submarine to be controlled from just two workstations.

Costing about €9.9 billion (US\$11.1 billion) excluding maintenance, the Barracuda-class sub is 326 ft (99.5 m) long,

29 ft (8.8 m) in diameter, with a surface displacement of 4,765 tons, and a diving displacement of 5,300 tons. Nuclear powered, it runs on a 150-MW K15 reactor with propulsion provided by a steam/electric hybrid propulsion system, giving it a submerged speed over 25 kt (29 mph, 46 km/h), an unlimited range and underwater diving time to depths of over 1,000 ft (300 m). Actual mission has a 70-day endurance time based on food supplies for 60 crew plus a commando force, much longer than the 45-day endurance time of the Rubis-class submarine.



Photo Credit: WeapoNews.com

For armaments, along with its increased standard armament of Exocet SM39 Block2 anti-ship missiles, F21 Artemis heavy wire-guided torpedoes, and FG29 mines, the Barracudas are armed with MDCN SCALP Naval missiles, providing the French Navy with an inland deep-strike capability for the first time.

For the underwater deployment of commandos, mini-submarines and drones, the

Barracudas have a divers' hatch for the deployment of Special Forces underwater, and the ability to ship a Dry Deck Shelter (DDS). This supports the primary mission of the **Barracudas**, which is to safeguard the seagoing French nuclear deterrent, specifically, the 4 nuclear missile submarines and the aircraft carrier, *Charles De Gaulle*. They will perform sea patrolling, naval escorting, and diving reconnaissance missions.

SNA Suffren is slated to start sea trials in July, and arrive in Toulon, France before the summer of 2020.



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- ♦ *Szondy, David*. "France launches its first Barracuda class nuclear attack submarine," *New Atlas*, 18-July-2019.
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DAMEN INSTALLS SOLAR PANELS AT DUTCH SHIPYARDS

by: Damen News

As part of its ongoing commitment to sustainability, **Damen Shipyards Group** is having **solar panels** installed at a number of its Dutch yards. Collectively, the installations will provide approximately 11 MWh clean electricity per year.

Damen Project manager, **Gerard Kornet** explains, “At Damen, we always take a long-term view. It’s part of our culture as a family company. We want to ensure the sustainability of the business for the next generation. This means that what we do has to be both profitable and in tune with the environment in which we operate. We have a very strong focus on this, and are continually considering initiatives that can contribute to a sustainable maritime industry.”

The project will see 42,000 **solar panels** installed on the rooftops of production facilities at 8 **Damen shipyards** in the Netherlands.

Collectively, the panels will cover some 75,000m² and generate 13% of energy required by **Damen’s** annual operations in the Netherlands.

The first yard to be installed with the **solar panels** is **Damen Shipyards Gorinchem West**. It will be followed by **Damen Dredging Equipment Nijkerk**, and **Damen Shipyards Hardinxveld** by the end of August. By the end of the year, **Damen Maaskant Shipyards Stellendam** and **Amels** will follow suit, with **Damen Veroime**,

Damen Shiprepair Rotterdam, and **Damen Shipyards Gorinchem East** both undergoing installation before the end of 2020.



“This is just the tip of the iceberg,” **Gerard** explains, “We are further developing the program with the intention of assessing the viability of rolling out more **solar panels** – as well as wind energy – to our other shipyards, not only in the Netherlands, but also internationally. Wherever we are working in the world, we are committed to making sure our operations are as clean as can be.” ⚓

SEABOURN UNVEILS PASSENGER SUBMARINE DESIGN

by Seabourne News

Seabourn, the world's finest ultra-luxury cruise line, is preparing to take travelers into the depths of the ocean for the first time by revealing the design and details for its custom submarines that will operate excursions for an additional charge from the line's two upcoming ultra-luxury purpose-built expedition ships. Both **Seabourn Venture** and her yet-to-be-named sister ship will sail to the far corners of the Earth carrying two **U-Boat Worx Cruise Sub 7** subs designed specifically for **Seabourn**.

Each battery-powered sub will carry 6 guests as well as 1 pilot, who will guide the journey up to 300m beneath the surface to explore sunken wrecks, reefs, and view marine wildlife in their natural habitat. Guests are seated in 2 clear acrylic spheres flanking the center pilot's station, with an awe-inspiring perspective of the marine world just outside thanks to undisturbed and undistorted views in virtually all directions. The 3-passenger seats in each sphere are mounted on a rotating platform that can turn for best sightlines.

"The undersea world is often considered as the last great frontier on Earth, with more than 80% of the underwater realm remaining unmapped, unobserved, and unexplored according to the U.S. National Oceanic and Atmospheric Administration," said **Robin West, Vice President, Expedition Operations, Seabourn**. *"With these subs, we'll take our guests to places that few have ever seen firsthand, leaving them with a perspective on the world around us that is jaw-dropping and will create stories to last a lifetime."*

To maximize the guest experience, the subs will be outfitted with a host of optional equipment to enhance this once-in-a-lifetime opportunity. A 4k underwater video camera system will record the world outside while an internal video recording system will capture imagery of guests inside and their direct surroundings. Video footage can then be downloaded and projected on large screens in the Discovery Center during lectures aboard the ships. A 6-function manipulator arm capable of lifting up to 32 kg (about 70 pounds) will also be mounted on the side of the sub. In keeping with the luxury experience found on **Seabourn**, each sub on both ships will be outfitted with custom embroidered leather upholstery, 2 air conditioning systems, a Bluetooth stereo system, and champagne chiller for guests looking to toast their voyage of discovery.

The subs will be operated multiple times per day in regions around the world where conditions are suitable. They will be equipped with underwater LED flood/spot lights, imaging sonar that acts as a second set of eyes, and an advanced underwater tracking and navigation system.

Seabourn Venture is scheduled to launch in June 2021, with a second yet-to-be-named sister ship slated to launch in May 2022. The ships are being designed from conception for expedition travel blended with ultra-luxury and personalized service by leading travel experts and seasoned professionals with great depth of experience in expedition, hospitality, and luxury cruising.

Between July 2021 and April 2022, **Seabourn Venture** will visit a vast number of breathtaking locations and remote destinations in the Arctic and Antarctica, as well as in the Amazon, Caribbean, Central and South America and more, offering guests the unique opportunity to experience ultra-luxury expedition cruising and exhilarating adventures. The ship is scheduled to visit more than 150 unique and fascinating destinations across the globe – many of which few travelers have ever been – and over 65 new or notable destinations with a multitude of new and compelling expedition experiences. The itineraries, fares and additional details of **Seabourn Venture's** inaugural year are available at www.seabourn.com.

Both ships will be designed and built for diverse environments

to PC6 Polar Class standards and will include a plethora of modern hardware and technology that will extend the ships global deployment and capabilities. The ships will also be designed to carry a number of kayaks and 24 Zodiacs that can accommodate all onboard guests at once, which will allow for a truly immersive experience. Each ship will feature 132 luxurious oceanfront veranda suites. More details and full-color renderings of the ship and its interior spaces will be released in the months ahead.

Seabourn continues to represent the pinnacle of ultra-luxury travel with intimate ships offering key elements that set the line apart: spacious, thoughtfully appointed suites, many with verandas and all 100% ocean front; superb dining in a choice of venues; complimentary premium spirits and fine wines available on board at all times; award-winning service and a relaxed, sociable atmosphere that makes guests feel right at home on board. The ships travel to the world's most desirable destinations, marquee cities, over 170 UNESCO World Heritage Sites, and lesser known ports and hideaways. **Seabourn** currently operates a fleet of 5 modern ultra-luxury ships and is a proud member of the World's Leading Cruise Lines. The exclusive alliance includes Carnival Cruise Lines, Holland America Line, Princess Cruises, Cunard Line, Costa Cruises, AIDA, P&O Cruises UK, and P&O Cruises Australia. **Seabourn** is the official cruise partner of **UNESCO World Heritage** under a multi-year agreement to help promote sustainable tourism at World Heritage sites around the world. ⚓

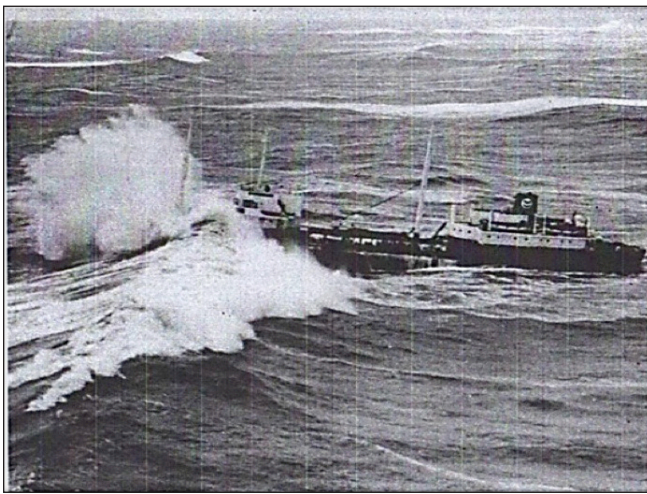


SURFACE SHIP AND SUBMARINE AREA OF OPERATIONS WITHIN PHILIPPINE MARITIME JURISDICTION

by Capt Tomas D. Baino PN (Ret), Naval Architect

INTRODUCTION

This article was derived from the **World Meteorological Organization Wave Statistics** on various sea areas within Philippine Maritime Jurisdiction. It provides information on prevailing sea state conditions that can serve as valuable tools of information for naval operation of surface ships and submarines.



Pounding and Slamming with Excessive Motion with the Waves Crest to Crest

Philippine Sea Areas of Responsibility Wave Environment The Philippines lies on the boundary between "Global Wave Statistics" Area 40 (105-120o E, 10-30oN) and Area 52 (120-150oE, 10-20oN). In these two areas, significant wave heights exceed 4 meters less than 11% of the time. Therefore, the operability of the 40 m patrol boat as an example will hardly be affected by the weather.

The probability of Sea State Condition 6 exceeding 4 meters of height will happen in the Philippines Sea Area of Responsibilities (AOR) presented in **Table 1**.

A submarine operating at the surface of the sea while charging batteries is also affected by the sea condition.

However, when the submarine dives 25 feet below the surface of the sea, it will not be affected by the sea condition.

Table 1

Sea Areas	Proportion of time when wave heights exceed 4 meters	Per 1000 Wave Observations
40	10.6%	106 times to happen
41	11.1%	111 times to happen
52	6.7%	67 times to happen
62	3.2%	32 times to happen
63	2.0%	20 times to happen

The definition of Sea Condition of fully arisen sea is presented in **Table 2** (sea state condition, wave height, wave

length, wave crossing time and distance of origin).

Definitions of Sea State Condition of Fully Arisen Sea
(Ref: Jane's Manual for High Speed Craft).

Table 2

Sea State	Beaufort Scale	Wave height	Wave length	Crossing Time	Fetch	Duration
0 - Ripples with appearance formed without foam	1 Light Air 1-3 knots	.09 feet (.02 m)	10 inches (22.5cm)	.5 sec	5 miles	10 min
1 - Small wavelet glossy appearance	2 Light Breeze 4-6 knots	.6 feet (.182m)	6-7 feet (2.134 m)	1-3 sec	8 miles	39 min
Sea State	Beaufort Scale	Wave height	Wave length	Crossing Time	Fetch	Duration
Large wavelet (rest began to break)	3 Gentle Breeze 17-10 knots	2-3 feet (0.91m)	20 feet (6.09 m)		9.8 miles	2-4 h
3 - fairly frequent waves white horses	4 Moderate Breeze	4.6 feet (1.28 m)	52 feet (15.88 m)	7.6 sec	24 miles	4.8 h
4 - moderate waves taking pronounce long form	5 Fresh Breeze 17-21 knots	9.3 feet (2.83 m)	111 feet (33.84 m)	11 sec	75 miles	10 h
5 - large waves begin to form	6 Strong breeze	13.5 feet (4.11 m)	160 feet (48.78 m)	13.6 sec	130 miles	14 h
6 - white crest taking pronounce long form	-do-	15.6 feet (4.75 m)	188 feet (57.31 m)	14.5 sec	180 miles	17 h
7 - sea heaps up with breaking foam	7 Moderate Gale 28-33 knots	23.6 feet (7.195 m)	285 feet (86.89 m)	17.5 sec	340 miles	27 h
7 - moderate gale	8 Fresh Gale 34-40 knots	37 feet (11.28 m)	444 feet (135.36 m)	21.7 sec	710 miles	42 h
8 - high waves	9 Strong Gale 41-37 knots	48.9 feet (14.9 m)	590 feet (179.84 m)	25 sec	1,110 miles	57 h
9 - rolling of the sea becomes heavy	10 Whole Gale 48-55 knots	67.4 feet (20.54 m)	810 feet (246.95 m)	29 sec	1,800 miles	81 h
-	11 Storm 56-63 knots	81.8 feet (24.9 m)	988 feet (300.40 m)	32 sec	2,500 miles	101 h
-	12 Hurricane	94.6 feet (28.84 m)	-	24 sec	-	-

Ideal Ship Motion Index (SMI) to avoid ship functionality degradation. **Table 3** shows the limitations of SMI.

Table 3

Ship Motion Index (SMI)

Criterion	Ship motion must be limited or less than
1. Vertical Acceleration at Forward Perpendicular	5.4 m/s ²
2. Significant Pitch	3°
3. Significant Roll (Stabilized)	8°
4. Stabilized Roll (without Stabilizer)	8°
5. Deck wetness at Forward Perpendicular	7%
6. Slamming at 15% LBP Aft Forward Perpendicular	4%
7. Subjective Motion Index	12

Twelve criteria of Ship Motion that will degrade the Performance of the Crew and Ship Systems.

Table 4

Motions in Waves

Seaway Performance Criteria	Affected Elements	Performance Degradations
Absolute Motion Amplitudes		
Roll Angle	People, Mission and Platform System	Personnel Injury, reduced task proficiency, and mission and hull system degradation.
Pitch Angle		
Vertical displacement of points on flight deck	People and Mission Systems	Injury to personnel handling aircraft. Inability to safely launch or recover aircraft.
Absolute Velocities and Accelerations		
Vertical Acceleration	People and Mission Systems	Personnel fatigue, reduced task proficiency and mission system degradation.
Lateral Acceleration		
Motion Sickness Index (MSI)	People	Reduced task proficiency
Slam Acceleration (vibratory vertical)	People, Mission and Platform System	Personnel fatigue, injury, reduced task proficiency and mission and hull system degradation. Preclusion of towed sonar operation
Motions Relative to Sea		
Frequency of Slamming (Simultaneous bow reimmersion & exceedance of a threshold vertical velocity.)	Mission and Platform Systems	Hull Whipping stresses and damage to sensors on the masts. Slamming damage to bottom forward hull structure
Frequency of emergence of a Solar Dome	Mission Systems	Reduced efficiency of sonar
Frequency of Deck Wetness (submergence of Main Deck Forward)	People and Mission Systems	Injury or drowning of personnel. Damage to deck mounted equipment
Probability of Propeller Emergence	Platform System	Damage to the main propulsion plant.
Motions Relative to Aircraft		
Vertical Velocity of Aircraft relative to the Flight Deck	Mission Systems	Damage to Aircraft landing gear and/or loss of Aircraft.

Examples of Excessive Wetness of the Deck with Severe Pitching and Heaving Motion.



Fig. 3: Frequency of deck wetness (submergence of main deck forward) can be felt 540 times per hour.

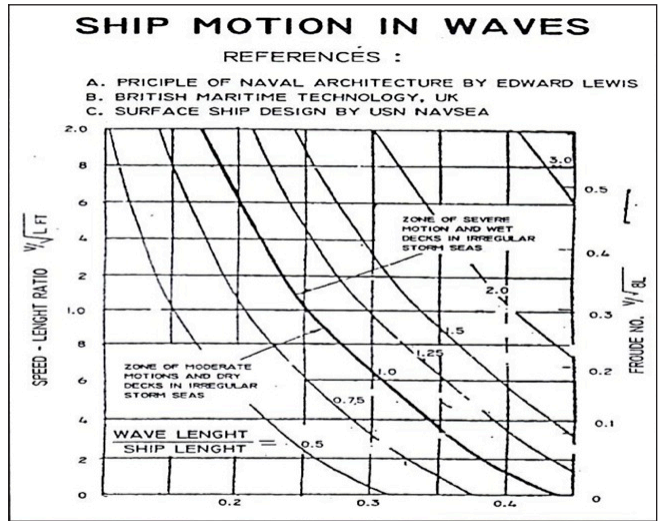


Fig. 4

The length of a 40-meter waterline of Patrol boat as an example of operating at Sea State 6 wavelength is 58 meters; the ratio of wavelength / shiplength is projected in the diagram in Fig. 5.

$$\frac{\text{wavelength}}{\text{shiplength waterline}} \text{ ratio} = \frac{58\text{m}}{40\text{m}} = 1.45$$

Fig. 5

The wavelength is too high for the vessel to maintain good seakeeping. The size of 40 meters length waterline is insufficient and will encounter excessive functionality degradation under this sea condition (Sea State 6). The ideal size of Patrol boat should be at least 82 meters with a ratio of 0.70 (see ship motion diagram, Fig. 4 above).

Under Sea State 6, the wave crossing time or velocity is 7 seconds. This means the ship will encounter excessive pounding and slamming with the waves at 9 times per minute / 540 times per hour / 12960 times per 24 hours.

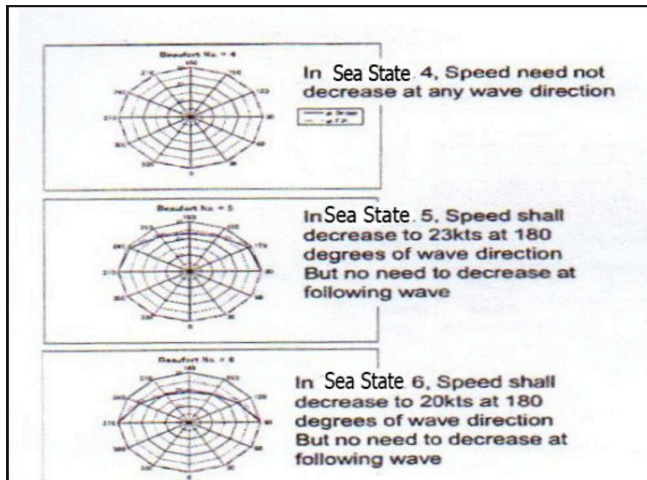


Fig. 6: Polar Performance Diagram of Surface Ship

NOTE: Maneuvering tank test result presented in the polar performance diagram at Sea State 6 denote vessels encountering head-on seas.

RECOMMENDATIONS

This article could be used as a guide for Naval Architects at the starting point of the selection of the ideal length of surface ship and submarine operation at the surface of the sea, in order to be compatible, and to minimize the effect of functionality degradation of the ship system prevailing in the Philippine Maritime Jurisdiction.



About the Researcher:

CAPT TOMAS D BAINO PN (Ret) completed his post-graduate studies in Submarine Design at the Department of Naval Architecture, University College of London, United Kingdom of Great Britain under the sponsorship grant of UK Ministry of Defense.

Capt Baino is an associate editor of the Maritime Review providing series of articles in Naval Ship Design and presently serving as Naval Architect Consultant with the Department of Transportation and Philippine Coast Guard Project Management Office in ship acquisition.

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MARINA PUSHES FOR PHASING-OUT OF WOODEN- HULLED SHIPS

LOILO CITY – **The Maritime Industry Authority (MARINA)**, together with partner government agencies and private stakeholders, visits boat operators and associations in Iloilo and Guimaras to discuss the modernization of the domestic shipping industry through an institutional mechanism workshop on the replacement of wooden-hulled passenger ships with technologically-improved hull materials.

MARINA urges boat operators and associations, specifically in the Iloilo – Guimaras shipping route, to uphold maritime safety and provide better services to the riding public through the construction and utilization of modern passenger ships.



For the Full Story, visit: <https://marina.gov.ph/2019/08/23/marina-pushes-for-phasing-out-of-wooden-hulled-ships/>

VIEW FULL ALBUM HERE: <https://bit.ly/30pwJD2>

150TH MARITIME FORUM

FRIDAY, 18 OCTOBER 2019

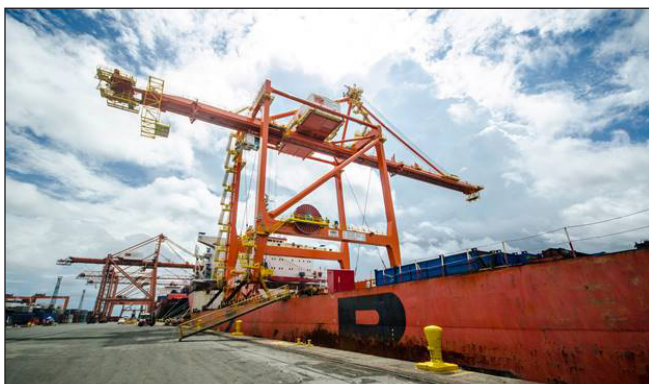




ICTSI MANILA CONTINUES EQUIPMENT ROLL-OUT

by The Maritime Executive

International Container Terminal Services, Inc. (ICTSI) recently took delivery of another new quay crane and eight new hybrid rubber tired gantries (RTGs) for its flagship Manila International Container Terminal (MICT). The terminal now has the largest fleet of modern container-handling equipment in the Philippines with 18 quay cranes and 58 RTGs. Manufactured by ZPMC, the quay crane is part of the five from ICTSI's 2018 \$80 million capacity improvement program package. With a reach of up to 16 rows across twin, the new crane can service the largest feeder vessels calling the Philippines. It will be deployed at Berth 3.



The 8 RTGs are part of a 2018 16-unit order from Mitsui Engineering & Shipbuilding. ICTSI recently made a fresh order of 16 new hybrid RTGs from Mitsui scheduled for delivery in early 2020. As a result of the new equipment, terminal emissions and fuel consumption per move are expected reduce by up to 40% and 60%, respectively. In April, MICT introduced 4 new hybrid rubber-tired gantries from Mitsui. ICTSI has also begun construction of Berths 7 and 8, and back-up areas for the future Berths 9 and 10. ICTSI has several other projects in the pipeline including inter-terminal transfers at NorthPort for greater inter-island connectivity and increased barge berthing services between the MICT and Cavite Gateway Terminal in Tanza. A number of initiatives are currently in place or are being put in place across the ICTSI Group to improve productivity and reduce port emissions. These include gate automation and gate system upgrades to reduce queuing times, fleet changes to introduce faster and more fuel-efficient equipment, and utilizing machine learning and analytics to improve and automate yard strategy to reduce truck stay times.



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PORT OF NY-NJ LOOKS TO DEVELOP WIND ENERGY TERMINAL

by Vicky Viray Mendoza

The **Port of New York and New Jersey** is looking to develop a marine terminal focused on serving the region's growing offshore wind energy sector, freshly boosted last month when New Jersey gave the green light to the state's first offshore wind project.

A wind energy terminal was one of two suggested uses when the **Port Authority of New York and New Jersey** last fall sought expressions of interest in developing two plots of land in the port — a 100-acre site in Elizabeth, New Jersey, and a 70-acre site on Staten Island, New York — for use catering to the alternative energy sector. The authority also sought proposals for using the locations as a bunkering site for liquefied natural gas (LNG).

Although no concrete proposals were submitted, the authority sees the solicitation as ahead of its time, and expects interest in wind-related cargo to grow as more projects are lined up, said **Beth Rooney**, Deputy Port Director, **Port Authority of New York and New Jersey**.

The potential for serving the wind and LNG sector was mentioned as emerging trends in the authority's 2050 Port Master Plan released last week, which predicts that demand for dry bulk will increase nearly 50% to 5.5 million metric tons over the next 30 years, consisting mostly of cement, salt, and scrap dry bulk cargo.

Rooney said the solicitation of interest last fall came too early, and the port will continue to look for

interested developers. *"Nobody was going to be looking to use or develop or lease port authority property, or anyone else's property, when they don't have a contract from the states," Rooney* said.

On June 21, New Jersey gave approval to Denmark-based **Ørsted** to build a 1,100-megawatt wind farm off the Jersey shore that will feed electricity into the state's power grid. And more projects are expected to follow, **Rooney** said.

Across the Hudson River, New York **Governor Andrew Cuomo** said he would quadruple the state's target for power generated by offshore wind farms by 2035 to 9,000 megawatts. **Cuomo**, in his budget address in January, pledged to invest up to \$200M in port infrastructure to support the sector. He is looking to solidify New York's position as "the hub of the burgeoning US offshore wind industry."

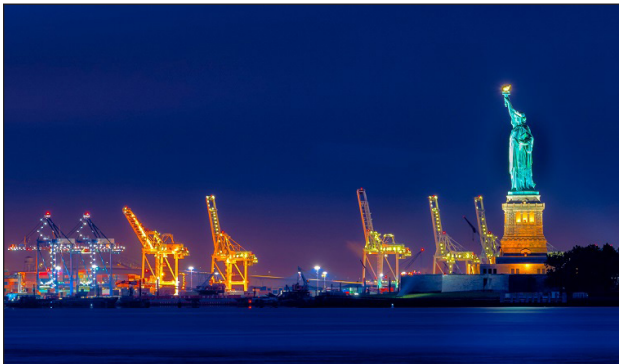
As more projects are approved, developers will likely think about the supply chain to support them, Rooney said.

"They might do manufacturing or fabrication areas, so they could be building out the turbine blades," at the terminal, she said. "They could be building the cables there. They could be manufacturing the [windmill] foundations. Any number of components could be manufactured there on the facilities and then put on vessels and brought to an assembly area where the turbine is assembled before going out to the offshore farm."

Coastal states see opportunity

New Jersey, with wind energy projects totaling just 9 MW of power up and running, lags most of the nation in wind power implemented, according to the **American Wind Energy Association (AWEA)**. New York, with 1,987 MW, is ranked 14th. The only offshore wind farm operating in the US is a 30-MW project in **Rhode Island**.

Coastal states are racing to establish offshore wind farms in the US, said **Luke Lewandowski**, Director of Research, in the Chicago office of **Wood Mackenzie**, the international energy consultancy. WoodMac forecasts the US will have about 4.7 gigawatts of installed offshore capacity, or 16 operating projects, by end 2024.



Offshore requires a lot of big equipment bolted to the seabed, deepwater ports for bringing in larger vessels, staging areas at ports for marshaling and mobilizing, construction vessels, and special vessels for laying power transmission cables. Several factors favor offshore wind development in the US Northeast: There is a density of energy load, transmission lines are closer to load centers, and cities are more progressive and receptive to renewable wind energy.

The prospect of offshore wind energy development has already prompted investment by the state of Massachusetts in the **Port of New Bedford**. **New London, Connecticut** is also positioning itself to serve the wind energy sector, the **AWEA** said.



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About the author:

Hugh R. Morley is Senior Editor for the JOC.com and Journal of Commerce, which is a subsidiary of IHS Markit. He covers the port of New York and New Jersey, as well as various US Northeast and Mexican ports, and co-chairs the JOC's Mexico Trade Forum, launched in 2018. He has written on business for 15 years, covering a range of topics, from government oversight of business to corporate legal battles and the fierce interstate competition for jobs and investment, and has been a journalist for 25 years. He holds a bachelor's in management and operational research from the University of Leeds and a master's in global business from Rutgers University. He can be reached at hugh.morley@ihsmarkit.com

The original article can be viewed at:

https://www.joc.com/port-news/us-ports/port-new-york-and-new-jersey/port-ny-nj-looks-develop-wind-energy-terminal_20190715.html.

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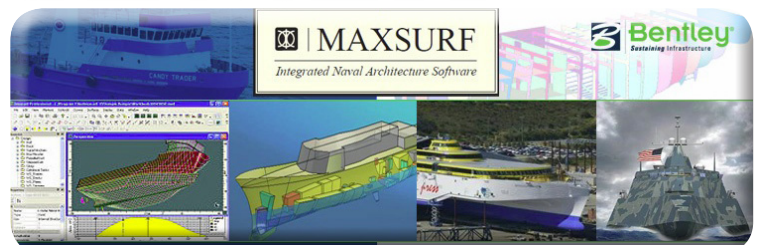
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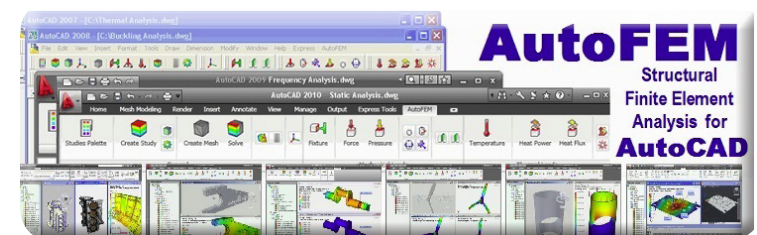
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PPA INAUGURATES BIGGEST PORT TERMINAL BUILDING IN CAGAYAN DE ORO

by: Mike Baños

On 15-Jul-2019, the **Philippine Ports Authority (PPA)** inaugurated the Philippines's biggest seaport **Passenger Terminal Building (PTB)** in the **Port of Cagayan de Oro**, Barangay Macabalan, **Cagayan de Oro City**.

"The construction of this brand new building will greatly strengthen the region as the global gateway to Mindanao. Once we inaugurate this on July 15, we are opening Cagayan De Oro to the nation and to the rest of the world as we pursue progress for our seaports," **PPA** General Manager **Jay Santiago** stated.

PPA GM **Santiago** said the new P276.705 million facility would boost opportunities for economic growth and tourism, not only in the city or in the province of **Misamis Oriental**, but also for the entire Northern Mindanao. Through the expansion project, the new **PTB** can now accommodate up to 3,000 sea-passengers daily, triple its previous passenger capacity of 1,000.

The only port in the country managed and operated by the **Philippine Ports Authority** with such a facility, the 18,150 sqm **Passenger Terminal Complex** houses three major structures: (i) the 2-Storey Passenger Terminal Building, the ground floor of which has a 1,176 passenger seating-capacity and the second floor of which has a 1,221 passenger-seating capacity; (ii) Waiting Area for arriving passengers; and (iii) the Security Checkpoint Facility 1 for embarking passengers. The Complex also has a queuing area for Taxis/PUVs; a designated area for ticketing outlets; covered walkways; open spaces for parking with carbon sink areas containing mature trees and some plants.

The **Passenger Terminal Building** contains facilities and gender and development (**GAD**) amenities for safety, security, comfort and convenience of passengers including Security Checkpoint 2 with X-Ray scanner for luggage/baggage, body scanner, CCTVs; Security Office; Office for PTC Personnel; Ballistics and Ammunitions Office; Passenger Boarding Stations; Collector's Booth; Public Assistance and "*Malasakit*" Help Desks; Offices for Tourism, Quarantine, City Tourist Police, and Coast Guard; waiting areas; designated green area; and storage room.

PPA Administrative Order No. 04-2019, which took effect on 15-July-2019 grants exemption from payment of terminal fee to embarking passengers in all **PPA Ports**, particularly students, senior citizens, persons with disability (PWD), and Selected Uniformed Personnel (**AFP, PNP, PCG**) in active service.

As **PPA** celebrated its 45th Founding Anniversary on 11-July-2019 with the theme "*Apatnapu't limang taon na Malasakit at Serbisyo*" **PPA** has remained steadfast in giving "*malasakit*" and service to the Filipino people. **PPA** GM **Santiago** explained that "*Malasakit at Serbisyo*" will be the mantra of **PPA** in the next 365 days with the end goal of providing "*malasakit*" to the Filipino people through improved port services and towards a comfortable travel experience.

GAD amenities include a children play area; child care station for breastfeeding and diaper changing; ecumenical prayer rooms; special boarding lane for senior citizens, PWDs, pregnant

women, and women traveling with children below age 2; drinking fountains; separate toilet facilities for PWD, female, and male; medical urgent care need room; and a concessionaire area for food stalls, coffee shops, and "*pasalubong*" centers.

Construction of the **PTB** was completed in April this year. In addition, the **PPA** will also be inaugurating its new **Opol Port** in **Misamis Oriental**, and the 6-land electronic multi-gate system.

Together with the ongoing extension of wharf and expansion back-up area, these three projects are part of the **Port Management Office for Misamis Oriental and Cagayan de Oro (PMO MisOrCDO)** program to beef up its operational capability under its 7 Pillars of Development infrastructure program. Developed in consultation with the **Philippine Liners Shipping Association (PLSA)**, the long-term program is geared towards sustaining Northern Mindanao's growth over the next decades.

Metro-Cagayan de Oro is envisioned to become the Philippines 4th Metropolitan Center by 2025 along with Manila, Cebu and Davao, based on the **National Spatial Strategy** proposed network of settlements under the 2017-2025 edition of the **Philippine Development Plan**. As a Metropolitan Center, **Cagayan de Oro** would serve as a center of commercial, financial, administrative activities, and a primary international gateway.

Beyond the immediate port area, **PMO MisOrCDO** will also alleviate road congestion in its entry/exit points through the **Opol Port** zone delineation and development project to address congestion in the West coast highways by handling all incoming cargo from the Western **Misamis Oriental** and **Iligan City**.



Opol Port Project

"The development and construction of Opol Port will decongest Cagayan de Oro Port with the diversion of tramping vessels to Luyong Bonbon, Opol, Misamis Oriental, thereby relieving arterial roads of truck traffic to the port, and the port itself of these vessels," said **Engr. Samuel Claro P. Fontanilla**, **PMO MisOrCDO** engineering services Division Manager. *"As part of the 7 pillars program to transform the Cagayan de Oro Port into a purely containerized port, Opol Port will serve as alternate port for domestic tramping vessels*

to ease berth congestion at **Cagayan de Oro Port** and bring it up to UNCTAD standard," Fontanilla added. The P264-million **Opol Port** project will reduce stand-by time, shifting of vessels, and optimize berth utilization at the **Cagayan de Oro Port**.

Relatedly, the 6-Lane, ISPS compliant **Electronic Gate Complex** through Gate 3 leading to Arcadia Valenzuela Avenue in Lapasan will relieve traffic congestion at Gate No. 2 by providing a 6 lane electronic-controlled access to port users and eliminate long queues at entry point. This facility will be fully equipped with CCTV cameras, weigh bridges for cargo, electronic gates, and payment booths. The EPS will be embedded as part of the RFID system, and will be the first of its kind in the country.

The **Electronic Permit System (EPS)** and **Electronic**



Payment System (ePayment) will be eventually embedded and complemented by the LTO's Motor Vehicle Recognition System through the use of the **RFID** as part of the system.

Expected to grace the inauguration of the three key facilities is DOTr Secretary **Arthur P. Tugade**, who commended **PPA** for its efforts in completing the massive port project for the people of **Cagayan de Oro**.



"I am thankful to **PPA GM Jay Santiago**, and to the men and women of **PPA**, for realizing the dream of building the **biggest Passenger Terminal Building** in the country. This is a huge step towards giving the people of **Cagayan de Oro** a comfortable life through enhanced connectivity, a legacy promised by President Rodrigo Duterte," DOTr Sec **Tugade** said.

"Moreover, it will strengthen the region as the global gateway to Mindanao and gives much impact on our tourism industry where we are able to showcase and afford to both local and foreign tourists the comfort, convenience, accessibility of home, safety and security they deserved in their travel experience," said **Engr. Isidro V. Butaslac Jr**, **PMO MisOrCDO** Port Manager.

"It impacts more on the tourism industry where we can showcase Mindanao and affording as well for both local and foreign

tourists the comfort, convenience, accessibility of home, safety and security in their travels," said **Engr. Butaslac**.

"Since both **Cagayan de Oro** and **Misamis Oriental** are situated in Mindanao where one may have a different outlook vis a vis tourism destinations in other parts of the country, especially considering the continued martial law, it would also afford them a feeling of safety and security, upon setting foot in the port for their departure back to their home, with its sophisticated security equipment and facilities," **Engr. Butaslac** added.

Starting November 2014, when **Engr. Butaslac** assumed the stewardship of **PPA's PMO MisOrCDO**, the port has attained significant milestones, foremost among of which was the port's recognition as one of the **APSN Green Port Award System (GPAS)** winners for 2018, among candidate ports from 18 member economies of the Asia-Pacific Economic Cooperation (APEC).

On 10-December-2018, the **PPA** Head Office endorsed the **PMO MOC's** entry dubbed, "**Philippine Ports Authority Port Management Office of Misamis Oriental/Cagayan de Oro (PMO MOC): Fostering a Green Culture for Port Operations and Management**," and highlighted its initiatives for environmental protection, conservation, and sustainability through the employment of technology; issuance and compliance with environmental policies and mandates; and inculcating environmental awareness among port stakeholders.

Cagayan de Oro Port Manager **Engr. Butaslac** received the Certificate of Recognition, **APSN Green Port Badge**, and flag banners from **APEC Port Services Network (APSN)** during the annual awarding ceremony on 15-November-2018 in Singapore. Barely a month later, the **Development Academy of the Philippines (DAP)** cited the **PMO-MOC** as a **Best Practice** for its environmental protection and conservation during the **2018 Government Best Practice Recognition (GBPR)**.

Operationally, the **PMO MOC** has addressed berthing congestion (already over 100% eight years ago) by segregating berths according to type of cargo of the berthing vessel: Berths 1-2 for break bulk vessels with LOA up to 100m; 3-7 for RORO passenger and break bulk vessels; 8-10 for container vessels; 11-13 for liquid/solid bulk; and 12 & 13 for foreign break bulk vessels with LOA more than 110m. In addition, the port is undertaking dredging to a uniform depth of 13 meters to meet international standards.

As a complement to the berthing classification, **PMO MOC** has also proposed for consideration as a high-impact project, the provision of a break bulk receiving facility at area "A" to enhance palletizing operations, ensure and improve safe and healthy working conditions for dockworkers and other port users, and preserve or protect perishable cargoes from environmental hazards and exposure to extreme weather.

The project is situated about 200 meters from where Mediterranean type vessels carrying cargo to be palletized are berthed. Trucks will no longer enter the port area so as not to congest its operational yard and port roads. Security, yard congestion, entry of irrelevant personnel, and safety concerns are expected to be attained since cargo trucks will no longer have to enter the port operational area. On top of segregating the berths, the quay which has never been extended during the last 6 years until 2015 was extended by another 150 meters, to be eventually lengthened up to 700 meters over the next 20 years.

Not the least, **PMO MOC** replaced its lighting system using solar powered LED lighting to significantly reduce power costs and pilferage of power cable wires.



About the author: Mike Baños is VP-Digital/Editor-at-Large, Mindanao Daily Publishing Corporation, and recipient of 2017 Provincial Reporter of the Year (Print), and Rotary Club of Manila Journalism Awards.

THE PORT MANAGEMENT OFFICE OF AGUSAN (PMO-AGS)

by Vicky Viray Mendoza

The **Philippine Port Authority (PPA) Port Management Office of Agusan (PMO-AGS)** was formerly called **Port Management Unit (PMU) Masao**. Later, **PMU-Masao** was renamed **PMO-Nasipit**, which covered **Baseport Nasipit**, and two government ports: **Terminal Management Offices (TMO) Butuan** and **Masao**.

HISTORY. The recorded history of **Nasipit**, which is a natural cove, can be traced to as early as 1880 when it was declared a pueblo by the Spanish colonizers. **Nasipit** was officially separated from the Municipality of **Butuan** on 1-August-1929. **Butuan City**, the center of trade and industry, is the capital of the province of Agusan del Norte, Mindanao. It is the center of CARAGA Region that comprises the provinces of **Agusan del Norte** and **Agusan del Sur**, the two provinces and the cities of **Butuan: Tandag, Bislig, Bayugan and Cabadbaran**. **Butuan**, a prehistoric city by the mighty **Agusan River**, is reportedly the site of the oldest settlement in the Philippines. Its history, culture, arts and people dates back to the 4th century as showcased in its museums. It has been said that "In the beginning there was no Philippines, but there was Butuan. The Agusan River provided the people with easy means of transportation for trade and commerce of agro-forestry products and making logging a boom industry, which made **Butuan** the "Timber City of the South."

According to the Chinese Soong Shi history, the people of **Butuan** had already established trading relationships with the Kingdom of Champa (now southern Vietnam) in the 10th Century which later made **Butuan** the center of trade and commerce in the Philippines in the 11th century. This is evidenced by the discovery of 9 **Balangays or Butuan Boats**, and the discovery of other archeological artifacts like death masks, Chinese porcelain, weighing scale, gold, and jewelry found in Ambangan, Libertad near the old **El Rio de Butuan** and **Masao River**.

REGIONAL PROFILE. **PMO-AGS** serves a wide hinterland which includes **Agusan del Norte** and the cities of Butuan and Cabadbaran, **Agusan del Sur** and Bayugan City, **Surigao del Sur**, Tandag and Bislig City, and parts of **Bukidnon** Province, **Misamis Oriental**, and **Compostela Valley**. These lands near ports are rich investment areas for agriculture, forestry, and eco-tourism. Strategically situated within the regional center of Region XIII Caraga, the ports play a vital role in linking Northeastern Mindanao to other ports in Mindanao and Central Philippines.

The economy of the region is highly dependent on natural resources based on production and development activities. The presence of ports in the region brings convenience and strategic links to industrial and trading centers such as Cagayan de Oro, Iligan, Zamboanga, Cebu, and Manila.

Infrastructure within the region such as efficient water and power/electricity facilities, improved telecommunications, efficient transport system, excellent road networks, schools, training centers, and hospitals further broaden the advantages of the area. The availability of highly skilled and cheap manpower is an

advantage for industries to be more competitive. The **Butuan Domestic Airport** holds regular flights to and from Manila and Cebu. **Butuan City** is 175 kilometers from Cagayan de Oro City. The completion of the P2 Billion 2nd Magsaysay Bridge eased up traffic of people and goods to and from the region.

The **Agusan-Surigao** area is envisioned to be a leading **agri-aqua industrial area and trade center** of Northeastern Mindanao within the context of sustainable socio-economic growth, ecological soundness, social equity and justice, positive value system in making the area the gateway of equal opportunity for all. The region boasts of its agricultural potentials for diversified systems, vast forest resources to provide lumber requirement for woodwork furniture for export; its long coastline, and fresh and brackish water for marine fishing and aquaculture; wide areas for breeding cattle and other livestock; and varied mineral resources for extraction and processing into high value-added exportable jewelry and metal-based products.

PORT PROFILE. **PPA PMO-AGS** is comprised of **Baseport Nasipit**, 2 government ports, **TMOs Butuan** and **Masao**, and 5 private ports: San Miguel Corp, Butuan City; Pilipinas Shell Petroleum, Cabadbaran City Agusan del Norte; San Roque Metals Inc (SRMI), Tubay, Agusan del Norte; Agata Mining Ventures, Inc (Minimax Mineral Exploration), Tubay Agusan del Norte; and Carlos A. Gothong Lines Inc. (CAGLI), Nasipit, Agusan del Norte. The harbor at **Baseport Nasipit** is 2 kms long and about a kilometer wide, facing north to **Butuan Bay**. Ground elevation around the harbor rises to 20m, quite steep from the water's edge. **Baseport Nasipit** has a total area of 53,941 sqm with an 11,694 sqm open storage area, 1,080 sqm cargo shed, 450 sqm open transit shed, and is 25 kms from **Butuan City** with reinforced concrete (R.C.) paved connecting roads to all parts of Mindanao. It has a fully air-conditioned 1,154 sqm *Passenger Terminal Building* with a 600-passenger capacity, with TVs, DVD Player, and WIFI. It has an R.C. wharf for foreign and domestic cargo and passengers. Berthing side has a 7m depth, and 47m for anchorage. It has 3 sections of 100m-long container berths with a load capacity of 40kPa, and an apron width of 20m with 5 **RORO** ramps of 400 sqm with a 20kPa load capacity. The wharf is protected by rubber fenders and provided with mooring facilities. For small vessels, a 10m depth is safe. For large vessels, 47m is the safe depth for anchorage. anchorage has limited swing for large vessels. Services offered: cargo handling, portorage, ancillary, bunkering, water supply, tug, pilotage, line mooring.

When upgraded, the return on **Baseport Nasipit's** capacity to service large cargo shipments in 40 ft containers would certainly help enhance the ongoing development in the CARAGA REGION, which is focused on tourism, agriculture, and infrastructure, and currently being worked out by LGUs with the assistance of NEDA.

TMO Butuan has 14,500 sqm total area with 3,595 sqm open storage area, 2,540 sqm transit shed, 1,705 sqm *Passenger Terminal Building*, and 130-seater capacity *Butuan Ferry Terminal Complex*



FROM TOP TO BOTTOM:
Nasipit Baseport; view from PMO-AGS ; TMO Masao; TMO Butuan

SOURCE OF MATERIALS:
Information and images were provided by PMO-AGS; port statistics were obtained from PPA website: ppa.com.ph

with canteen, rest rooms, ticket booth, public phone, TV, and DVD. Located in **Butuan City** is the **Bancasi Domestic Airport**, which provides access to major cities in the country. It has an R.C. wharf handling domestic cargo, and a 138-meter-long wharf with a 6m draft, and a 10m draft for anchorage. 7 fender pile clusters with 5 mooring bitts attached to the deck edge protect the wharf.

TMO Masao has 12,758 sqm total area with 6,544 sqm open storage area. Located 7 kms from **Butuan City** in Barangay Lumbocan, it connects to the city with concrete paved roads. It has an R.C. pier 98.8m long and 15m wide, and a 280m causeway approach for foreign and domestic vessels in transporting major commodities. Berthing side draft is 7m, and 75m for anchorage. Deck elevation is 3m with 250 lbs per sq ft load capacity. 3 fender pile clusters with 2 mooring bitts attached to the deck edge protect the pier. Services: cargo handling, portorage, ancilliary, bunkering, water supply, tug, pilotage, and line mooring.

The head of **PMO-Agusan** is **Jose Maria Yares**. He first entered PPA in November 1979, among the pioneer group of employees of Polloc Port located at Parang, Maguindanao. He was assigned to the Port Police Division (PPD) and became its Acting Chief, Investigation Section until mid-September 1995. Polloc Port was later turned-over by PPA to ARMM and became the Regional Port Authority by 07-August-2001. He was later assigned to the Port of Davao as Civil Security Officer-C with the PPD until January 2006. He was then transferred to PMO-Agusan in February 2006, and promoted to Port Police Chief Inspector on 15-March-2012 as Head, Operations Section of PPD. By 06-November-2015, he became a fully-fledged Division Manager-A as Station Commander, PP/Superintendent. On 17-July-2018, he assumed stewardship as Officer-In-Charge of PMO-Agusan. During his stint at the Port of Davao, he received commendations from PPA. Jose Maria Yares is a recipient of the Ginintuang Kagitingan Gantimpala conferred by Gen Mgr A.L. Cusi on 09-July-2004 for bravery during the bombing fronting Sasa Wharf, Port of Davao in April 2004, less than a month after Sasa Airport was hit on March 2004. On 12-March-1992, he was cited for exemplary performance by Gen Mgr R.A. Dayan, and previously by AGMO R.T. Santos on 08-February-1984.

PMO-AGS	2016	2017	2018	CAGR
Shipcalls	1,839	1,425	1,389	-12.5%
Passenger Traffic	329,736	372,503	372,178	6.4%
Container Traffic (TEU)	40,819	51,135	54,567	15.99%
RoRo Traffic	8,407	10,290	10,379	13.91%
Cargo Throughput	8,747,766	7,700,664	4,590,667	-26.2%
Domestic Shipcalls	1,703	1,307	1,333	-10.6%
Domestic Container Traffic	40,819	51,135	54,567	15.99%
Domestic Cargo Throughput	1,667,226	1,622,337	1,699,620	1.04%
Foreign Cargo Throughput	207,169	230,628	272,478	14.7%

Compound Average Growth Rate*

Port Operations Growth. During the period 2016-2018, Container Traffic (TEU) showed the highest growth in PMO-AGS' port operations. Shipcalls showed a -12% downtrend. Passenger Traffic grew 6.4%; Container Traffic (TEU) grew 16%; RORO Traffic grew 14%; and Cargo Throughput (MT) showed a sharp -26% decline. Total Cargo Throughput (MT) on average is comprised of 24% domestic cargo and 76% foreign cargo. Domestic cargo throughput grew 1%, while foreign cargo showed a -33% decline. ⚓



THE PROBLEMS THAT DEFORESTATION OF TROPICAL FORESTS BRING

by Timothy Muelder

Once again the tropical forests of the world are in the news. This time, the forests of the **Amazon Basin** are experiencing uncontrolled wild fires destroying thousands of hectares of forest that are hundreds or thousands of years old.

Considering the technical abilities available on a global level, I ask: How could this happen? What is the cause? And what preventive measures are available to preserve these forests into the future? This issue affects everyone on a global level.

My research into this issue is concentrated in **Asia**, more importantly, the Islands of the **Philippines**.

During the 20th century, ending December 2000, the Philippines enjoyed forest coverage of almost 70%. A report published in 2012 indicates coverage of approximately 20%; a net loss of 50%, mostly due to legal and illegal logging

operations with neither respect for re-forestation nor concern for being environmentally sensitive.

I have visited the **Los Baños** area staying at “**Hidden Valley**” and took pictures of the oldest – biggest Nara tree I’ve ever seen. A past typhoon unfortunately brought down this majestic tree but it didn’t fall to a logger’s saw. The effects of forest clear-cutting are very visible in the calamities experienced after tropical rains. The landslides, flooding, road and bridge wash-outs, along with “loss of life, should be a wake-up call to action. Immediate action should be employed to battle this problem.

Another action that is visible to deforestation is the destruction of **mangrove** forests along our coastline. **Mangrove** destruction for fuel and charcoal-making has depleted wide tracts of **mangrove** forests nationwide that protect our

coastline from storm surges, and provide habitats for all aquatic creatures. Charcoal-making is a major culprit, kept alive by the millions of rural and urban poor who rely heavily on charcoal for energy needs in this non-oil and non-petroleum producing country enslaved by expensive fuel imports.

Silliman University Marine Biologists **Frances T.**

Bengwayan and Marjho Cardoza reported on the **mangroves** in "Current Status and Threats of Philippine Mangroves." They said, "the Philippines currently has 30 to 40 **mangrove** species belonging to 15 families which make the nation one of the top 15 most **mangrove**-rich countries in the world. It holds at least 50% of the world's identified 65 **mangrove** species. But many are struggling to survive against human-induced destructive activities."

Of the estimated 250,000 hectares of **mangrove** forests, only 80,000 hectares are left, 40,000 hectares of which are found in **Palawan**. The loss is a result of a **mangrove-depletion** rate of 2% to a high of 8% in some areas annually for the past 10 years.

Fishponds in the Philippines are also a culprit for **mangrove** destruction, predominantly used for the culture of milkfish (*Chanos chanos*). The rapid development has led to wide areas devoted to fishponds, where **mangroves** that breed non-fishpond denizens were destroyed to give way to milkfish production. It's been reported that between 1950-1972, some 70,000 hectares of **mangroves** have been converted into fishponds. The conversion of **mangrove** lands into fishponds increased fish production from aquaculture, but decreased production from coastal fisheries.

It is said nature is the best teacher. Indeed, humans have learned the hard way after the chilling 2004 tsunami and 2013 Super Typhoon Yolanda (international code name Haiyan) left thousands of people dead in Asia.

Once more, people were planting trees in their **mangroves** – from Sri Lanka, Thailand, to the Philippines. They fully realized that **mangroves** form low-lying thickets that hug the shore and protect coastal areas from storms, hurricanes, typhoons and storm surges in tropical regions around the world.



Coral reef eco-systems near the outflow of the rivers flowing through **mangroves** into the sea are being poisoned by pesticides, fertilizers, human and animal waste, and most importantly the topsoil silt of the forest and farmland that support the local economies are lost to the sea. The silt covers the ocean bed killing **mangroves** and the coral eco-system supporting fish populations, thus eliminating an entire food producing industry.



This is indeed a global concern and since the **Philippines** is right in the middle of this issue, it would be prudent to enact and enforce more vigorous regulations to ensure full recovery, which may take several years to achieve.



About the author:

Timothy Muelder is a retired Facilities Manager of the U.S. Department of State.



147TH MARITIME FORUM

HOSTED BY NCWCS, JULY 26 2019, MABINI HALL,
MALACANANG PALACE



148TH MARITIME FORUM

HOSTED BY PPA, AUGUST 23 2019, PPA BLDG, BONIFACIO
DRIVE, MANILA

WHY THE RUSH IN SEABED MINING IN THE PACIFIC OCEAN?

EXECUTIVE SUMMARY

by: Deep Sea Mining Campaign

The Pacific Ocean is the scene of a new Wild West. Companies and their investors, hungry for profits, are driving a speculative rush for seabed minerals. Donor government-supported programs that promote the development of 'responsible' seabed mining regulations provide aid.

THE PERILS OF DEEP SEA MINING. Deep Sea Mining (DSM) is as yet an unproven industry hoping to extract minerals deposited on the sea floor at depths below 200m. The metals sought include iron, manganese, copper, zinc, lead, nickel, cadmium, silver, platinum, cobalt, rare earths, and gold. There are 3 distinct types of ore deposits found in deep seabeds: (i) ferromanganese nodules; (ii) cobalt crusts; and (iii) seafloor massive sulphides. Very little is known about the potential impacts of DSM. These uncertainties are due to the experimental nature of mining, lack of knowledge about the deep ocean ecosystems, and the ways in which these connect with marine food webs. The only certainty is direct and indirect impacts at every stage of the mining process.

WHOSE INTERESTS WILL NEW REGULATIONS BE SERVING?

The development of seabed mining regulations, at both Pacific regional and international levels is occurring in haste in the absence of meaningful public debate and with little consideration of the precautionary principle and the free, prior and informed consent of the Pacific Island citizens who would be adversely affected by this unprecedented industry. The processes surrounding the seabed mining regulations appear to be pushed along by would-be DSM companies and skewed towards their interests. It is questionable whether the International Seabed Authority (ISA) – the United Nation's (UN) agency responsible for managing seabed resources outside national jurisdictions and charged with developing DSM regulations for this area – is in fact able to serve the interests of its member states and the environment it is mandated to protect.

The Secretary-General of this UN body, Michael Lodge, actively promotes the commercial interests of one seabed mining company, DeepGreen Metals Inc, in the company's advertising videos and in orchestrated panels at meetings of Pacific Island political leaders. ISA's Legal and Technical Commission, which drafts the Mining Code, is closed to civil society participation, despite receiving direction from the ISA Assembly to meet in open sessions. The exploration licenses the ISA Secretariat has issued to DeepGreen and other companies are confidential, as are the annual reports on exploration activities that companies are required to submit to the ISA. In a move that questions the integrity of the ISA, DeepGreen's Chief Executive Officer Gerard Barron's close relationship with President Baron Waqa of Nauru saw him take Nauru's seat during the February 2019 ISA meeting. He used the opportunity to promote his company and to urge the ISA towards completing the Deep Sea Mining Code. The Nauru government, responding to DeepGreen's promises of wealth, has become the Pacific's seabed mining champion. Nauru's President Baron Waqa, ISA Secretary-General Michael Lodge and DeepGreen have utilized

Nauru's position as 2019 chair of the Pacific Islands Forum to promote seabed mining as the region's economic panacea. In this, they have attempted to justify their views through the existence of the Regional Legislative and Regulatory Framework and more recent draft regional agreement on seabed mining developed by the Pacific Community (SPC) and European Union funded DSM programs. The SPC–EU DSM program was implemented by the SPC's Geoscience, Energy and Maritime Division (formally Applied Geotechnical Division), which holds decades of data on surveying the sea floor body. However, these documents have been met with vocal opposition from Pacific civil society, who see them as a possible opening to massive exploitation and risk. DeepGreen's interests are clear and unsurprising. Its financial prospects depend on the finalization of the ISA Seabed Mining Code and the Pacific regional seabed mining treaty. What is startling is the way in which the ISA Secretary-General and Nauru's government appear willing to sacrifice their official mandates. Their duties of care for global, regional and national citizenry, and the marine environments we all depend on, are seemingly being abandoned in favor of a financially, socially and environmentally risky DSM industry and DeepGreen's commercial interests.

WHY THE RUSH? Some investors in first-mover seabed mining companies have already made handsome profits based on speculation about the possibility and the potential of DSM in the Pacific Ocean, without undertaking any actual mining. Whether or not they ever undertake any mining, DSM industry speculators are poised to reap further profits if the regulations they are pushing for are ratified. They are ready to ride the resultant wave of speculation on the value of seabed minerals and of their exploration licenses. Globally, ocean ecosystems are under stress due to pollution, plastics, overfishing and climate change. The aspirations of seabed mining companies will seriously compound these environmental stressors. In recognition of this, civil society, NGOs, fisheries, tourism operators, scientists and governmental bodies around the world are calling for a moratorium on DSM. The European Parliament adopted a resolution on international oceans governance in January 2018 that called on European states to stop sponsoring DSM exploration in international waters and to support a moratorium on DSM.

This call has been echoed by the Environmental Audit Committee of the UK House of Commons since 2018, the UN Envoy on Oceans at the World Economic Forum in Davos, and Fiji's Bainimarama government announced in June 2019 that it will ban sea-bed mining in its waters. Scientific research continues to add to the grim pool of knowledge about our oceans' declining health and their importance as planetary life support systems. A moratorium on DSM is the only safe recourse. The urgency of the species extinction crisis we now face demands a moratorium on the development and adoption of seabed mining regulations as well as the issuing of exploration and exploitation licenses in national and international waters. 🚧



THE LIGUASAN MARSH

by Josephine M Viray

Liguasan Marsh, located in Southern Mindanao, is the largest Marsh wetland in the Philippines, covering over 220,000 hectares, spread across the provinces of Maguindanao, Cotabato, and Sultan Kudarat. It is a conglomeration of three marshes: Liguasan Marsh proper, Libungan Marsh, and the Ebpanan Marsh. A marsh is a tract of soft wetland characterised by grasses and cattails (Monocotyledons), which are tall reedy marsh plants with brown furry spikes. Giant Reed plants (*Typhoon Latifolia*) with long flat leaves abound and are used especially for making native mats and chair seats. The Muslim people have been laying claim to Maguindanao and North Cotabato as part of their ancestral domain.

The Luwaran Editorial Desk stated on 9-April-2017, *“It is good news to hear that the Duterte administration is pouring at least Php21 million for the planting of bamboo and mangroves in the **Liguasan Marsh**. By modest standards, the money is too small but as a starting point, it is more than enough.”*

Rene Acosta reported on 24-June-2018 on Business Mirror, The Terrain, *“According to Military Public Affairs chief **Col. Noel Detoyato**, the marshland is very fertile for*

*planting crops, which makes it “very inviting” for civilian habitation. The rich patches of lands of **Liguasan** grow one of the best varieties of **corn and rice** in the country, with the villagers cultivating what is locally called as **Tapul or Denorado** for avid staple consumers.”*

Several rare palms, orchids and ferns like the Water Hyacinth (*Eichhornia crassipes*); Anahau Palm (*Livistona rotundifolia*); Buri Palm (*Corypha elata*); Nipa Palm (*Nypa fruticans*); Areca Nut (*Areca catechu*); Screw Pine (*Pandanus tectorious*); Sweet Flag (*Calamus mallis*); Bird’s Nest Fern (*Asplenium ridus*); and Oak Leaf Fern (*Drynaria quercifolia*) are found in **Liguasan** because of the rich freshwater from the Marsh.

About 30,000 hectares are designated as a game refuge and bird sanctuary. **Liguasan Marsh** is *“seen to have great potential for eco-tourism as it is home to rare birds that can only be found in the Marsh,”* according to **Emelie Jamorabon**, Tourism Officer, Tacurong City. A Mindanao endemic subspecies of water birds, the vulnerable **Philippine Duck** (*Anas luzonica*) and the **Little Grebe** (*Tachybaptus Ruficollis cotabaco*), as well as the **Comb-crested Jacana** (*Irediparra gallinacea*), are all endemic to Liguasan Marsh. The **Jacana** is also

known as the *Lotus Bird* or the *Lillytrotter Bird*, because it walks above the water surface by leaping on leaves of water lilies. The Marsh also serves as a nesting place of the famous **Philippine Monkey-eating Eagle** (*Pithecophaga jeffery*).

Of the 31 fish species collected, 19 (65%) are native, composed of cyprinid, goby, catfish, gourami, eel, banak, climbing perch, gilli, pigeek, and jack. A serious fishery undertaking at **Liguasan Marsh** is culturing *Tilapia* and fattening up *Mudfish*. The **Philippine Crocodile** (*Crocodylus mindorensis*), which is endangered, as well as the larger **Estuarine Crocodile** or **Saltwater Crocodile** (*Crocodylus porosus*) have made the Marsh their home. Losing these rare, endangered species to extinction also means the world losing a precious biological heritage.

Liguasan Marsh is also thought to hold large reserves of oil and natural gas. According to **Col. Noel Detoyato**, "While there may be reports of oil and natural gas in **Liguasan**, the amount of deposits is inconclusive. The oil there is young, and as to how big the deposit is, it is inconclusive. Reports about the presence of natural gas in the Marshland were buoyed by information that some residents who lived in the surrounding municipalities have their water pipes spew with fire when lighted. In **Kabuntalan, Maguindanao**, there's a water pipe where natural gas comes out. If lighted, it creates fire. Similar discoveries were also reported in **Sultan sa Barongis** in the same province, and even in **Tantangan, South Cotabato**. The presence of gas deposits in **Maguindanao** was confirmed by the **Tukanakuden Oil Exploration Project** by the Philippine National Oil Corp (PNOC) in 1997, and who's drilling equipment were secured by **Detoyato** and his team then. However, **Detoyato** could not give the results of the explorations. Reports said the drilling operations, held in **Barangay Tukanakuden, Maguindanao**, unearthed a composition of 99% methane gas with small traces of ethane gas. The same composition of gas was also discovered at **Barangay Kulambog, Maguindanao**." (R. Acosta, *Business Mirror*, 24-June-2018)

"**Liguasan Marsh** will benefit the Muslim people and all the residents that live within and even in the surrounding areas and provinces if it really has oil deposits. It will be put to good use," said **Col. Detoyato**. "In the years since the first comprehensive peace agreement was forged with the Muslim rebels in 1996 during the **Ramos** administration, various research teams from several countries that supported the post-agreement development program were reported to have been deployed to **Liguasan**, sparking speculation that, indeed, the Marsh may be holding a lot of resources," **Col. Detoyato** added.

This Marsh is one of the most ecologically significant wetlands in the Philippines. Let us support the long-time efforts of **DENR** to make the **Liguasan Marsh Wildlife Sanctuary** be declared a protected area under the **NIPAS Act** of the Philippines.



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MARITIME FORUM

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

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BALLAST WATER MANAGEMENT AND THE IMPORTANCE OF PROPER HANDLING

by Timothy Muelder

During the **147th Maritime Forum**, I had the opportunity to listen to a very informative presentation by **MARINA Director Marc Anthony Pascua** regarding **Ballast Water Management**. The presentation outlined its importance with regard to international transportation of **Invasive Aquatic Organisms** through commercial shipping. This presentation prompted me to further explore the issue, and write this article.

With the introduction of steel-hulled vessels, water has been used as ballast that stabilizes vessels at sea, and in port during cargo transfer operations. Ballast water is pumped in and out to maintain a safe and stable operating condition during all operations. This practice reduces stress on the hull, provides transverse stability, improves propulsion and maneuverability, and compensates for weight changes in various cargo load levels, in addition to fuel and water transfers.

While ballast water is essential for safe and efficient modern shipping operations, it may pose serious ecological, economic and health problems due to the multitude of marine species carried in ships' ballast water. These include bacteria, microbes, small invertebrates, eggs, cysts and larvae of various species. The transferred species may survive to establish a reproductive population in the host environment,

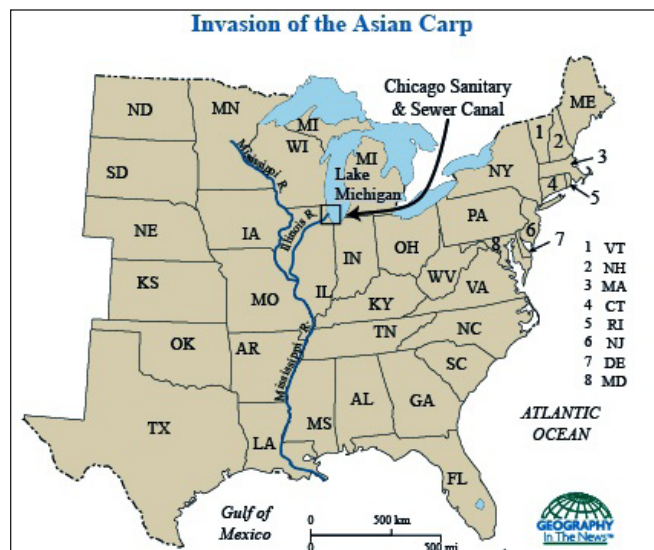
becoming invasive, out-competing native species and multiplying into pest proportions.

The problem of invasive species in ships' ballast water is largely due to the expanded trade and traffic volume over the last few decades and, since the volumes of seaborne trade continue to increase, the problem may not yet have reached its peak. The effects in many areas of the world have been very problematic, quantitative data show that the rate of bio-invasions is continuing to increase at an alarming rate and new areas are being invaded all the time.

The spread of invasive species is now recognized as one of the greatest threats to the ecological and the economic well-being of the planet. These species are causing enormous damage to biodiversity and the valuable natural riches of the earth upon which we depend on. Direct and indirect health effects are becoming increasingly serious and the damage to the environment is sometimes irreversible.

Although I don't have experience within **Philippine** waters, I do have first-hand knowledge of this issue while growing up around the **Great Lakes** in the **United States** when the **Zebra Mussel** invasion from the **Black Sea** in **Eastern Europe** occurred through discharged ballast water into the Great Lakes.

It continues to be a problem requiring chemical application to control in the largest fresh water lakes in the world that has the potential to detrimentally affect the drinking water for millions in two countries, Canada and United States.

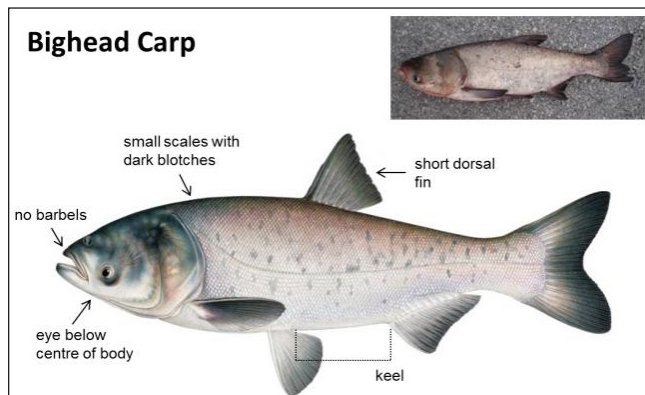


Asian Carp are also an invasive species invading the U.S. from the south end of the **Mississippi River** marching North up the **Mississippi River** and its tributaries heading for the **Great Lakes** past Chicago. Blockage plans are underway to prevent their entry. **Asian Carp** presence in the **Great Lakes** would decimate the local fish-stock causing millions of loss to commercial and sports fishermen.

Microbiologic invasion such as **Cholera**, **Cladoceran Water Flea**, and species of **Toxic algae**, among others, are also a serious concern for proper ballast water management and treatment. Entry of something of this nature into a habitat with no defense could have devastating consequences for the health and well-being of those in the affected areas.

There are many examples of international bio-invasions but since 2017, the **International Maritime Organization (IMO)**

has been working globally and in the **Philippines** with strong support from **MARINA** to address/control/eradicate the potential for catastrophic invasion of serious invader aquatic invasive



species.

Continued support for International aquatic safety is dependent on the work of **IMO** with support from the global community including **Philippines' MARINA** to protect our pristine waters that surround our islands. In my research and opinion, **MARINA** has done a better job in protecting the Philippine waters than many other countries around the world.

It will take a globally consorted effort to manage and control this potentially invisible invasion to the pristine waters of the world, and the **Philippines** particularly as it is surrounded by sea.

Proper Ballast Water Management

is not only important for control of **invasive species invasion**, so on a side note I've included what can, and does, actually happen when **Ballast Water Management** is miss-managed during cargo transfer. The importance of proper management is very evident in the pictures. It should be understood ballast water was indeed pumped into the harbor waters.

Some examples of aquatic **bio-invasions** causing major impact are listed in the table below, but there are hundreds of other serious invasions taking place, which have been recorded around the world. ⚓

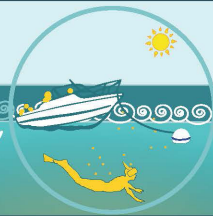
Name	Native to	Introduced to	Impact
Cholera (<i>Vibrio cholerae</i>)	Various strains with broad ranges	South America, Gulf of Mexico and other areas	Some cholera epidemics are reported to be have been associated with ballast water.
Cladoceran Water Flea (<i>Cercopagis pengoi</i>)	Black and Caspian Seas	Baltic Sea	Reproduces in very large populations that dominate the zooplankton community and clog fishing nets and trawls with associated economic impacts.
Chinese Mitten Crab (<i>Eriocheir sinensis</i>)	Northern Asia	Western Europe, Baltic Sea and west coast North America	Undergoes mass migrations to reproduce; burrows into river banks and dykes causing erosion and siltation; preys on native fish and invertebrate species, causing local extinctions during population outbreaks; interferes with fishing activities.
Toxic Algae (red/brown/green tides) various species	Various species with broad ranges	Several species have been transferred to new areas in ships' ballast water	May form harmful algae blooms; depending on the species, can cause massive kills of marine life through oxygen depletion, release of toxins and/or mucus; can foul beaches and impact on tourism and recreation; some species contaminate filter-feeding shellfish and cause fisheries to be closed; consumption of contaminated shellfish by humans may cause severe illness and death.
Round Goby (<i>Neogobius melanostomus</i>)	Black Sea, Asov Sea, and Caspian Sea	Baltic Sea and North America	Highly adaptable and invasive; propagates and spreads quickly; competes for food and habitat with native fish including commercially important species, and preys on their eggs and young; spawns multiple times per season; survives in poor water quality.
North American Comb Jelly (<i>Mnemiopsis leidyi</i>)	Eastern seaboard of the Americas	Black Sea, Asov Sea, and Caspian Sea	Reproduces rapidly (self-fertilizing hermaphrodite) under favorable conditions; feeds excessively on zooplankton; depletes zooplankton stocks; alters food web and ecosystems; contributed significantly to collapse of Black and Asov Sea fisheries in 1990s, with massive economic and social impact; now threatens the Caspian Sea.
North Pacific Seastar (<i>Asterias amurensis</i>)	Northern Pacific	Southern Australia	Reproduces in large numbers, reaching 'plague' proportions rapidly in invaded environments. Feeds on shellfish, scallop, oyster, and clam species.
Zebra Mussel (<i>Dreissena polymorpha</i>)	Eastern Europe (Black Sea)	Western and northern Europe, including Ireland and Baltic Sea; and eastern half of North America	Fouls all available hard surfaces in mass numbers; displaces native aquatic life; alters habitat, ecosystem and food web; causes severe fouling problems on infrastructure and vessels; blocks water intake pipes, sluices and irrigation ditches; economic costs to USA between 1989-2000 is US\$750M-\$1B.
Asian Kelp (<i>Undaria pinnatifida</i>)	Northern Asia	Southern Australia, New Zealand, West Coast of United States, Europe, and Argentina	Spreads rapidly vegetatively or through dispersal of spores; displaces native algae and marine life; alters habitat, ecosystem and food web; affects commercial shellfish stocks through space competition and alteration of habitat.
European Green Crab (<i>Carcinus maenas</i>)	European Atlantic coast	Southern Australia, South Africa, USA, Japan	Highly adaptable and invasive; resistant to predation due to hard shell; displaces native crabs; becomes dominant specie after invasion; consumes and depletes wide range of prey; alters intertidal rocky shore ecosystems.

SUNSCREEN CHEMICALS AND MARINE LIFE

How sunscreen chemicals enter our environment:



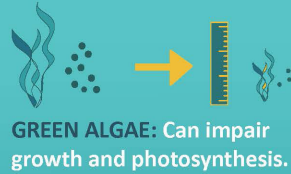
The sunscreen you apply may not stay on your skin.



When we swim or shower, sunscreen may wash off and enter our waterways.



How sunscreen chemicals can affect marine life:



How we can protect ourselves and marine life:

Seek shade between 10 am & 2 pm, use Ultraviolet Protection Factor (UPF) sunwear, and choose sunscreens with chemicals that don't harm marine life.



Seek shade: 10am to 2pm



Umbrella



Sun hat



UV Sun glasses



Sun shirt



Leggings



oceanservice.noaa.gov/sunscreen

EFFECT OF SKINCARE CHEMICALS ON CORAL REEFS

by NOAA

The common chemicals used in thousands of products to protect us against harmful effects of ultraviolet light, threaten corals and other marine life.

Healthy coral reefs are one of the most valuable ecosystems on Earth. They provide billions of dollars in economic and environmental services, such as food, coastal protection, and tourism. However, coral ecosystems around the world face serious threats from a number of sources, including climate change, unsustainable fishing, land-based pollution, coastal development, disease, and invasive species.

Recently, scientists have discovered that some of the chemicals found in sunscreen and other personal health products also threaten the health of coral reefs. Two of those studies, led by NOAA researchers and partners, are detailed below. How these, and other compounds, affect reef ecosystems remains an active area of research among scientists.

Effects of the Sunscreen UV Filter, Oxybenzone (Benzophenone-3)

In a 2016 study, a team of international scientists found that a common chemical in many sunscreen lotions and cosmetics is highly toxic to juvenile corals and other marine life. **Oxybenzone**, or **BP-3**, is found in more than 3,500 skin care products worldwide for protection against the sun's harmful effects. The compound has been found entering the environment both through wastewater effluent and directly from swimmers wearing sunscreens.

The study published in the *Archives of Environmental Contamination and Toxicology Journal* showed 4 major toxic effects in early developing coral: (i) increased susceptibility to bleaching; (ii) DNA damage (Genotoxicity); (iii) abnormal skeleton growth (via endocrine disruption); and (iv) gross deformities of baby coral.

The authors of the study conclude that nontoxic

Oxybenzone alternatives are critical for protecting reefs and the exacerbating effects posed by climate change and bleaching.

- **How sunscreen chemicals enter our environment:** The sunscreen you apply may not stay on your skin. When we swim or shower, sunscreen may wash off and enter our waterways.
- **How sunscreen chemicals can affect marine life:**
 - **Green Algae:** Can impair growth and photosynthesis.
 - **Coral:** Accumulates in tissues. Can induce bleaching, damage DNA, deform young, and even kill.
 - **Mussels:** Can induce defects in young.
 - **Sea Urchins:** Can damage immune and reproductive systems, and deform young.
 - **Fish:** Can decrease fertility and reproduction, and cause female characteristics in male fish.
 - **Dolphins:** Can accumulate in tissue and be transferred to young.
- **Chemicals in sunscreens that can harm marine life include:** Oxybenzone, Benzophenone-1, Benzophenone-8, OD-PABA, 4-Methylbenzylidene camphor, 3-Benzylidene camphor, nano-Titanium dioxide, nano-Zinc oxide
- **How we can protect ourselves and marine life:** Seek shade between 10 am & 2 pm, use Ultraviolet Protection Factor (UPF) sunwear, and choose sunscreens with chemicals that don't harm marine life.

Effects of the Skincare UV filter, Benzophenone-2

In a December 2013 study published in *Ecotoxicology*, **NOAA National Centers for Coastal Ocean Science** researchers and their partners had discovered that a sunscreen chemical commonly used in many soaps, cosmetics, and body fragrances is highly toxic to corals.

The team's data show that even very low concentrations of **benzophenone-2**, or **BP-2**, can quickly kill juvenile corals. BP-2 is an additive used in personal-care products since the 1960s to protect against the damaging effects of ultraviolet light.

The team also found that **BP-2** causes colorful corals to bleach, and can potentially induce or increase the frequency of mutation in corals by causing damage to their DNA. **BP-2** is not removed from most municipal wastewater treatment facilities. This discharge is often directly released into coastal waters of the Caribbean and Indo-Pacific, threatening near-shore coral reefs.

Although pollution is a major cause of coral reef degradation and the easiest factor to mitigate, BP-2 as a pollutant has largely been ignored, according to C.A. Downs, Lead Author of the study.

"In the case of **BP-2** pollution, there are a range of options that can be considered for reducing its impact to reefs —from working with manufacturers and innovating more environmentally sustainable products, to educating consumers regarding product selection and product disposal," **C.A. Downs** said. ⚓



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 - Master of Science in Marine Engineering (Technical Superintendent)

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.

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 Transportation (BSMT), 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 BSMT 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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