

# AN ASSESSMENT ON BIOFOULING MANAGEMENT AND ITS POTENTIAL RISK TO THE MARITIME INDUSTRY IN THE PHILIPPINES

For proposed policies and implementation strategies

**Dr. Benjamin M Vallejo Jr**

[Email address]



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## **Acronyms**

AFSC - International Convention on the Control of Harmful Anti-Fouling Systems on Ships

ARB – Antibiotic resistant bacteria

BU- Bicol University

BWM -Ballast water management

BWMC – Ballast Water Management Convention

CBD- Convention on Biological Diversity

CITES- Convention on the Trade of Endangered Species

CPA- Cebu Ports Authority

DA- Department of Agriculture

DA-BAI- Bureau of Animal Industry

DA-BFAR – Bureau of Fisheries and Aquatic Resources

DA-BPI -Bureau of Plant Industry

DA-NFRDI – National Fisheries Research and Development Institute

DENR – Department of Environment and Natural Resources

DENR-EMB – Environmental Management Bureau

DENR—BMB – Biodiversity Management Bureau

DOH- Department of Health

DOST – Department of Science and Technology

DOST-PCIEERD – Philippine Council for Industry, Energy, and Emerging Technology Research and Development

DOTr – Department of Transportation

DSDP- Domestic Shipping Development Program

DTI- Department of Trade and Industry

EO – Presidential Executive Order

GEF – Global Environment Facility

GPP- GloFouling Partnerships Project

IAS -Invasive aquatic species

UICD- University of the Immaculate Conception-Davao  
 ICS -Incident command system  
 IMO -International Maritime Organization  
 IMO-MEPC – International Maritime Organization Maritime Environmental Protection Committee  
 IOC-WESTPAC- International Oceanography Commission Sub-Commission for the Western Pacific  
 JICA- Japan International Cooperation Agency  
 MARINA – Maritime Industry Authority  
 MARPOL- International Convention for the Prevention of Pollution from Ships  
 MNIS -Marine non-indigenous species  
 NaGISA- Natural Geography In-Shore Areas Project  
 NIPAS -National Integrated Protected Areas Act  
 NIS- Non-indigenous species  
 NISSAP- National Invasive Species Strategy and Action Plan  
 PBSAP- Philippine Biodiversity Strategy and Action Plan 2015-2028  
 AFS – Anti-Fouling Systems  
 PCG – Philippine Coast Guard  
 PCG-MEPCOM – Philippine Coast Guard Marine Environmental Protection Command  
 PCG- MARSAP- Philippine Coast Guard Maritime Safety  
 PD – Presidential Decree  
 PPA- Philippine Ports Authority  
 RA – Republic Act  
 RoPax- Roll on Passenger ship  
 RoRo- Roll on, roll off ship  
 SAILS - Ships Ballast Water and Biofouling Research Program  
 SAILS -BWM -Ballast Water Management Project  
 SAILS- PORTEC -Port Ecological Baselines Project  
 UN – United Nations

UNCLOS-United Nations Convention on the Law of the Sea

UNDO – United Nations Development Organization

UNESCO – United Nations Education and Scientific Organization

UNFCCC- United Nations Framework Convention on Climate Change

UP – University of the Philippines

UPD – University of the Philippines Diliman campus

UPLB – University of the Philippines Los Baños campus

UPM – University of the Philippines Manila campus

UPV -University of the Philippines Visayas campus

# A glossary of marine biological invasion with respect to biofouling and ballast water management

Adapted from

Chavanich S, Vallejo BM, Tan,LT (2011) Report on the current status of marine non-indigenous species in the Western Pacific, UNESCO, WESTPAC, IOC, Bangkok , Thailand

With contributions from the Philippine Coast Guard

**Accidental introduction** – Introduction of an aquatic organism by chance and not by design.

**Alien species (AS)**– species of plant, animal, micro-organisms introduced outside or beyond their past or present natural distribution by human activity.

**Synonyms:** *exotic, foreign, non-indigenous, non-native, introduced species.*

**Anti-fouling (AF)** – processes and materials that prevent biofouling on human made surfaces.

**Aquarium species** – Species imported and transferred into confinement for ornamental indoor or outdoor use.

**Synonym:** *ornamental species*

**Ballast water (BW)** – water together with its suspended matter, taken on by a ship to ensure stability.

**Ballast water treatment system (BWTS)**, also known as is a system designed to remove/inactivate biological organisms in ballast water.'

**Synonym:** *Ballast water management system (BWMS)*

**Ballast water exchange area** – a designated PCG marine area wherein ships are allowed to conduct ballast water discharge, replacement and pumping in clean water prior to entering a port.

**Biodiversity** – variability of living species including the diversity of their habitats and their genetic variability in their populations.

**Biofilm** – a community of syntrophic (feeding on the metabolic products of other species) microorganism species whose cells are attached to each other and attached on a surface and forming an extracellular slime matrix.

**Biofouling** – the accumulation of organisms on surfaces most especially human made surfaces, where it is not wanted, and can cause degradation and/or damage to these surfaces.

**Biogenic matrix** – material or surfaces of biological origin, which allows for the recruitment, establishment, and community succession of biofouling species.

**Biogeography** – the science that documents the distribution of species in space and time.

**Country of origin** – The country where a species is native or indigenous.

**Cryptogenic species** – Species whose biogeographic and evolutionary history in the community is unknown.

**Cryptic species** – species that are genetically different, have a common ancestry but are morphologically very similar.

**Epibiosis** – the biofouling of natural surfaces by non-infective or non-parasitic organisms.

**Synonyms:** *Periphyton, Aufwuchs*

**Eradication** – measures to eliminate invasive alien species from a defined area.

**Hybrid** – The offspring of two different species which may be fertile or non-fertile.

**Import** – movement of species across national or subnational boundaries or borders.

**Indigenous species** – Species that naturally originate and have evolved in a particular region or environment.

**Synonym:** *native species*

**Intentional introduction**- The deliberate movement and/or release by humans of an alien species outside its natural range.

**Introduced species** - Any species intentionally or accidentally transported and released by humans into an environment or facility with effluence access to open-water or flow-through system outside its present range.

**Synonyms:** *exotic, foreign, non-indigenous, non-native, alien species*

### **Invasive species**

- 1) Species whose introduction or spread threatens the environment, economy and society.
- 2) Species whose introduction causes or is likely to harm the environment, economy and or public health.
- 3) Species which becomes established in natural or semi-natural ecosystems or habitat and causes ecological change which threatens native biodiversity.

**Synonyms:** *nuisance, pest species.*



**Invasive alien species (IAS)** – invasive species that are not indigenous to an area but was released either intentionally or unintentionally to another area and threatens the environment, economy and or public health.

**Marine non-indigenous species (MNIS)**- marine species observed and established outside their natural distributional range.

**Marine protected area (MPA)**- A protected area that involve the protective management of natural areas according to defined management objectives such as economic resources, biodiversity conservation and species protection.

**Native range** – the natural limits of the geographic distribution of a species

**Pathway**- The routes by which a species moves from one locale to another, either within a country or between countries.

**Port state control authority** – Public officers performing Port State Control Functions. PCG is authorized under Republic Act (RA) 993 as the Port State Control Authority of the Philippines and performs inspection aboard foreign flagged ships/vessels.

**Range expansion** – Species dispersal by natural mechanisms or processes into a region where the species did not previously exist.

**Release** – the liberation of an organism to the natural environment whether this is natural or human mediated.

**Risk** – the probability of a negative or undesirable event happening.

**Risk assessment** – The process of identifying and describing then risks of introduction or transfers of aquatic organisms, which have an impact to the environment, habitats, fisheries, aquaculture and or public health in the receiving waters before such introductions, or transfers take place. The process of identifying a hazard and estimating the risk presented by the hazards in either qualitative or quantitative terms.

**Species (biological)** – a population of interbreeding organisms that differs from and is reproductively isolated from other populations.

**Species (morphological)** – a population of individuals, which can be defined by a set of morphological characters that differentiate it from other populations.

**Translocate/transfer** – the process of moving an organism from one location to another.

**Vector** – Any living, non-living or human made carrier that transports living organisms intentionally or unintentional

## Introduction

Marine biological invasion via the maritime industry is one of the greatest threats to marine biodiversity. While biological invasion by natural means is an ecological process that regulates marine biodiversity, biological invasion mediated by human activity is likely to place ecological communities in disequilibrium which may lead to localized extinctions as well as economic and public health impacts. In the global maritime industry, this is largely through ballast water discharge and biofouling of ships hulls. The ecological effects of maritime industry mediated biological invasion are well documented in the literature.

The International Maritime Organization (IMO) has recognized the biological invasion threat posed by invasive aquatic species (IAS). The IMO has presented two conventions, the Ballast Water Management and the Anti Fouling Systems that mandate signatory maritime states to implement appropriate measures to prevent the introduction of and manage the adverse environmental impacts of IAS.

Recent studies of port ecological communities suggest that biofouling is a likelier vector of biological invasion than ballast water release. In Port Phillip Bay, Australia, up to 55% of non-indigenous marine species may have been introduced from ships' hulls compared with less than 30% from ballast water. In New Zealand close to 60% of non-indigenous marine species are thought to have been introduced through fouling, compared with less than 25% through ballast water. The percentage in San Francisco Bay, California, USA is 55% (Davidson et al. 2014). It is reasonable to assume that 55% of non-indigenous marine species detected around the world could have been introduced by biofouling.

The IMO in 2011 through its Marine Environmental Protection Committee (MEPC) adopted "The Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species", hereafter referred to as Biofouling Guidelines. IMO Resolution complemented this MEPC.1/Circ.792: Guidance for Minimizing the Transfer of Invasive Aquatic Species as Biofouling (Hull Fouling) for Recreational Craft.

The Biofouling Guidelines recognize that implementing practices to control and manage ship biofouling will reduce IAS introduction and biological invasion. Aside from reducing ecological risks, the Biofouling Guidelines will reduce hydrodynamic drag and thus improve energy efficiency and reduce greenhouse gas emissions. These guidelines present best practices and the GEF-UNDO-IMO GloFouling Partnerships Project (GFP), which was launched in December 2018, aims to capacitate developing countries to implement IMO Biofouling Guidelines. This will allow these countries to identify a national strategic biofouling management policy goal and design programs, legislative, policy and institutional arrangements and tools particular to their national situation. The Philippines is a lead partner country in this effort.

For the Philippines, the following are recommended as main overarching policy goals:

- 1) An integrated and comprehensive biofouling management policy for the Philippines based on biosecurity approaches now being implemented in the Philippines
- 2) The biofouling strategy minimizes the possible introduction of IAS with consideration for the expected high biofouling species diversity in port ecological communities in the country.
- 3) The biofouling management strategy is consistent with IMO goals for a harmonized international policy.
- 4) Establish legal, policy and institutional arrangements to fulfill # 1.

To the following ends the scope of this report

- Assess the present status of biofouling management, IAS and biological invasion research in the Philippines based on the GloFouling guide.
- Narrates the existing documented knowledge on biofouling and marine biological invasion, its risks with respect to the possible translocation by the maritime industry
- Describes the known and possible socio-economic risks to fisheries, public health and maritime transport.
- Enumerates existing laws, policies and strategic plans with relevance to biofouling management.
- Identifies policy gaps and capacity needs in biofouling management

# Chapter 1

## Pathways of Marine Invasive Alien Species in the Philippines

### SUMMARY

Shipping has been identified as a vector of marine IAS in the Philippines, likely through ballast water release and possibly by biofouling. The charru mussel *Mytella strigata* was likely introduced by ballast water release in Manila Bay at around 2012-2014. Other ship borne IAS include the polychaete worms *Hydroides* and the bryozoan *Bugula*. Aquaculture is also an IAS pathway as a vector for fouling by ships. *Bugula* and *Mytella* have been observed in mariculture farms and these likely came from ships.

### I. PATHWAYS

Marine Invasive Alien Species (IAS) are likely to have the following pathways to the Philippine environment

- 1) Shipping
- 2) Aquaculture
- 3) Recreational boating/tourism
- 4) Aquarium trade
- 5) Natural dispersal

Other pathways in other countries include marine corridors and the recreational fishing industry. The Philippines at present does not have marine corridors such as the Suez or Panama canals although the Quezon Canal passing through the isthmus connecting Southern Luzon and the Bicol peninsula has been considered since the Philippines was a US Commonwealth. The aquarium



**Figure 1.** Port of Davao. Photo by SAILS-  
PORTEC Davao

trade is not considered a major vector as introductions via this economic activity is through importation and while there is the possibility of intentional or accidental release (Patoka et al. 2018) this is considered low. However, the indigenous non-scleractinian coral *Tubastrea coccinea* traded in the aquarium trade has been recorded as a fouler in the tropical Atlantic. It was likely introduced as an intentional release in the Caribbean and now is spread by oil and gas platforms (Hoeksema and Harry 2017; Mondal et al. 2018). There is no documented case of a marine IAS in the Philippines being introduced through the aquarium trade although freshwater introductions and invasion have been well documented (Juliano et al. 1989; Guerrero 2014).

In shipping, ballast water release is a vector for the release of holoplanktonic and meroplanktonic organisms, resting cysts to a new marine environment. Biofouling is the translocation of sessile marine organisms on ship hulls to a new marine environment where they can spawn or detach to establish reproductive populations.

## 1. Shipping as a vector for marine IAS

### ***List of Philippine Ports is in Appendix 3***

Shipping remains as the only scientifically documented pathway for marine biological invasion in the Philippines with the introduction and invasion of the South American mussel *Mytella strigata* (Vallejo et al. 2017). This invasive was first recorded from the South Harbor of Manila in 2014 and has been known to have spread throughout Manila Bay, to Lingayen Gulf, Aparri, Cagayan and Batangas Port in the Philippines. It has since then reported in Singapore, Taiwan, Hong Kong, India, Malaysia, the Gulf of Thailand, and Sri Lanka.



**Figure 2.** *Foulers from the South Harbor of Manila Bay.*  
*Photo by SAILS-PORTEC Manila Bay*

*Mytella* was likely spread through hull fouling and ballast water release. In the Philippines its spread to other ports was likely through small vessel hull fouling as the first adult samples were recorded from the fishing boat FV Ocean in 2015 which was docked in Manila Bay. An intensive monitoring of the South Harbor area in 2014 resulted in the detection of the first cohort of recruits in Manila Bay. The likely first introduction by ballast water release or by biofouling was in December 2013 and the first cohort of recruits was detected in July 2014.

There are at least 15 marine non-indigenous species ship hull fouling recorded from Manila Bay's South Harbor (Vallejo et al. 2019; Trinidad et al 2017.) Only *Mytella* is considered invasive enough to have wide scale ecological and economic impacts. The most numerous species is the well-studied *Hydroides elegans*, which is a known ship fouler with a present pantropical distribution.

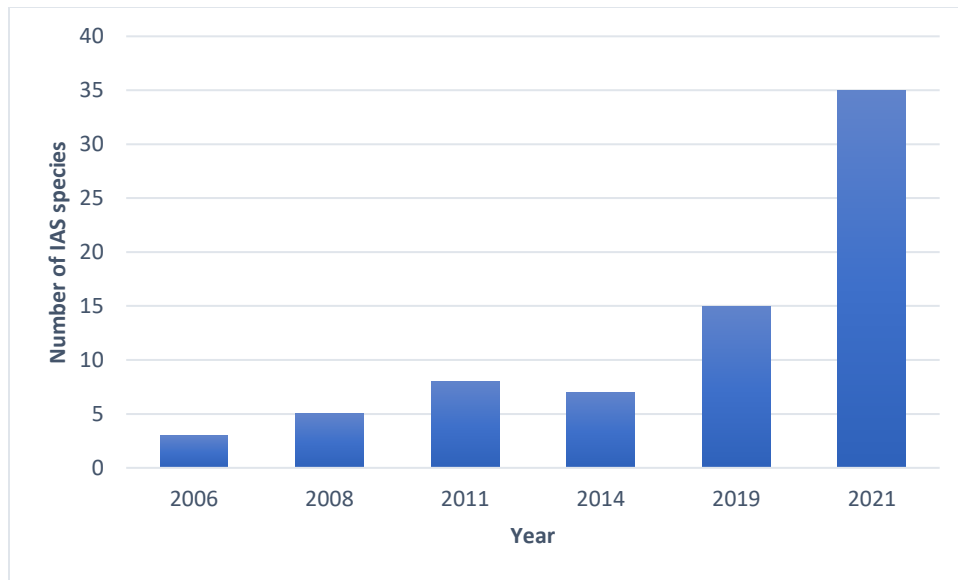


The other potentially invasive fouler is the tropical American *Mytilopsis sallei* and *M. adamsi* which has been recorded invasive in Singapore, Australia, Thailand among other regions. While they are recorded from the Manila South Harbor, there is no evidence that it is invasive as it exists in low abundances.



**Figure 3.** Non-indigenous macrofoulers from Manila Bay with IAS, *Mytilopsis sallei* and *Mytella strigata* (=charruana). (From Trinidad et al 2019)

Newer estimates (2021) on the number of possible IAS in Manila Bay is likely more than 30 species based on more intensive biofouling ecological monitoring and the use environmental DNA in detecting species. When research started in 2006 on IAS in Manila Bay, 3 species were initially observed.



**Figure 4.** Increase in number in IAS species detected in Manila Bay (Data from SAILS-PORTEC)

Small vessel hull fouling is likely a potential spreader of MIAS in the Philippines. Many of these small vessels are fishing outrigger boats where *Mytella* has been observed to attach and can be brought from one municipal port to another. In Calatagan, Batangas, it was observed that some of the fishing vessels who call on the Navotas Fish Port in Manila Bay have adult *Mytella* on their hulls. Discarded fishing nets and other gear might also spread biofoulers through coastal currents. This was observed in Batangas.



**Figure 5.** Biofoulers from Cebu International Port Photo from SAILS PORTEC Cebu

Another pathway in domestic shipping is translocation of biofoulers via oil tankers. This has been suspected in the translocation of the indigenous biofoulers such as *Perna viridis* to bays and embayments where they were never recorded (Cebu and Orale 2017).

Philippine registered fishing vessels operating in international fishing grounds such as Papua New Guinea (PNG), Marshall Islands, and other international fishing areas can translocate biofoulers to the Philippines. These vessels, especially if they are carrier or mother ships or vessels, stay for long periods (months) in international fishing grounds.

In the Philippines, docks/ports with possible high IAS cases are likely the international ports. These ports are Manila, Cebu-Mactan, Batangas, Subic, Cagayan de Oro, Davao, General Santos, Zamboanga, and Lucena. All of the major ports, with the exception of Cebu are located in

estuarine influenced areas. Batangas, Cebu and Iloilo are located very near to protected areas and tourism areas. Batangas is within the center of the center of global marine biodiversity while Cebu is in the Mactan key biodiversity area. Manila has the highest number of foreign shipcalls while Cebu has the highest domestic shipcalls and second to Manila in international shipcalls.

PORT	SHIPCALLS	
	Foreign	Domestic
<b>MANILA</b>	2454	6,125
<b>CEBU</b>	1138	79,500
<b>BATANGAS</b>	958	13,196
<b>SUBIC</b>	313	136
<b>CAGAYAN DE ORO</b>	137	3,159
<b>DAVAO</b>	750	17,807
<b>ILOILO</b>	212	24,381
<b>GENERAL SANTOS</b>	112	704
<b>ZAMBOANGA</b>	40	41,27
<b>LUCENA</b>	74	4,428

Table 1. Top 10 ports in the Philippines in shipcalls (2020 data from PPA, CPA and SBMA)

The port of Manila has been documented to have a significant number of possible IAS. The on-going SAILS-PORTEC research program has detected IAS in Davao, Cebu and Matnog ports. These ports are adjacent to specific oil tanker pathways/routes. In Luzon where the refineries and oil storage facilities are located such as Batangas, are at higher risk. These loading ports are at high risk for IAS/MNIS and these are located near to international ports.

The shipcall statistics in Table 1 represent the year 2020, when the COVID 19 pandemic caused a global and domestic maritime transport slowdown. The average reduction in shipcalls is around 40%. Nonetheless, Manila and Cebu are likely the main ports that need to be closely monitored for potential IAS bioinvasion. In 2018, before the COVID-19 pandemic, Manila was experiencing port congestion with a report that ships may stay at berth for five days (Wallis, 2019). This will increase the risks for biofouling. Based on the 2021 statistics from the PPA, the average berthing time has been reduced to 1 day. This is a result of less shipping traffic due to the pandemic.

NISSAP mentions ballast water as a vector of biological invasion and boat hulls. It is assumed that “boat hulls” refer to biofouling. The NISSAP report reports the introduction of a non-indigenous freshwater copepod *Arctodiaptomus dorsalis* which may have been brought by ballast water release or aquaculture activities. It also reports the introduction of White-spotted jellyfish *Phyllorhiza punctata* to Mediterranean ports which may have been brought by ballast water release and exchange. *Phyllorhiza punctata* is indigenous to the Philippines and is not an IAS.



**Figure 5.** Yacht Basin, Manila

The possibility that municipal and commercial fishing can translocate biofoulers is possible but no study has been conducted. However, the risk may be assessed by remote sensing in tracking the movements of fishing vessels. A study by Geronimo et al (2018) using remote sensing to identify core fishing areas (CFA) in the Philippines suggests that many of the CFAs are located near ports and major shipping lanes and are easily accessible for fishers fishing for sardines and roundscads. Fishing boats move to regional ports from these CFAs.

## **2. Hull cleaning, In-water cleaning or “grooming”**

Removal of foulers from ships and boats constitute an IAS risk to port areas and marinas. In New Zealand, hull cleaning has been likely the cause of the introduction of crustacean and bryozoan IAS from Asia into Auckland harbour (Hayward et al. 1997). However, hull cleaning is necessary for reducing the risk of fouling IAS attachment to ships and boats. In the Philippines, there is no documented case of IAS translocation and invasion due to hull cleaning.

In the Philippines, several companies offer hull cleaning services in Manila and Cebu but these are serviced by commercial divers. There is no automated or remote operated vessel (ROV) hull cleaning services as of present.

### **3. Recreational boating/tourism**

Recreational boating has been implicated in the translocation of IAS in other countries (Burgin and Hardiman 2011; Clarke Murray et al. 2011; Kelly et al. 2013). The sector is largely unregulated by national maritime authorities. The International Maritime Organization (IMO) has recognized the problem (Kononovaite 2020). GloFouling is currently running an international survey on recreational boating and biofouling management (Survey recreational boating). The IMO banning of TBT based antifoulants may have resulted in a greater probability of recreational seacrafts translocating IAS. Also in a growing tourism industry, more marinas will be established in tourism destinations and these can provide a network for IAS spread in a geographic area.

In the Philippines, there is no documented IAS that has been introduced through recreational boating biofouling. However, some of the potentially invasive marine NIS recorded to have been translocated by recreational boating in other countries such as *Styela* spp tunicates and the bryozoan *Bugula neritina*, have been recorded in Manila Bay from the Manila Yacht Club and the nearby Philippine Navy (PN) marina. These species are a biofouling concern for recreational boaters elsewhere as they are major foulers of boat hulls.

Given the archipelagic nature of the Philippines, the potential risk is great with the expected increase in tourism, each major coastal tourism center in the country may become a focus for IAS establishment and dispersal.

#### **4. Aquaculture as a biofouling pathway**

Potential foulers have been introduced for mariculture in the Philippines such as the Pacific giant oyster *Magallana gigas* but never established (Chavanich et al. 2010). Since then no marine fouler has been introduced for mariculture. However, *Mytella strigata* is considered as a potential mariculture species with its higher tolerance for low salinities (Rice et al. 2016). If the Bureau of Fisheries and Aquatic Resources will approve its use for mariculture, it may exacerbate the problem of biofouling in places where it will be translocated.

Very few studies have focused on aquaculture biofouling in the Philippines and these deal with fouling on fish cages and nets. On these structures were recorded *Bugula*, a species that also fouls ship hulls (Reyes et al. 2020). Given that potentially commercially valuable biofouling species such as *Mytella* and *Perna viridis* can be considered for mariculture, the potential for range expansion in the Philippines is massive.





**Figure 6.** *Mytella strigata* biofouling green mussel farms in Bacoar City, Cavite, Manila Bay Photo from <https://businessmirror.com.ph/2020/02/17/fake-tahong-invades-bacoar-mussel-farms/>

## **5. Natural dispersal**

Dispersal by purely natural means is not included as a pathway of biological invasions (Gaston 1996). Examples include range expansion by flight or any other medium of natural locomotion or transport. However if human created or crafted material is involved in rafting dispersal of IAS, then this may be considered as a case of biological invasion. The 2011 Great East Japan earthquake generated a large tsunami that caused an unprecedented biological transoceanic rafting event from the northwestern Pacific coastline of Japan towards North America on the eastern Pacific (Carlton et al. 2017). Millions of human made objects from small plastics to large docks and whole ships were cast adrift in the Pacific (Murray et al. 2018). This provided a substrate for biofoulers. Large debris could carry up to 20 to 30 mega-species of biofoulers (Carlton et al. 2017). These biofouled debris can constitute an IAS risk (Therriault 2017).

While a tsunami is a relatively rare event, a more common one is fouler dispersal by rafting on coastal currents of floating plastic debris, wood and, bamboo. Marine litter often originate from



ports and have been known to be fouled and can disperse via ocean currents (Ibabe et al. 2020). Some marine litter originates from mariculture from discarded nets and aquaculture structures and can be dispersed with biofoulers attached (Rech et al. 2018). In Manila Bay, marine litter that can be vectors of fouling come from the large river systems entering the bay such as the Pasig-Marikina River system (Cruz and Shimozone 2021). Much of this litter exits the bay during the Winter Monsoon. And this can be one factor why bamboo poles with fouling *Mytella* (used for *Perna* and *Magallana* mariculture in the bay) washed onto the shore of Nasugbu and Calatagan, Batangas can be a vector for IAS translocation. If these bamboo poles were not recovered and appropriately disposed of, they may have served as suitable substrate for starting a *Mytella* invasion in the estuarine areas of Batangas.

#### 4. Other vectors

The mining, and oil and gas industry is a possible vector but this has not been documented in the Philippines. As for mining, the use of barges to transport ore can be a vector. The oil and gas platforms which have been deployed in the Malampaya gas field in Palawan is a possible vector for biofouling, but there has been no evidence to date.

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## Chapter 2

### Socioeconomic activities at risk for ship biofouling and ballast water release

#### SUMMARY

There are limited studies on the direct impact of ship biofouling and ballast water release on socioeconomic activities in the Philippines. The only documented case is the establishment and invasion of the South American charru mussel *Mytella strigata* which has affected green mussel *Perna viridis* and slipper oyster *Magallana bilineata* mariculture in Manila Bay, Aparri Cagayan and Lingayen Gulf. The charru mussel was likely introduced from Manila Bay by domestic shipping to these areas. Green mussel and oyster production declined due to *Mytella* fouling. *Mytella* fouling also affects milkfish ponds in Pangasinan. Public health may be affected by antibiotic resistant bacterial fouling as observed in Manila Bay or by harmful algal blooms. The shipping industry will likely be affected by increasing dry docking and hull cleaning costs. IAS also can affect port and coastal ecology which as have been previously observed for harmful algal blooms.

#### I. AQUACULTURE AND FISHERIES

There is growing evidence that marine invasive alien species from biofouling have likely negative economic impacts on economic activities such as fisheries and aquaculture (Koh Siang Tan and Brian Morton 2006; Lim et al. 2018). In the Philippines, there are negative as well as positive impacts from *Mytella strigata* fouling (Fuertes et al. 2021). The impacts on green mussel *Perna viridis* aquaculture is negative with a decline of 60%-70% in production in Dagupan and 50% in Sual, Pangasinan, two traditional growing areas in Lingayen Gulf. *Mytella* also has negatively affected traditional green mussel growing areas in Manila Bay.

Aside from impacts to mussel culture, *Mytella* biofouling has negatively impacted *Magallana bilineata* oyster culture in the same areas where green mussel is also cultured. New technologies to improve oyster culture have been fouled. Fish cages and nets in Sual and Cagayan province also have been fouled. In Zambales it has affected freshwater clam fisheries.

While *Mytella* is of less value than green mussels or oysters, new fishery uses have been developed for it. It is used as animal feed and can be eaten although it is of less value to and preference for consumers due to its smaller size. The price range per kilo is from 80 PhP to 2.50 PhP. In contrast, the price of green mussel ranges from 70-100 PhP per kilo while oysters can range from 100-180 PhP per kilo. *Mytella* fouling has increased the price of these commodities. *Mytella* can recruit onto *Perna* and *Magallana* shells reducing mussel and oyster growth rates as well as competing for space (Sanpanich and Wells 2019). This also adds to postharvest processing labor costs for green mussel and oysters as the fouling mussels have to be removed by hand.

As *Mytella* can also recruit onto soft substrates, it will have an impact on milkfish *Chanos chanos* ponds especially in Dagupan City, Pangasinan where it has fouled aquaculture monk gates reducing water exchange to ponds. The invasive mussels also are competitors for the phytoplankton on which the milkfish feed (Micua 2017). Similarly, the mussels have invaded hard clam ponds in Taiwan and have competed for space and the phytoplankton the clams feed upon (Huang et al. 2021). There is no information on how biofouling can affect *Kappaphycus* seaweed culture in the Philippines but it has been documented in Brazil where mussels have fouled lines and thalli of seaweed (Marroig and Reis 2016).

## **II PUBLIC HEALTH SECTOR**

Biofouling and ballast water exchange may be vectors for pathogens with impacts on human and veterinary health. Antibiotic resistant bacteria (ARB) have been collected from the North and

South Harbors of Manila and these can grow on biofilms on port structures and ship hulls (Suzuki et al. 2013) or on floating plastic debris (Onda et al. 2020). ARB may be ingested by and infect humans through improperly processed fishery products or by contact recreational activities such as swimming (Amarasiri et al. 2020). ARB has been detected in the Port of Manila at BASECO (Balolong et al. 2020). The economic costs of these because of biofouling in the Philippines is not known but is an area of future research interest.

Historically, there has been a documented case of transmission of a pathogen due to ship dumping and discharge in the Port of Manila. This was on 3 March 1902, when a ship from



**Figure 7.** Sampling port water for microbiological assay in Davao Port. Photo by SAILS PORTEC-DAVAO

Canton, China dumped Cholera *Vibrio* contaminated cargo and waste causing an epidemic in Manila (Ileto, 2017).

### III. SHIPPING SECTOR

Biofouling caused by marine invasive species will increase ship maintenance costs especially for dry-docking and hull cleaning. The majority of ships dry docked, in terms of number as reported in a JICA-MARINA 2005 the Philippines Domestic Shipping Development Plan are fishing boats which account for 31.7% share, followed by passenger ferries at 22.2%. In terms of gross tonnage, passenger ferries account for 42.1% of dry dock services.

Drydocking is part of the compliance for environmental and maintenance standards for the shipping industry. The 2005 study on the Domestic Shipping Development Plan (JICA and MARINA 2005) recommends annual drydocking for passenger ferries and cargo vessels.



However, the compliance of ship owners for this needs improvement. As long as compliance needs to be improved, the risk for IAS translocation is great. As vessels that serve tertiary routes and minor ports in the Philippines are mostly wooden hulled, they can easily transport wood boring biofoulers as well as bivalves. The JICA-MARINA study reports 991 shipping operators operating 1,250 wooden hulled bancas. The ratio is almost 1 operator to one banca. They do not get drydocked at the recommended frequency. These wooden hulled vessels are slower than steel hulled vessels and so have a higher probability of being biofouled.



**Figure 8.** Fishing boats at Sisiman Cove, Manila Bay. Photo by B Vallejo Jr

Fast crafts and RoRo (Roll-on and Roll-off) on short distances also have the risk of translocation of invasive foulers to the basic slipways and port infrastructure. These will require regular dry-docking. Ropax vessels, which make up a significant proportion of domestic and cargo shipping, can also be significant vectors for translocation. Larger steel-hulled cargo ships serve longer distances in the Philippines can also translocate biofoulers.

While MARINA has banned the use of antifouling paints with tributyltin (TBT)(Twitter et al.), TBT use remains a significant marine pollutant in the Philippines(Tanabe et al. 2000; Prudente 2008;

**Figure 8.** Fishing boats at Sisiman Cove, Manila Bay. Photo by B Vallejo Jr

Olivares et al. 2013). Higher concentrations of TBT are found near ports in Manila Bay. Antifouling is part of the dry-docking and ship maintenance process. MARINA certifies compliance with a certification of antifouling paints and an Antifouling System Certificate. Thus presumes that ship-owners regularly have dry-docking maintenance for ships.

The JICA-MARINA study ties marine environmental protection (MEP) with marine safety with respects to meteorological hazards. The designation of marine sea areas for monitoring MEP and meteorological hazards may allow for the assessment of fouling risks in sea transport routes and the designation of safe risk areas. The rationalization of area operations of wooden hull vessels can also assist in the designation of safe risk areas in designated “protected areas”.

#### **IV.CONCLUSIONS**

It is only in mariculture in which there has been documentation of both negative and positive economic impacts of ship biofouling and ballast water exchange. The accidental introduction of *Mytella strigata* approximately in 2013 and likely through ballast water discharge in Manila Bay has resulted in biofouling as a problem in mariculture and pond aquaculture. The effect of *Mytella* on the production of slipper oyster *Magallana bilineata* and green mussel *Perna viridis* is negative with production losses of 70% and a rise in prices as supply dwindles. However *Mytella* can be a substitute for these higher value species in more marginal estuarine areas impacted by human activities. However, this species has lower market values. *Mytella* also has negative effects on milkfish aquaculture but the economic costs have not been estimated.

The possibility of public health being impacted is there and there is evidence to support this in antibiotic resistant bacteria in marine litter from the Port of Manila. The long-term public health burden and economic costs of these to human communities near the port is unknown.

Dry-docking is mandatory for ships and boats and biofouling is likely to increase costs. As a majority of vessels on Philippine shipping routes are wooden hulled and infrequently drydocked and hull cleaned. Given that wooden hulled vessels are easily fouled, the translocation of the foulers is greater especially at short distances. There is evidence of translocation by oil tankers calling on regional ports of the indigenous fouler *Perna viridis* from Manila Bay to places in the Philippines where they never recorded. Thus regular hull cleaning and antifouling coatings are necessary to reduce risk.

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## **Chapter 3**

### **A Review of Biofouling and Ballast water regulations of the Philippines with reference to marine invasive alien species (IAS)**

Benjamin M Vallejo Jr PhD.

With contributions from Joseph Elliz B Comendador MSc.

#### **SUMMARY**

The following review narrates existing Philippine legislation on biodiversity, marine pollution, water resources management, environmental impact assessment and fisheries which may have relevance to proposed implementing legislation and regulations to manage marine invasive alien species introduction risk in a national ballast water and biofouling management strategy. This legislation is necessary for the Philippines compliance with the Ballast Water Management Convention, 2004 (BWM Convention) and the International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001 (AFS Convention). Sources of information for this report are reports of the Department of Environment and Natural Resources, Department of Agriculture, and Bureau of Fisheries and Aquatic Resources.

The existing Philippine legislation on IAS is largely in the context of biodiversity management, conservation and protection, fisheries and agriculture management, quarantine, biosecurity and protected areas management. Key management tools for implementing these are environmental impact assessment and biosecurity assessment. There is no existing legislation on ballast water and biofouling management although aspects of existing legislation may address it. It is recommended that on the matter of IAS, a proposed ballast water and biofouling management legislation will be in an expanded context of biosecurity for the maritime industry, and this will be implemented by Philippine port state control agencies.



## I. INTRODUCTION

The Philippines acceded to and deposited with the International Maritime Organization the Ballast Water Management Convention and the International Convention on the Control of Harmful Anti-fouling Systems in Ships in 2018. This obliges the country to implement the convention for managing ballast water through domestic legislation. The Philippines at present does not have legislation that pertains to specifically to biofouling or ballast water management. This review narrates the existing domestic and international treaties and conventions that have relevance to invasive alien species (IAS) introduction and marine pollution. It also includes sections in each legislation that will have relevance for ballast water and biofouling management.

## II. INTERNATIONAL COMMITMENTS in MARITIME ENVIRONMENTAL PROTECTION (Table 1)

The Philippines ratified the **United Nations Law of the Sea (UNCLOS)** in 1982. UNCLOS is a legally binding convention for UN member states. Under UNCLOS Part XII on Protection and Preservation of the Marine Environment Articles 194, 195 and 196, the Philippines is obliged to “prevent, reduce and control pollution” in the marine environment. Also, under Article 195, the Philippines is obliged to

“to prevent, reduce and control pollution of the marine environment, States shall act so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another.”

And in Article 196, the Philippines is obliged to “take all measures necessary to prevent, reduce and control pollution of the marine environment, resulting from the use of technologies under their jurisdiction or control, or the intentional or accidental introduction of species, alien or

new, to a particular part of the marine environment, which may cause significant and harmful changes thereto.”

IMO is considered as the maritime UN agency that has “quasi-legislative functions” in implementing UNCLOS through its conventions and protocols (Beckman and Sun 2017). These set international rules and standards in marine environmental protection. All IMO instruments function within the legal framework of UNCLOS and do not prejudice further development of national and international law of the sea.

The Philippines has acceded and ratified 21 IMO conventions. For issues on biofouling and ballast water management, the Philippines has ratified the International Convention on the Control of Harmful Anti-Fouling Systems on Ships (AFS) which was adopted on 5 October 2001 and came into force on 17 September 2008, and the International Convention for the Control and Management of Ships’ Ballast Water and Sediments (BWM) which was adopted on 13 February 2004 and entered into force on 8 September 2017. These two conventions are part of the set of IMO conventions and protocols on marine pollution (MARPOL).

The following MARPOL conventions, annexes and protocols impact the Philippine maritime industry

### **1. International Convention for the Prevention of Pollution from Ships (MARPOL)**

Adoption: 1973 (Convention), 1978 (1978 Protocol), 1997 (Protocol - Annex VI); Entry into force: 2 October 1983 (Annexes I and II).

The International Convention for the Prevention of Pollution from Ships (MARPOL) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.

The MARPOL Convention was adopted on 2 November 1973 at IMO. The Protocol of 1978 was adopted in response to a spate of tanker accidents in 1976-1977. As the 1973 MARPOL Convention had not yet entered into force, the 1978 MARPOL Protocol absorbed the parent Convention. The combined instrument entered into force on 2 October 1983. In 1997, a Protocol was adopted to amend the Convention and a new Annex VI was added which entered into force on 19 May 2005. MARPOL has been updated by amendments through the years.

The Convention includes regulations aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations - and currently includes six technical Annexes. Special Areas with strict controls on operational discharges are included in most Annexes.

#### **Annex I Regulations for the Prevention of Pollution by Oil (entered into force 2 October 1983)**

Covers prevention of pollution by oil from operational measures as well as from accidental discharges; the 1992 amendments to Annex I made it mandatory for new oil tankers to have double hulls and brought in a phase-in schedule for existing tankers to fit double hulls, which was subsequently revised in 2001 and 2003.

#### **Annex II Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk (entered into force 2 October 1983)**

Details the discharge criteria and measures for the control of pollution by noxious liquid substances carried in bulk; some 250 substances were evaluated and included in the list appended to the Convention; the discharge of their residues is allowed only to reception facilities

until certain concentrations and conditions (which vary with the category of substances) are complied with.

In any case, no discharge of residues containing noxious substances is permitted within 12 miles of the nearest land.

**Annex III Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form (entered into force 1 July 1992)**

Contains general requirements for the issuing of detailed standards on packing, marking, labelling, documentation, stowage, quantity limitations, exceptions and notifications.

For the purpose of this Annex, “harmful substances” are those substances which are identified as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code) or which meet the criteria in the Appendix of Annex III.

**Annex IV Prevention of Pollution by Sewage from Ships (entered into force 27 September 2003)**

Contains requirements to control pollution of the sea by sewage; the discharge of sewage into the sea is prohibited, except when the ship has in operation an approved sewage treatment plant or when the ship is discharging comminuted and disinfected sewage using an approved system at a distance of more than three nautical miles from the nearest land; sewage which is not comminuted or disinfected has to be discharged at a distance of more than 12 nautical miles from the nearest land.

**Annex V Prevention of Pollution by Garbage from Ships (entered into force 31 December 1988)**

Deals with different types of garbage and specifies the distances from land and the manner in which they may be disposed of; the most important feature of the Annex is the complete ban imposed on the disposal into the sea of all forms of plastics.

#### **Annex VI Prevention of Air Pollution from Ships (entered into force 19 May 2005)**

Sets limits on Sulphur oxide and nitrogen oxide emissions from ship exhausts and prohibits deliberate emissions of ozone depleting substances; designated emission control areas set more stringent standards for SO<sub>x</sub>, NO<sub>x</sub> and particulate matter. A chapter adopted in 2011 covers mandatory technical and operational energy efficiency measures aimed at reducing greenhouse gas emissions from ships. This annex also limits Sulphur content for ships outside Emission Control Areas (ECA) at 0.50% and 0.10%.

### **III. NATIONAL AND REGIONAL LEGISLATION**

#### ***Major legislation***

The Philippines is obliged to implement as a signatory state, UNCLOS marine environment protection articles and, the IMO MARPOL conventions with the necessary domestic legislation and their implementing rules. There are existing laws some of which have been amended that implement certain provisions of the MARPOL conventions. However, there is no single omnibus legislation that implements the Philippine MARPOL obligations. The relevant legislation is described below.

Ship environmental effects may fall under legislation on **Marine Pollution (PD No 600 and revised as PD No. 979 in 1976)**. Ballast water discharge may fall under prohibited acts in marine dumping of wastes. The only exception to the anti-marine dumping legislation is if the effluent is necessary for fisheries and aquaculture. The enforcement of marine pollution laws falls under the purview of the Philippine Coast Guard with consultation with the National Pollution Control Commission

(superseded by the Environmental Management Bureau of the Department of Environment and Natural Resources) which has the powers to set the appropriate implementing rules.

**PD No 600 and revised as PD No. 979 in 1976 – Marine Pollution**

Prohibited Acts are as follows:

“Throw, discharge or deposit, dump, or cause, suffer or procure to be thrown, discharged, or deposited either from or out of any ship, barge, or other floating craft or vessel of any kind, or from the shore, wharf, manufacturing establishment, or mill of any kind, any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state into tributary of any navigable water from which the same shall float or be washed into such navigable water”

The **Philippine Clean Water (RA No. 9275)** act does not address biofouling or ballast water discharge as it addresses only land-based sources of pollution even though it covers estuaries and marine bodies of water.

**The Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (RA No. 6969)** does not specifically address ballast water discharge and biofouling as it deals with chemical and radioactive substances. Ballast water and biofouling cannot be considered as chemical or radioactive substances.

The **Philippine Fisheries Code of 1998 (RA No. 8550) amended as RA No. 10654** covers all bodies of water in the Philippines which includes ports and harbors. The Code covers all aspects of fisheries, fish processing, fishing boat operations, aquaculture, destructive fishing and fisheries management. Ballast water and biofouling may fall into the provisions of Section 67 of the Code which states

**Section 67. Fisheries Inspection and Quarantine Service.** - For purposes of monitoring and regulating the importation and exportation of fish and fishery/aquatic resources, the Fisheries Inspection and Quarantine Service in the BFAR is hereby strengthened and shall have the following functions:

- (a) Conduct fisheries quarantine and quality inspection of all fish and fishery/aquatic products coming into and going out of the country by air or water transport, to detect the presence of fish pest and diseases and if found to harbor fish pests or diseases shall be confiscated and disposed of in accordance with environmental standards and practices;
- (b) Implement international agreements/commitments on bio-safety and bio-diversity as well as prevent the movement or trade of endemic fishery and aquatic resources to ensure that the same are not taken out of the country;
- (c) Quarantine such aquatic animals and other fishery products determined or suspected to be with fishery pests and diseases and prevent the movement or trade from and/or into the country of these products so prohibited or regulated under existing laws, rules and regulations as well as international agreements of which the Philippines is a State Party;
- (d) Examine all fish and fishery products coming into or going out of the country which may be a source or medium of fish pests or diseases and/or regulated by existing fishery regulations and ensure that the quality of fish import and export meet international standards; and
- (e) Document and authorize the movement or trade of fish and fishery products when found free of fish pests or diseases and collect necessary fees prescribed by law and regulations.

The implementing rules and regulations to the Fisheries Code Implementing Rules and Regulations Pursuant to Republic Act No. 8550 require a thorough biosafety assessment of any

aquatic organism introduced to the Philippines. The Fisheries Quarantine and Inspection Service (FQIS) will be responsible for its implementation

Biofouling and ballast water management may fall under fisheries quarantine under the jurisdiction of the Bureau of Fisheries and Aquatic Resources (BFAR) if ballast water and biofouling pose risks to fisheries and aquaculture. Ballast water discharge and biofouling may be considered “mediums for fish pests and diseases” and this has been documented especially for aquaculture.

The **amendments to the Fisheries Code RA No. 10654 (section 124)** defines terms that are relevant to MARPOL and may have relevance to biofouling and ballast water management

**SECTION 4.** Definition of Terms. — As used in this Code, the following terms and phrases shall mean as follows:

4. Aquatic Pollution — the introduction by human or machine, directly or indirectly, of substances or energy to the aquatic environment which result or is likely to result in such deleterious effects as to harm living and non-living aquatic resources, pose potential and/or real hazard to human health, hindrance to aquatic activities such as fishing and navigation, including dumping/disposal of waste and other marine litters, discharge of petroleum or residual products of petroleum or carbonaceous materials/substances, and other, radioactive, noxious or harmful liquid, gaseous or solid substances, from any water, land or air transport or other human-made structure. Deforestation, unsound agricultural practices such as the use of banned chemicals and excessive use of chemicals, intensive use of artificial fish feed, and wetland conversion, which cause similar hazards and deleterious effects shall also constitute aquatic pollution.

**Furthermore amendments to the Fisheries Code RA 10654 (section 124) stipulate the importance of implementing Port State Measures for**

Section 3. Section 4 of the same Act is hereby amended, as follows:

"SEC. 4. *Definition of Terms.* — As used in this Code, the following terms and phrases shall mean as follows:



(73) *Port State Measures* – refers to the requirements established or interventions undertaken by port states, which a Philippine flagged or foreign fishing vessel must comply with as a condition for the use of ports within the port state.

In which fishing vessels are required to comply with Port State Measures that prevent marine pollution in Philippine ports. The amended Fisheries Code also further mandates port inspections

SEC. 42. *Port State Measures.* – The Department is authorized to adopt port state measures that must be complied with by foreign fishing vessels. These measures shall include: prior notification of port entry; use of designated ports; restrictions on port entry and landing or transshipment of fish; restrictions on supplies and services; catch and other documentation requirements; port inspections; and other related measures.

Transshipment by Philippine Flagged Fishing Vessels shall be regulated by the Department in a manner consistent with the Philippines' commitment to conventions and international agreements.

The **Wildlife Resources Conservation and Protection Act of 2001 (RA No. 9147)** is an act providing for the conservation and protection of wildlife resources and their habitats, appropriating funds therefor and for other purposes. The law aims

- a. To conserve and protect wildlife species and their habitats to promote ecological balance and enhance biological diversity;
- b. To regulate the collection and trade of wildlife;
- c. To pursue, with due regard to the national interest, the Philippine commitment to international conventions, protection of wildlife and their habitats; and
- d. To initiate or support scientific studies on the conservation of biological diversity.

Biofouling and ballast water management may fall under objective (a.), objective (c.) and objective (d.) of the law. Ballast water and biofouling are considered major vectors for biological invasion and can be within the scope of the law.

RA No. 9147 have sections, which may be relevant for ballast water and biofouling management.

**Sec 12. Introduction, Reintroduction or Restocking of Endemic or Indigenous Wildlife.**

— The introduction, reintroduction or restocking of endemic and indigenous wildlife shall be allowed only for population enhancement or recovery purposes subject to prior clearance from the Secretary or the authorized representative pursuant to Section 6 of this Act.

Any proposed introduction shall be subject to a scientific study, which shall focus on the bioecology. The proponent shall also conduct public consultations with concerned individuals or entities.

**Sec 13. Introduction of Exotic Wildlife** “In cases where introduction is allowed, it shall be subject to environmental impact study which shall focus on the bio-ecology, socioeconomic and related aspects of the area where the species will be introduced.”

**Sec 16. Biosafety** “All activities dealing on genetic engineering and pathogenic organisms in the Philippines, as well as activities requiring the importation, introduction, field release and breeding of organisms that are potentially harmful to man and the environment shall be reviewed in accordance with the biosafety guidelines ensuring public welfare and the protection and conservation of wildlife and their habitats.”

**Sec 17. Commercial Breeding or Propagation of Wildlife Resources** “Breeding or propagation of wildlife for commercial purposes shall be allowed ...provided that

commercial breeding operations for wildlife, whenever appropriate, shall be subject to an environmental impact study”

**National Integrated Protected Areas Act or NIPAS Act (RA No. 7546) as amended in RA no.**

**11038** enacts the fundamental national policy on *in-situ* conservation of biodiversity through the establishment and management of protected areas. It may be relevant to ballast water management if a port or harbor or berthing area are situated adjacent or within the multiple use areas of protected areas.

The specific sections may have relevance to ballast water and biofouling management

**Sec 4-letter r of RA No. 7586 as amended in RA No. 11038**

(r) Invasive Alien Species refers to species introduced deliberately or unintentionally outside their natural habitats where they have the ability to establish

**Sec 56. Environment Impact Assessment** “Proposal for activities which are outside the scope of the management plan for protected areas shall be subject to an environmental impact assessment as required by law before they are adopted... No actual implementation of such activities shall be allowed without the required Environment Compliance Certificate (ECC) under the Philippine Environment Impact Assessment (EIA).”

**Under the NIPAS Revised Implementing Rules and Regulations of the NIPAS Act of 1992.**

**Rule 13 Environmental Impact Assessment** “Considering that protected areas are environmentally Critical Areas (ECA), the proponent of development projects and activities with potential environmental damage as determined by Environmental Management Bureau, whether or not included in the Management Plan, shall secure an environmental Compliance Certificate (ECC) in accordance with the Philippine Environment Impact Statement (EIS) System.

Provided, that for development project and activity within the Management Plan, an Initial Environmental Examination (IEE) can be undertaken instead of a full-blown Environmental Impact Assessment (EIA).”

## **Under DAO No. 2007-17. Rules and Regulations Governing Special Uses within Protected Areas**

**Sec 5. Kinds of Special Uses** “The following are the special uses that may be allowed, but not limited to, within protected areas, subject to the issuance of an environmental Compliance Certificate (ECC) and approval by the Secretary or his duly authorized representative”

NIPAS in Sec 4 does not define IAS- associated terms such as ‘exotic,’ ‘invasive species’ or ‘pest.’ ‘Pest management’ is mentioned only once in the text of the Act and only as a management strategy in protected area planning in Sec 9.

There are special uses within the multiple use zone of protected areas (DAO 2007-17), these can be pathways of IAS into the protected are core zone. Risk assessment should be incorporated in the implementation of the environmental impact statement (EIS) and the issuance of the Special Uses within Protected Areas (SAPA) agreement. The negative impact of IAS on protected areas would be magnified if the delineation and management of the multiple use zone and the strict protection zone (DAO 2008-17) is not carefully assessed and implemented. The juxtaposition of the multiple use zone to the strict protection zone is an important consideration in the management of NIPAS sites when taking into account IAS introduction and dispersal.

### ***Other legislation***

Other legal instruments that may govern the introduction of invasive alien species at the regional level include

**DENR-DA- Palawan Council for Sustainable Development (PCSD) Administrative Order No. 01 or the Joint Implementing Rules and Regulation for the application of the Wildlife Act in Palawan.**

**RA No. 11054 Organic Law for the Bangsamoro Autonomous Region in Muslim Mindanao.**

The Bangsamoro Organic Law devolves the following powers to the Bangsamoro Government and Parliament in Article V. Powers of Government, which are of relevance to ballast water and biofouling management

(t) Ecological solid waste management and pollution control;

(u) Economic zones, industrial centers, and free ports;

(x) Environment, parks, forest management, wildlife, and nature reserves conservation;

(y) Fishery, marine, and aquatic resources

As BARMM has powers to regulate economic zones including ports, implement its own environmental regulations, and manage its own fisheries and aquatic resources, it will be expected to enact regional legislation to collaborate with national legislation on IAS in BWM and AFS.

**Agricultural agencies that may have relevance for IAS introduction through ballast water and biofouling**

Legislation implemented by the Bureau of Plant Industry

**Plant Quarantine Decree (PQD) No. 1433**

Presidential Decree Promulgating **the Plant Quarantine Law of 1978**, Thereby Revising and Consolidating Existing Plant Quarantine Laws to Further Improve and Strengthen the Plant

Quarantine Service of the Bureau of Plant Industry, also known as the “ Plant Quarantine Decree (PQD) of 1978

The Bureau of Plant Industry (BPI) may issue Quarantine Orders that involve animal species that may impact agriculture such as

**BPI Administrative Order No. 18 Series of 1987.** Declaring the Mollusk *Ampularia gigas* locally known as the “Golden Kuhol”, as a serious plant pest and providing measures to regulate and control its spread.

Legislation implemented by the Bureau of Animal Industry

The Bureau of Animal Industry (BAI) is responsible for the health, quarantine and importation of animal livestock under **Act 3639 of the Philippine Legislature**, which was enacted in 1930. The mandate of the BAI has not much to do with IAS but more on the quarantine of animal pathogens and food safety standards.

However, the BAI is one of the agencies in the Supreme Court Mandamus or Clean-Up, Rehabilitation and Preservation of Manila Bay where the BAI, through the Department of Agriculture, is mandated to reduce livestock pollution loading into the Manila Bay System by 50% in five (5) years (2014-2018)

### ***Penalties***

There is no specific penalties for biofouling under the present Philippine legislation. As a guide, these are some penalties in other countries which may be considered as a schedule of fines.

Singapore: Discharge of pollutants at sea – SGD 20,000 (USD 14,725; PHP 721, 625)

Malaysia: Environment Quality Act- not more than RM 500,000 (USD 119,480.055; PHP 766,070)

Ukraine: USD 40,000 to USD 60,000 (PHP 2,036,240.00 to PHP 3,054,360.00)

USA: per USCG circular: maximum of USD 38, 175 (PHP 1,943,336.55)

State of California: USD 5000.00 to 20,000.00 per tank (PHP 254,530.00 to PHP 1,018,120.00)

The average fine for the above mentioned examples is USD 42,483.00 or PHP 2,163,021.95 at an exchange rate of 1 USD = 50.1 PHP.

#### **IV. NATIONAL STRATEGIC PLANS (Table 3)**

##### **1. Philippine Biodiversity Strategy and Action Plan 2015-2028 (PBSAP)**

As mandated by the CBP, the Philippine Biodiversity Strategy and Action Plan (PBSAP) is the latest iteration in a series of action plans detailing the status of biodiversity, thematic areas for conservation, governance structures, implementation timelines and gaps in biodiversity policies and implementation in the Philippines. IAS is a major thematic area. The PBSAP targeted 2020 as the year when a comprehensive list of IAS is produced for the Philippines. Ballast Water and biofouling IAS is within the strategic plan. It also cites the National Invasive Species Strategy and Action Plan (NISSAP) as a key strategy in the IAS thematic area.

##### **The National Invasive Species Strategy and Action Plan (NISSAP)**

The National Invasive Species Strategy and Action Plan (NISSAP) envisions the management of various types of IAS, such as vertebrates and invertebrates, weeds, marine and freshwater plants and animals in areas that are most vulnerable to the impact of IAS. With NISSAP, the Philippines Government hopes to prevent invasive species introduction, manage the spread of invasive to minimize their threats especially to the economy. The NISSAP provides a coordinated and multi-sectoral management of IAS framework, which enables cooperation among relevant government agencies, civil society organizations, people's organizations, local communities and other

stakeholders. NISSAP also sets clear priorities for the identification of gaps and inconsistencies in the national and institutional frameworks relating to IAS and providing opportunities to integrate them in the country's commitments to CBD and other international treaties and agreements.

## National Invasive Species Strategy and Action Plan for the Philippines 2016-2026

### Strategic Goal 8 – International Cooperation

#### B. Objective and Action Plan

Appendix 8 shows that the objective identified for Strategic Goal 8 is to strengthen the Philippine role and capacity in meeting its commitment with international treaties and conventions including partnerships and networks within the Region. A list of actions has been forwarded to carry this out.

One is to develop and/or enhance involvement in invasive species networks in the Region (e.g., Asia-Pacific Forest Invasive Species Network, Centre for Agriculture and Bioscience International, Association of Southeast Asian Nations Heritage Parks).

Another is to implement the National Wetland Strategy and Action Plan (in compliance with Ramsar Convention on Wetlands). Furthermore, the incorporation of the IAS management as a major component of the Philippine Biodiversity and Action Plan (PBSAP) in line with the Aichi Biodiversity Target (Strategic Goal B, Target 9) will be done.

Another planned activity is the provision of support to the capacity building activities of the national agencies in their respective obligations to international committees (e.g., CBD, CMS, Ramsar, CITES, Ballast Water Management (BWM) Convention, United Nations Framework Convention on Climate Change (UNFCCC), etc.). Furthermore, dialogues with regional and International tourism organizations on the prevention of IAS introduction through pathways in tourism, travel and recreational activities within protected areas will be carried out with concerned entities. The BWM Convention is also planned to be ratified.\*

\*ratified by the Philippines on 7 July 2018

NISSAP has the following implementation goals



1. Harmonize objectives and scope;
2. Standardize terminologies;
3. Implement measures to:
  - A. Prevent IAS introductions,
  - B. Detect and respond early to IAS introductions,
  - C. Control and manage IAS impacts, and
  - D. Restore or rehabilitate areas to prevent re-invasion or new introductions;
4. Improve resource capacities through training and research;

5. Manage a collaborative and accessible data-sharing system;
6. Increase public education and awareness;
7. Strengthen international cooperation; and
8. Promote compliance and accountability.

NISSAP guiding principles are

A. Biodiversity Conservation

Timely and appropriate prevention, control and management of IAS can help reduce the rate of biodiversity loss.

B. Precautionary Principle

The lack or absence of scientific certainty about the various implications of species invasion should not be used as a reason for postponing or failing to take appropriate IAS management measures.

C. Participatory and Consultative Approach to Planning, Decision-Making and Management

The involvement of all stakeholders, such as the indigenous and local communities, academe, private sector, civil society, and various levels of governments, in all aspects of IAS management.

D. Policy and Institutional Development

Policy, regulatory, and institutional frameworks should be developed collectively by relevant agencies/entities, with clearly defined responsibilities and accountabilities, to ensure that IAS management addresses the ecological, social, and economic implications and consequences of species invasion.

E. International Cooperation

Collaborative efforts between countries (especially trading partners and those with similar ecosystems and histories of invasion), should be strengthened, whether on a bilateral or

multilateral basis, to address the risk and impacts of IAS within and across national/territorial borders.

## F. Research and Monitoring

Basic and applied research on invasive alien species, including their taxonomy, biology and ecology as well as the causes of invasion and the risks associated with IAS, are essential in supporting IAS policy development and management decisions and actions.

NISSAP lists down international treaties and agreements the country is a signatory and it includes the Ballast Water Management Convention.

**Table 3.1.** Annex 6 of the Philippines NISSAP report (2016)

**Box A6.1: Invasive Alien Species (IAS)-relevant treaties and agreements signed/ratified by the Philippines, 2016**

Convention	Date	IAS engagement	IAS Focus		
			Species	Pathway	Ecosystem
Convention on Biological Diversity (CBD)	Ratified October 10, 1993	Very active	■	■	■
International Plant Protection Convention (IPPC)	Ratified December 3, 1953	Very active	■	■	■
World Trade Organization (WTO) Agreement on the application of sanitary and phytosanitary measure	Signed January 1, 1995	Very active		■	
International Maritime Organization: Ballast Water Convention (BWC)	Member 1964	Very active		■	
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Ratified August 18, 1981	Active	■	■	
Ramsar Convention on Wetlands (Ramsar)	Ratified November 8, 1994	Active			■
The World Organization for Animal Health (OIE)	Entry to force January 25, 1924	Active	■		
Convention on the Conservation of Migratory Species of Wild Animals	Entry to force January 2, 1994	Potential	■		
United Nations Framework Convention and Climate Change (UNFCCC)	Ratified August 2, 1994	Potential			■
Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol on Biosafety)	Ratified October 5, 2006	Potential		■	
United Nations Convention to Combat Desertification (UNCCD)	Ratified February 10, 2000	Potential			■
United Nations Convention on the Law of the Sea (UNCLOS)	Ratified May 8, 1984	Potential			■

Reference: CBD, 2011

Annex 6 of NISSAP does not include the **United Nations Convention on the Law of the Sea (UNCLOS)**. UNCLOS provides the international framework, which requires UN member states “to prevent, reduce and control human caused pollution of the marine environment, including the intentional or accidental introduction of harmful or alien species to a particular part of the marine environment.”

Implementation of BWM and AFS in the Philippines will broadly require the NISSAP strategy especially in preventing IAS introductions.

### III CONCLUSIONS and RECOMMENDATIONS

The Philippines does not have at present legislation that specifically addresses the introduction of marine IAS in maritime transport. A proposed legislation to address marine IAS risks by the maritime transport industry **will need to have clear definitions on what is IAS to maritime industry**. These definitions are likely to differ in a slight way on how IAS is contextualized in agriculture, fisheries and protected areas management. In these sectors, there must be identified possible risks to these economic sectors. For the maritime industry, the risks will be to shipping, port infrastructure, port environment and the fisheries industries in and adjacent to ports and harbors. The context would be an expanded scope of biosecurity that includes the maritime transport industry aside from agriculture, fisheries, and public health.

The agencies responsible for meeting the country's international obligations and implementing national law on IAS are the

Department of Environment and Natural Resources (DENR)

Biodiversity Management Bureau (BMB)

Forest Management Bureau (FMB)

Environmental Management Bureau (EMB)

Ecosystem Research and Development Bureau (ERDB)

Department of Agriculture (DA).

Bureau of Plant Industry (BPI),

Bureau of Animal Industry (BAI),

Bureau of Fisheries and Aquatic Resources (BFAR).

However, these agencies have no specific mandate on the management and treatment of ballast water and biofouling beyond what may be considered as pollution control and biosecurity. The implementation of a ballast water and biofouling management law will have to reside with the national maritime Industry regulatory authority (MARINA), the ports authorities, Philippine Ports Authority (PPA), Cebu Port Authority, Subic Bay Metropolitan Authority (SBMA) and the Philippine Coast Guard (PCG) as the chief port state implementing agency. These agencies will require strengthened and enabled cooperation in the biodiversity management and conservation aspects, with the national agencies listed above and in regions and LGUs with devolved powers such as the Bangsamoro Autonomous Region, with strengthened cooperation with their respective regulatory agencies.

Since a few of the IAS, most especially the mussels have fisheries and aquaculture potential, it is recommended that the DA-BFAR and DENR come up with a comprehensive approach to prevent IAS establishment and if these do establish, a management scheme in which while limited (subsistence) fishery uses may be considered but without an incentive to expand the fishery. The international consensus in managing the fisheries of invasive species is not to incentivize the commercialization of these fisheries. The inputs of DENR and DA-BFAR are important here. DA-BFAR, DENR and the DOST may support a comprehensive research program on the utilization and biodiversity risk management of IAS in fisheries.

The PBSAP and NISSAP notes the **lack of capacity in IAS management, most especially in taxonomy and systematics**. These needs to be further developed and need to be supported by the appropriate legislation and policies supporting expertise capacity building, research, and innovation technologies especially in management information systems (MIS) in ballast water and antifouling management. For IAS response, NISSAP proposes the Early Detection and Rapid Response (EDRR) strategy. EDRR has been a key biosecurity and IAS management system in other countries. EDRR requires an effective MIS and biodiversity curation system. It must be noted that NISSAP has adopted a preventive approach in biosecurity, which means elimination of IAS upon

entry as widespread eradication is costly or almost impossible once the IAS has established and proliferated.

Following the recommendations of PBSAP and NISSAP, the proposed IAS legislation for BWM and AFS must have an IAS insurance fund to pay for any damage due to IAS release and, programs for public awareness building and stakeholder participation. Stakeholder consultation at all aspects of program and implementing rules and regulation implementation will be needed. Identification of stakeholders will be done by the MARINA for BWM and AFS.

As for Marine Protected Areas (MPA) management, these have been identified or set by existing local, regional, and national legislation. There is no information available on whether biofouling management has been incorporated into MPA management, but future regulations will fall under IAS management for marine ecosystems under the purview of existing legislation such as the Wildlife Act, NIPAS Law and the Fisheries Act as amended. More specific management may be legislated in a law that addresses biofouling and ballast water management and its implementing rules and regulations especially that shipping operations and ports are likely in or in proximity to protected landscapes/seascapes which are in most NIPAS declared areas.

PBSAP and NISSAP also recommends a strengthened capacity for EIA in IAS management. This will need to be in any proposed IAS in BWM and AFS legislation.

Should the IAS policy be voluntary or mandatory? The present legislation on preventing the entry of IAS in fisheries and agriculture requires mandatory compliance. A similar approach can be done for IAS in the maritime industry. The practicalities of implementation will have to be considered especially in terms of staff and logistical requirements in a phased in period with voluntary compliance followed by mandatory compliance. This will allow time for the information management. The capacity of the port state authority most especially the PCG must be strengthened accordingly. A mandatory policy will place a greater regulatory burden on the PCG

and MARINA in the implementation aspect. The PCG however has recommended a mandatory policy for ballast water, and biofouling management.

Lastly, IAS is a transboundary issue and so proposed legislation on IAS in BWM and AFS will have to support and enable relevant government agencies and departments in meeting the Philippines international commitments to IAS. Given the existing institutional arrangements and mandates, the PCG is best positioned to be the lead agency to implement the BWM and AFS policies if legislation is enacted. The PCG has 7 Port State Control Centers (PSSC) all over the Philippines. The Manila PSSC handles the majority of inspections. The PSSC are under PCG-Maritime Safety (PCG-MARSAF) functions. The PCG-MEPCOM which may be developed and capacitated to perform scientific assessment and analysis of AFS and BWM will likely assist the PCG-MARSAF in its inspection mandate.

The NISSAP recommends a system of instituted dialogues and consultations in IAS management. A focus on the ASEAN region may have to be instituted as the regional organization has taken steps for regional economic integration. It is expected that freer trade will be instituted in the ASEAN and the need for cooperation in IAS management will be of paramount importance.

**Table 3.2.** List of relevant legislation to IAS in AFS and BWM.

NATIONAL, REGIONAL LEGISLATION or REGULATION	DATE OF EFFECTIVITY	IN FORCE	APPLICABLE TO BIOFOULING?	APPLICABLE TO BWM?	APPLICABLE TO IAS?
<b>PD No 600 and revised as PD No. 979 in 1976 – Marine Pollution</b>	August 18, 1976	YES	YES	YES	YES
<b>PD No 602 Establishing an Oil Pollution Center at the PCG HQ</b>	December 9, 1976	YES	NO	NO	NO
<b>Philippine Clean Water (RA No. 9275)</b>	March 22, 2004	YES	NO	NO	NO
<b>The Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (RA No. 6969)</b>	1990	YES	NO	NO	NO
<b>Philippine Fisheries Code of 1998 (RA No. 8550) amended as RA No. 10654</b>	July, 2014	YES	YES	YES	YES
<b>Wildlife Resources Conservation and Protection Act of 2001 (RA No. 9147)</b>	March 19, 2001	YES	YES	YES	YES
<b>National Integrated Protected Areas Act or NIPAS Act (RA No. 7546) as amended in RA no. 11038</b>	July 24, 2017	YES	YES	YES	YES
<b>DENR-DA- Palawan Council for Sustainable Development (PCSD) Administrative Order No. 01</b>	May 18, 2004	YES	NO	NO	YES
<b>RA No. 11054 Organic Law for the Bangsamoro Autonomous Region in Muslim Mindanao</b>	July 23, 2018	YES	YES	YES	YES
<b>Plant Quarantine Decree (PQD) No. 1433</b>	June 10, 1978	YES	NO	NO	YES



**Table 3.3.** List of maritime international environmental treaty/conventions/protocols the Philippines has acceded to.

TREATY/CONVENTION/PROTOCOL	YEAR OF ACCESSION	IN FORCE	APPLICABLE TO BIOFOULING?	APPLICABLE TO BWM?	APPLICABLE TO IAS?
United Nations Convention on the Law of the Sea (UNCLOS)	1982	YES	YES	YES	YES
United Nations General Assembly Resolution 62/292 development of an international, legally-binding instrument under the UN Convention on the Law of the Sea (UNCLOS) on the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction (ABNJ)	2015	YES	YES	YES	YES
Convention on Biological Diversity (CBD)	1994	YES	YES	YES	YES
CBD Cartagena Protocol	2007	YES	YES	YES	YES
Marpol 73/78 International Convention for the Prevention of Pollution on Ships Annex I/II (Oil and Noxious Substances)	2001	YES	NO	NO	NO
Marpol 73/78 International Convention for the Prevention of Pollution on Ships Annex III (Harmful Substances)	2001	YES	NO	NO	NO
Marpol 73/78 International Convention for the Prevention of Pollution on Ships Annex IV (Sewage)	2001	YES	NO	NO	NO
London Convention Protocol 72 (Marine Pollution by Dumping of Waste)	1975	YES	NO	NO	NO

<b>London Convention Protocol 96 (Marine Pollution by Dumping of Waste 1996 Protocol)</b>	2012	YES	NO	NO	NO
<b>Anti-Fouling Systems on Ships 2001 (AFS)</b>	2018	YES	YES	YES	YES
<b>Ballast Water Management Convention 2004</b>	2018	YES	YES	YES	YES

**Table 3.4.** Recent development and strategic plans with relevance to IAS management.

DEVELOPMENT PROGRAM/PLAN	DATE OF EFFECTIVITY	IN FORCE	APPLICABLE TO BIOFOULING?	APPLICABLE TO BWM?	APPLICABLE TO IAS?
<b>PHILIPPINE DEVELOPMENT PLAN 2017-2022</b>	2016	YES	YES	YES	YES
<b>National Invasive Species Strategy and Action Plan for the Philippines 2016-2020</b>	2016	YES	YES	YES	YES
<b>Philippine Biodiversity Strategy and Action Plan (2015-2028)</b>	2015	YES	YES	YES	YES

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## Chapter 4

### Gaps and capacity needs and reforms in biofouling and ballast water management

#### SUMMARY

The Philippines has no ship ballast water and biofouling response and management strategy. There is also a lack of science capacity in addressing IAS in BWM and AFS. Aspects of BWM and AFS management are in legislation on marine pollution, biodiversity conservation, national invasive species strategy, protected areas, maritime industry development plans, and biosecurity. As the country has a biosecurity framework, it is suggested that a future IAS in AFS and BWM policy be based on biosecurity management as what can be adapted from New Zealand and Australian marine biosecurity policies for the maritime industries. The Philippines may also consider applied response policies based on an incident response system and an early detection response system.

#### I. CURRENT SCIENCE CAPACITY AND CURRENT INITIATIVES

##### 1. Scientific research

There is a lack of scientific information on marine biological invasion in the Philippines. It was only in 2010 with the first initial assessments of marine non-indigenous species (MNIS) in the West Pacific region which includes the Philippines, that a research effort was made on MNIS in Manila Bay. This was to answer the question if the damaging fouler *Mytilopsis sallei* has established in Manila Bay as it was reported in Singapore. The object of the assessments is to come up with a baseline for research on ballast water and biofouling

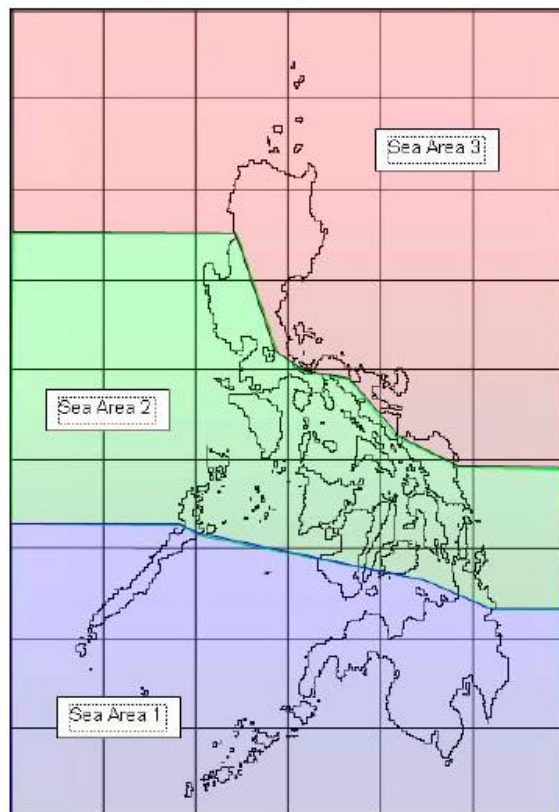
To answer that question, an intensive effort to have an ecological baseline in the South Harbor was done beginning 2010 and continues to the present researchers from the University of the Philippines (UP), Diliman (UPD), Manila (UPM), Visayas (UPV) and Los Baños (UPLB) campuses. The baseline studies have resulted in a preliminary list of potential IAS. This has to be replicated in every international port in the country using a standardized method.

The 2005 Domestic Shipping Development Plan of the Republic of the Philippines (DSDP) identifies marine environmental protection priorities which include oil spills and noxious substances (JICA and MARINA 2005). In section 8.1.3 of the report on marine environmental protection and safety, the DSDP identifies priorities in marine environmental protection and maritime security as

- Categorize “Sea Areas” in conjunction with “Protected Waters” regulation;
- Rationalize areas of operations for wooden-hulled vessels;
- Rationalize phase-out of single-hulled tankers;
- Institutionalize security measures for domestic shipping and ports; and
- Designate an Admiralty Court

None of these priorities have a direct bearing on biofouling and ballast water management except in the phase out of wooden hull vessels (except bancas and fishing boats) in MARINA MC 190 (2003) which stipulates protected and partly protected waters in which wooden hull vessels may operate. The DSDP defines these areas as

	<b>Sea Area 1</b>	<b>Sea Area 2</b>	<b>Sea Area 3</b>
Protected Waters	Five (5) kilometers from shore	Five (5) kilometers from shore	Three (3) kilometers from shore
Partly-protected Waters	Twelve (12) kilometers from shore	Ten (10) kilometers from shore	Six (6) kilometers from shore



**Figure 9.** DSDP also defines maritime transport sea areas as shown in the following figure

These sea areas are based on tropical cyclone hazard probabilities and possibly be a framework for assessing biofouling risks in the Philippines. DSDP assessed the frequency of domestic shipping in the Philippines and from this and existing port statistics, a risk assessment of possible translocation of IAS in each port in the Philippines can be estimated.

The Department of Science and Technology-Philippine Council for Industry, Energy, and Emerging Technology Research and Development (PCIEERD) funded the Ships Ballast Water and Biofouling Research Program (SAILS) consisting of the Port Ecological Baselines (PORTEC) and the Ballast Water Management (BWM) projects. PORTEC has been funded for the calendar year 2021 and has begun baselining port ecology and possible IAS in four Philippine International Ports (Manila, Cebu, Matnog and Davao). BWM will utilize the baseline information from PORTEC to apply

ballast water treatment technologies for the Philippine maritime industry. SAILS is implemented by the University of the Philippines (UPD, UPM, UPV), Philippine Coast Guard and the MARINA.

SAILS builds upon the decade long studies by the University of the Philippines Marine Fouling Ecology research on IAS in Manila Bay and will replicate the methods used for three other international ports and eventually to secondary ports in the Philippines. This will enable a determination of a safe risk area for Philippine shipping.

## **II. A BIOSECURITY ORIENTED PROPOSAL FOR MARITIME INDUSTRY LEGISLATION ON BIOFOULING AND BALLAST WATER MANAGEMENT AND ITS IMPLEMENTATION**

The Philippines accession to the IMO marine pollution conventions which includes AFS and BWM will require national and domestic legislation to implement AFS and BWM. This will deal with marine NIS and IAS.. Certain legislation and programs relating to biodiversity, protected areas, and fisheries may address certain aspects of AFS and BWM but do not prescribe a specific plan for addressing the IAS problem. These legislation are not sufficient to address biofouling in all its aspects for management and IAS control.

The national legislation for AFS and BWM will involve port state agencies such as the Philippine Coast Guard (PCG). As AFS and BWM are cross sectoral issues these will involve multiple agencies such as the DENR, DOTr, DOST, DOH, DA and DTI and their respective sub-ministerial agencies such as DA-BFAR, DENR-EMB, DENR-BMB and the DA-NFRDI. The DOST as the research policy and promotion ministry of the government has the mandate to fund and promote research

The capacity of the Philippines to implement IAS and BWM is lacking, although as mentioned in there are the agencies that can implement aspects of these. The scientific baseline is lacking although with SAILS-PORTEC and SAILS -BWM as well as work of the University of the Philippines Manila Bay Fouling Ecology research team has started to provide a preliminary baseline for the Ports of Manila, Cebu and Davao. To integrate the capacities of the various government agencies based on their existing mandates and to provide the direction for the AFS and BWM legislation,

a possible approach for AFS and BWM management may take a biosecurity framework. While there are biosecurity and biosafety policies in the Philippines regarding IAS overseen by the DOST Biosafety Committee, these are directed towards agriculture and fisheries especially on genetically modified organisms (Destura et al. 2021).

## **1. Biosecurity frameworks**

Biosecurity goals have four areas. These are 1) human life and health protection, 2) Protection of animal life and health, 3) Protection of plant life and health and, 4) Environmental protection (Action 2007). IAS biosecurity touches all four area-goals. As an example, the Philippine seaweed industry has a biosecurity framework which could be followed for IAS and BWM (Mateo et al. 2020). Pests and diseases, some of which are fouling organisms, are a major threat to the seaweed industry which is a major foreign exchange earner that support thousands of families. Preventing the entry of pests and diseases is imperative as recent outbreaks have resulted in at least a 4.5% drop in production. A similar seaweed biosecurity framework has been proposed for Indonesia (Kambey et al. 2020).

Both the Philippines and Indonesian seaweed biosecurity frameworks are constrained by the lack of baseline scientific information. In aquaculture, the Philippines and Indonesia have adopted a prevention of entry of pests and diseases through quarantine and surveillance of transboundary movement of aquaculture stocks and commodities. A similar situation will also be present in the application of IAS biosecurity frameworks in AFS and BWM. The baseline scientific information is needed in establishing a biosecurity risk framework for IAS and BWM and to determine the initial biosecurity baseline.

In the case of New Zealand anti-ship biofouling and ballast water management, the biosecurity policy is to prevent the entry of IAS by ships (Georgiades et al. 2020). In addition, the New Zealand government defined compliance as a “clean” ship calling on New Zealand ports. “Clean” was defined as no visible macro-biofoulers visible on the hull by inspection. This would allow for the

assessment of fouling risks in accordance to IMO Biofouling guidelines. Thresholds of acceptable biofouling were determined. The thresholds were developed to manage species richness and establishment of allowed taxa while considering practical and feasible implementation. The thresholds are based on the vessels itinerary in New Zealand.

Like in New Zealand, Australian biofouling and biosecurity policy is based in preventing the entry of pests and IAS and are under the jurisdiction of the Department of Agriculture, Water and the Environment. Australia's Marine Pest strategy is premised on reducing the risk of IAS introduction which include an early warning system, a monitoring strategy in at least six Australian international ports, recording changes to port environments and detecting IAS, regular assessments of marine pests monitoring, and assessing the potential IAS risks of port infrastructure developments.

The Australian strategy is based on rapid assessments of port environments using presence absence counts, environmental DNA methods and remote operated vehicles. The strategy also envisages the participation of citizen scientists in the monitoring and surveillance of ports.

## **2. A possible Philippines IAS strategy for the maritime industry**

As the Philippines has biosecurity frameworks for agriculture and fisheries, IAS and BWM biosecurity frameworks may be patterned after these as government agencies involved are familiar with the concept. These are for the prevention of the introduction of IAS by shipping by pre-border and post-border quarantine procedures and protocols for post-border intrusion and risk management. As an archipelagic country, the risks are large and port baselines are needed in every Philippines international port. The methods of easily replicated rapid port ecological surveys will be able to contribute the needed scientific information.

Minimizing biofouling is the strategy taken by New Zealand and Australia because an IAS focused strategy will be costly and will require much scientific manpower and time requirements. In the case of the Philippines, documented mollusc IAS in ports in ASEAN such as *Mytilopsis sallei* is not

invasive in the Port of Manila. Deciding on the IAS potential of marine NIS requires the appropriate biological and ecological information and this are only available for a few taxa. Since it is expected that scientific information will be lacking to exactly assess the risks for biofouling, it is suggested that the precautionary approach be used.

The Philippines biosecurity framework is premised on a precautionary approach which is a policy principle that carries less legal weight as compared to a strict interpretation of the precautionary principle on which it is based upon (The Rio Declaration: Principle 15 - the Precautionary Approach). The 1992 Rio Declaration Principle 15 also enjoins states to adopt it in their domestic environmental legislation. The IMO conventions adopt aspects of the precautionary approach such as the 1996 London Declaration on Anti-Dumping, the 2004 Ballast Water Management Convention and the Anti Fouling Systems Convention.

Since the Philippines aims to develop and expand the maritime industry and development involves environmental risks, the risk management of IAS from biofouling or ballast water release must be incentivized. A biosecurity orientated antifouling and ballast water legislation will set standards for pre-border and post-border quarantine systems as well as a system for post-border incursion and management. Risk assessment and management will involve biodiversity assessments, environmental matching, biogeographic risk, and species-specific risk assessment strategies as recommended by the IMO Maritime Environmental Protection Committee in RESOLUTION MEPC.289(71) of 2007. Environmental matching is needed in determining whether ports in a particular geographic region have similar ecological conditions that will lead to a possible single risk or safe risk management area.

At present, for AFS and BWM compliance, the on-going effort in the Philippines is on port ecological baselines which will be required for environmental matching and biogeographic risk assessment. Species-specific risk assessments are recommended for suspect species or species that have been previously identified as invasive in other areas. When the University of the Philippines Manila Bay Fouling Ecology research project began in 2009, it assessed the risk of

*Mytilopsis sallei* as a possible IAS in Manila Bay as this mussel was previously confirmed as an invasive in Hong Kong and Singapore.

While IMO MEPC recommends species-specific risk assessments, another possibility is fouling community risk assessments. A fouling community has a particular structure in each biogeographical region. A standardized rapid assessment method such as what was followed in the Natural Geography In-Shore Areas (NaGISA) program using photographic identification may be applied (Shirayama 2009). Such an approach will allow for rapid identification of biofoulers for listing for particular ports. Taxa that cannot be identified can be identified in a laboratory. A semi quantified index of fouling assessment may be applied based on level of fouling index as recommended to the State of California, USA (Davidson et al. 2014). The California methods are reliant on photographic identification.

When a possible invasion event happens, the immediate response is containment. This can be managed in an incident command system (ICS). ICS is a framework for organizing and directing on-site, tactical responses to a particular event or series of events (Burgiel 2020). ICS provides a coordinated command structure, information flow, analysis, decision-making, communications, and implementation in an authoritative and standardized manner. ICS has been used in human health, pandemics, disaster response and risk reduction, terrorist attacks and environmental hazard events. ICS may utilize an early detection and rapid response (EDRR) strategy. EDRR requires rapid ID and confirmation, risk screening, feasibility (of response) screening and implementation of intervention (Reaser et al. 2020).

Regardless of the IAS policy adopted and its implementation framework e.g ICS and EDRR, this has to conform to IMO MEPC agreed recommendations. With the requisite science capacity, the above-cited policies from New Zealand, Australia and, the United States are premised on a/an

- 1) Legal and institutional framework, which defines the structure and roles of each agency or organization IAS response.



- 2) Standardized terminology for IAS response and management
- 3) Operational plan
- 4) Asset inventory and use plan
- 5) Budget allocation plan
- 6) Information accessibility and curation which is largely online
- 7) Decision support

The Philippines port and flag state agencies such as the MARINA and the PCG have to develop the necessary implementation support capacities and expertise in strong coordination with government agencies that deal with IAS. The PCG can expand the capacity of its Marine Environment Protection Command (MEPCOM) for IAS issues in AFS and BWM. This can be included in proposed IAS legislation for implementing the BWM and AFS conventions in Philippine law.

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## SUPPLEMENTAL INFORMATION:

### Examples of Applying the Biofouling management policy

#### Legislative framework

Legislative framework	What is needed and who will be impacted	Penalties/Incentives
<b>Application of requirements, mandatory or proactive voluntary</b>	Kinds of vessels affected e.g. passenger, cargo, Ropax, Roro, Fishing	
<b>Mandatory requirement for vessels to present biofouling risks</b>	International vessels	
<b>Documentary inspections</b>		Civil and criminal penalties and fines, fees reduction for long term compliance
<b>Risk securing vessels</b>	Inspectors have powers to secure vessels for inspection for a defined length of time	Civil and criminal penalties and fines, fees reduction for long term compliance
<b>Risk inspection</b>	Power of inspectors to physically inspect a vessel and arrange for deputized	Civil and criminal penalties and fines

	professional with biofouling expertise to perform inspections.	
<b>Risk movement of ship/structure</b>	Legal authority to move vessel for inspection to another area or port.	Civil and criminal penalties and fines
<b>Managing moderate risks</b>	If ship did not comply with the biofouling management plan and biofouling record book, and ship does not pose a significant biofouling risk, legislation should include a warning for compliance.	Observations and warning for compliance
<b>Unacceptable risk</b>	If ship does not comply with requirement, legislation should include powers to mitigate the risk. Powers include directing the ship to leave the jurisdiction by the highest maritime authority.	Civil and criminal penalties and fines

Burdens, capacitation and cost implications

Activity	Burden	Science and technology capacity needed	Cost impacts/ cost financing strategies
<b>Pre-arrival risk assessment</b>	Reporting forms	Fouling community identification with appropriate data management systems.  Technical capacitation of port state authorities and port servicing personnel	A fee similar to that applied under the Environmental Impact Assessment System
<b>Biofouling management plan and record book</b>	Reporting and compliance assessments		
<b>In water inspection</b>			Costs for ship owner
<b>In water hull cleaning</b>		In hull cleaning technologies	Costs for ship owner
<b>Anti-Foulant systems</b>		Environmentally safe anti-fouling systems.	Likely in the millions in PhP per vessel

Feasibility of Implementation



Activity	Resources needed	Responsible agency	Strategic priority	Existing Staff	Gap/Financial implications
<b>Pre-arrival risk assessment</b>	Biofouling management information management systems	PCG, DA-BFAR. DOST-PCIEERD	HIGH	PCG-MEPCOM PPA	Additional personnel costs for responsible agencies  Research and development costs for Biofouling management information systems
<b>Biofouling management plan and record book</b>	Technical officers for PCG and DA-BFAR	PCG, port authorities, port services agencies. DA-BFAR, DENR-BMB	HIGH	PCG-MEPCOM DA-BFAR	Additional personnel costs for responsible agencies
<b>In water inspection</b>	Technical officers with PCG  ROV for inspection	PCG, commercial hull servicing companies	MEDIUM	PCG-MEPCOM	Additional personnel costs for responsible agencies  Costs for new and automated technologies
<b>In water hull cleaning</b>	Technical officers with PCG  ROV for inspection	PCG, commercial hull servicing companies	MEDIUM	PCG-MEPCOM	Costs for new and automated technologies

	Automated ship grooming  Development of technologies for in water hull cleaning				
<b>Anti-Foulant systems</b>	Technical officers for PCG and DENR-BMB  Research and development of AFS technologies	PCG Commercial providers of AFS	HIGH	PCG-MEPCOM DENR-EMB,  DOST-PCIEERD	Additional personnel costs for responsible agencies  Research and development costs for AFS technologies

## APPENDICES

### 1. LIST OF RATIFIED IMO CONVENTIONS

#### A. Ratified Conventions

<i>Title of Convention/Protocol/Agreement</i>	<i>Year of Ratification</i>
1. IMO Convention 48 Convention on the International Maritime Organization	*
2. IMO Amendments 91 1991 Amendments to the IMO Convention	*
3. IMO Amendments 93 1993 Amendments to the IMO Convention	*
4. SOLAS Convention 74 International Convention for the Safety of Life at Sea, 1974, as amended	1982
5. LOADLINE Convention 66 International Convention on Load Lines, 1966	1969
6. TONNAGE 1969 International Convention on Tonnage Measurement of Ships, 1969	1969
7. STCW Convention 78 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended	1984
8. STP Agreement 71 Special Trade Passenger Ships Agreement, 1971 (STP 1971)	1974
9. IMSO Convention 76 Convention on the International Mobile Satellite Organization, as amended	1979
10. INMARSAT OA 76 Operating Agreement on the International Mobile Satellite Organisation, as amended, amendments 98	1979
11. MARPOL 73/78 (Annex I/II) International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978 relating thereto (Annexes I/II) ▪ Annex I: Regulations for the Prevention of Pollution by Oil ▪ Annex II: Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk	2001
12. MARPOL 73/78 (Annex III)	2001

<ul style="list-style-type: none"> <li>Annex III: Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form</li> </ul>	
13. MARPOL 73/78 (Annex IV) <ul style="list-style-type: none"> <li>Annex IV: Prevention of Pollution by Sewage from Ships (entered into force 27 September 2003)</li> </ul>	2001
14. MARPOL 73/78 (Annex V) <ul style="list-style-type: none"> <li>Annex V: Prevention of Pollution by Garbage from Ships</li> </ul>	2001
15. London Convention 72 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972	1975
16. London Convention Protocol 96 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972	Acceded/ 8 June 2012 (entered into force)
17. CLC Protocol 92 Protocol of 1992 to amend the International Convention on Civil Liability for Oil Pollution Damage, 1969	1998
18. FUND Protocol 92 Protocol of 1992 to amend the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971	1998
19. SUA Convention 88 Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation, 1988	*
20. SUA Protocol 88 Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf, 1988	*
21. COLREG 72 International Regulations for Preventing Collisions at Sea, 1972	Acceded/ Philippines Instrument of Accession signed 14 March 2013
22. OPRC International Convention on Oil Pollution, Preparedness and Response Cooperation	Acceded 6 February 2014/ entry into force on 06 May 2014
23. MARPOL Annex VI Protocol of 1997 to Amend the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 Relating Thereto	Instruments of Accession deposited to the IMO Secretary General on 24 April 2018

24. SOLAS PROT 1978 Protocol of 1978 Relating to the International Convention for the Safety of Life at Sea, 1974, as Amended	Instruments of Accession deposited to the IMO Secretary General on 24 April 2018
25. Load Line Protocol 88 The Protocol of 1988 Relating to the International Convention on Load Lines, 1966	Instruments of Accession deposited to the IMO Secretary General on 24 April 2018
26. SOLAS PROT 1988 Protocol of 1988 Relating to the International Convention for the Safety of Life at Sea, 1974, as Amended	Instruments of Accession deposited to the IMO Secretary General on 06 June 2018
27. AFS 2001 International Convention on the Control of Harmful Anti-Fouling Systems on Ships, 2001	Instruments of Accession deposited to the IMO Secretary General on 06 June 2018
28. BWM Convention International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004	Instruments of Accession deposited to the IMO Secretary General on 06 June 2018

\*information of the year of ratification is not available

## 2. LIST OF PORTS IN THE PHILIPPINES (PHILIPPINE PORTS AUTHORITY STATISTICS)

## LIST OF PORTS

### 2.1 MANILA/NORTHERN LUZON

#### A. PORT MANAGEMENT OFFICE OF NCR NORTH (PMO NCN)

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. PIER 2	✓	✓	
2. PIER 4	✓	✓	
3. PIER 6		✓	
4. PIER 8		✓	
5. PIER 10	✓	✓	
6. PIER 12		✓	
7. PIER 14		✓	
8. Marine Slipway (MSW)	✓	✓	
<b>TMO - VITAS</b>			
<b>PRIVATE PORTS</b>			

#### B. PORT MANAGEMENT OFFICE OF NCR SOUTH (PMO NCS)

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. PIER 3		✓	
2. PIER 5		✓	
3. PIER 9		✓	
4. PIER 13***		✓	
5. PIER 15		✓	
6. ANCHORAGE/IBW/OBW		✓	
<b>TMO – PASIG RIVER</b>			
1. OTP PASIG BANK – GOV'T COASTWISE		✓	
2. OTP TERMINAL PASIG BANK – GOV'T BAY & RIVER		✓	
<b>PRIVATE PORTS</b>			

Note: \*For Rehabilitation

## MANILA INTERNATIONAL CONTAINER TERMINAL (MICT)

### 1) Manila International Container Terminal

#### C. PORT MANAGEMENT OFFICE OF BATAAN/AURORA (PMO BNA)

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. LAMAO		✓	
<b>TMO - DINGALAN</b>			
1. OTP DINGALAN		✓	
<b>TMO - CAPINPIN</b>			
1. OTP CAPINPIN		✓	
<b>TMO - CASIGURAN</b>			
1. OTP CASIGURAN		✓	
<b>OTHER GOVERNMENT PORT</b>			
1. MARIVELES (Anchorage)		✓	
<b>PRIVATE PORTS</b>			

#### D. PORT MANAGEMENT OFFICE OF NORTHERN LUZON (PMO NLZ)

NAME	RORO	NON-RORO	REMARKS
<b>TMO - BATANES</b>			
1. OTP BASCO, BATANES		✓	
<b>TMO – CAGAYAN/ISABEL/ILOCOS</b>			
1. OTP APARRI (Anchorage)		✓	
2. OTP CURRIMAO		✓	
3. OTP CURRIMAO (Anchorage)		✓	
<b>TMO - PANGASINAN</b>			
1. OTP SUAL		✓	
2. OTP SUAL (Anchorage)		✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. ALAMINOS (Anchorage)		✓	
2. BALANGUI (Anchorage)		✓	
3. CABUGAO (Anchorage)		✓	
4. CALAYAN		✓	
5. CALAYAN (Anchorage)		✓	
6. CLAVERIA		✓	
7. DINAPIGUE (Anchorage)		✓	
8. ITBAYAT, BATANES PORT		✓	
9. MACONACON (Anchorage)		✓	
10. MATALVIS		✓	
11. PASUQUIN		✓	
12. SANCHEZ MIRA		✓	
13. SALOMAGUE (Anchorage)		✓	
14. SALOMAGUE (Anchorage)		✓	
15. STA. CATALINA		✓	
16. SUAL (Anchorage)		✓	
17. VALANGA PORT		✓	
<b>PRIVATE PORTS</b>			

## 2.2 SOUTHERN LUZON

### A. PORT MANAGEMENT OFFICE OF BATANGAS (PMO BGS)

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. BATANGAS	✓		
2. BATANGAS PHASE 1		✓	
3. BATANGAS PHASE 2		✓	
4. BATANGAS (Anchorage)		✓	
<b>TMO - BAUAN</b>			
1. OTP BAUAN		✓	
<b>TMO - TABLAS</b>			
4. OTP TABLAS	✓	✓	
<b>TMO - ROMBLON</b>			
1. OTP ROMBLON	✓	✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. AMBULONG	✓	✓	
2. AZAGRA	✓	✓	
3. CAJIDIOCAN	✓	✓	
4. CALATAGAN		✓	
5. NASUGBO		✓	
6. SAN JUAN		✓	
<b>PRIVATE PORTS</b>			

### B. PORT MANAGEMENT OFFICE OF BICOL (PMO BCL)

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. LEGASPI		✓	
<b>TMO - BULAN</b>			
1. OTP BULAN	✓	✓	
<b>TMO - MATNOG</b>			
1. OTP MATNOG	✓		
<b>TMO - CAMARINES</b>			
1. OTP PASACAO		✓	
<b>TMO - PIO DURAN</b>			
1. OTP PIO DURAN	✓		
<b>TMO - TABACO</b>			
1. OTP TABACO	✓	✓	
<b>TMO - CATANDUANES</b>			
1. OTP VIRAC	✓	✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. BACACAY		✓	
2. BALATAN		✓	
3. BONGALON		✓	
4. CABUGAO, CATANDUANES		✓	
5. CARAMOAN, CAM SUR		✓	
6. CASTILLA		✓	
7. CALANGCAWAN		✓	
8. CODON		✓	
9. GARCHITORENA		✓	
10. JOSE PANGANIBAN		✓	
11. LARAP OR CALAMBAYUNGAN		✓	



12. MALOBAGO,RAPU-RAPU		✓	
13. NATO		✓	
14. PANTAO		✓	
15. PILAR		✓	
16. RAPU-RAPU		✓	
17. RAGAY		✓	
18. SAN JOSE,SABANG PORT		✓	
19. SAN JOSE, SABANG TALISAY PORT		✓	
20. SAN ANDRES	✓	✓	
21. SORSOGON CITY		✓	
22. SULA,BACACAY,ALBAY		✓	
23. TAMBAN (Tinambac)		✓	
24. TANDOC (Siruma)		✓	
<b>PRIVATE PORTS</b>			

**C. PORT MANAGEMENT OFFICE OF PALAWAN (PMO PLW)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. PUERTO PRINCESA	✓	✓	
2. PUERTO PRINCESA(Anchorage)		✓	
<b>TMO – BROOKE'S POINT</b>			
1. OTP BROOKE'S POINT		✓	
<b>TMO - CORON</b>			
1. OTP CORON	✓	✓	
2. OTP CORON (Anchorage)		✓	
<b>TMO - CULION</b>			
1. OTP CULION		✓	
<b>TMO - CUYO</b>			
1. OTP CUYO	✓	✓	
<b>TMO – EL NIDO</b>			
1. OTP EL NIDO		✓	
<b>OTHER GOVERMENT PORTS</b>			
1. LIMINANGCONG		✓	
2. NARRA		✓	
3. TAYTAY - POBLACION		✓	
<b>PRIVATE PORTS</b>			

**D. PORT MANAGEMENT OFFICE OF MINDORO (PMO MDO)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. CALAPAN	✓	✓	
<b>TMO - LUBANG/TILIK/LOOC</b>			
1. OTP TILIK	✓	✓	
<b>TMO - PUERTO GALERA</b>			
1. OTP PUERTO GALERA	✓	✓	
<b>TMO - ROXAS</b>			
1. OTP DANGAY,ROXAS	✓	✓	
<b>TMO - SAN JOSE/ABRA DE ILOG</b>			
1. OTP ABRA DE ILOG	✓	✓	
2. OTP SAN JOSE	✓	✓	
3. OTP SAN JOSE (Anchorage)		✓	
<b>OTHER GOVERMENT PORTS</b>			
1. BANSUD		✓	
2. BULALACAO	✓	✓	
3. MANSALAY		✓	
4. MAMBURAO		✓	
5. PINAMALAYAN		✓	
6. SABLAYAN	✓		
<b>PRIVATE PORTS</b>			

**E. PORT MANAGEMENT OFFICE OF MARINDUQUE/QUEZON (PMO MRQ)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. LUCENA	✓	✓	
<b>TMO - BALANACAN</b>			
1. OTP BALANACAN	✓	✓	
<b>TMO - STA.CRUZ (Buyabod)</b>			
1. OTP STA.CRUZ	✓	✓	
<b>OTHER GOVERMENT PORT</b>			
1. CAWIT	✓	✓	
<b>PRIVATE PORTS</b>			

**F. PORT MANAGEMENT OFFICE OF MASBATE (PMO MSB)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. MASBATE	✓	✓	
<b>TMO - TICA0</b>			
1. OTP SAN JACINTO		✓	
<b>TMO - BURIAS</b>			
1. OTP CLAVERIA		✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. AROR0Y		✓	
2. BATUAN		✓	
3. CATAINGAN		✓	
4. CAWAYAN		✓	
5. CALASUCHE (Milagros)		✓	
6. CALUMPANG		✓	
7. DIMASALANG		✓	
8. ESPERANZA		✓	
9. LAGUNDI OR BURGOS PORT		✓	
10. MANDAON		✓	
11. MONREAL		✓	
12. SAN FERNANDO		✓	
13. SAN PASCUAL		✓	
<b>PRIVATE PORTS</b>			

**2.3 VISAYAS**

**A. PORT MANAGEMENT OFFICE OF NEGROS ORIENTAL/SIQUIJOR (PMO NOS)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. DUMAGUETE	✓	✓	
<b>NAME</b>	<b>RORO</b>	<b>NON-RORO</b>	<b>REMARK</b>
<b>TMO - LARENA</b>			
1. OTP LARENA	✓	✓	
<b>TMO - TANDAYAG</b>			
1. OTP TANDAYAG		✓	
<b>TMO - GUIHULNGAN</b>			
1. OTP Guihulngan			
<b>OTHER GOVERNMENT PORTS</b>			
1. BULADO	✓	✓	
2. LAZI		✓	
3. SIBULAN		✓	
4. SIKUIJOR	✓	✓	
5. TAMBISAN		✓	
<b>PRIVATE PORTS</b>			

**B. PORT MANAGEMENT OFFICE OF PANAY GUIMARAS (PMO PNG)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. FORT SAN PEDRO		✓	
2. ILOILO RIVER WHARF		✓	
3. ICPC, LOBOC		✓	
<b>TMO - CAPIZ</b>			
1. OTP CULASI	✓	✓	
<b>TMO - AKLAN</b>			
1. OTP DUMAGUIT		✓	
<b>TMO - ILOILO</b>			
1. OTP ESTANCIA	✓	✓	
2. OTP DUMANGAS	✓	✓	
<b>TMO - GUIMARAS</b>			
1. OTP JORDAN	✓	✓	
<b>TMO - ANTIQUE</b>			
1. OTP SAN JOSE ANTIQUE		✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. BASIAO, IVISAN		✓	
2. BORACAY		✓	
3. BURUANGA		✓	
4. CATICLAN (Anchorage)		✓	
5. CONCEPCION		✓	
6. LIPATA		✓	
7. NABAS		✓	
8. NEW WASHINGTON		✓	
9. NPC POWER BARGE BO.		✓	
10. SAMBIRAY		✓	
11. SIBUNAG		✓	
<b>PRIVATE PORTS</b>			

**C. PORT MANAGEMENT OFFICE OF EASTERN LEYTE/SAMAR (PMO ELS)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. TACLOBAN		✓	
<b>NAME</b>	<b>RORO</b>	<b>NON-RORO</b>	<b>REMARK</b>
<b>TMO - BORONGAN</b>			
1. OTP BORONGAN		✓	
<b>TMO - CALBAYOG</b>			
1. OTP CALBAYOG		✓	
<b>TMO - GUIUAN</b>			
1. OTP GUIUAN		✓	
<b>TMO - LILOAN</b>			
1. OTP LILOAN		✓	
<b>TMO - SAN ISIDRO</b>			
1. OTP SAN ISIDRO		✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. ARTECHE, EASTERN SAMAR		✓	
2. BABATNGON		✓	
3. BASEY		✓	
4. CAPUL ISLAND		✓	
5. CARIGARA		✓	
6. HOMONHON		✓	
7. LAOANG		✓	
8. LAPINIG		✓	
9. LAS NAVAS		✓	
10. LILOAN		✓	
11. LLORENTE		✓	
12. MANICANI		✓	
13. MANGUINO-O		✓	
14. QUINAPUNDAN		✓	
15. SAN ANTONIO		✓	
16. SAN JOSE		✓	
17. SAN JUAN (Cabalian)		✓	
18. SOGOD		✓	
19. SAN RICARDO		✓	
20. TOLOSA		✓	
21. VICTORIA		✓	
<b>PRIVATE PORTS</b>			

**D. PORT MANAGEMENT OFFICE OF NEGROS  
OCCIDENTAL/BACOLOD/BANAGO/BREDCO (PMO NBB)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. BANAGO	✓	✓	
<b>TMO - PULUPANDAN</b>			
1. OTP PULUPANDAN	✓	✓	
<b>TMO - SAN CARLOS</b>			
1. OTP SAN CARLOS	✓	✓	
2. OTP SAN CARLOS LAYUP GOV'T		✓	
3. OTP SAN CARLOS (Anchorage)		✓	
<b>TMO - DANA O</b>			
1. OTP DANA O	✓	✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. DAANBANWA		✓	
2. LGU PORT – CADIZ		✓	
3. LGU PORT – SAGAY		✓	
4. PACO BEACH – BEACHING		✓	
5. SALVACION		✓	
<b>PRIVATE PORTS</b>			

**E. PORT MANAGEMENT OFFICE OF WESTERN LEYTE/BILIRAN (PMO WLB)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. ORMOC	✓	✓	
<b>TMO - BAYBAY</b>			
1. OTP BAYBAY	✓	✓	
<b>TMO - HILONGOS</b>			
1. OTP HILONGOS	✓	✓	
<b>TMO - MAASIN/GUADALUPE/LIMASAWA</b>			
1. OTP MAASIN	✓		
2. OTP MAASIN (Tramping)		✓	
<b>TMO - PALOMPON/SAN ISIDRO</b>			
1. OTP PALOMPON	✓	✓	
<b>TMO - ISABEL</b>			
1. OTP ISABEL	✓		
<b>TMO - NAVAL/MARIPIPI</b>			
1. OTP NAVAL	✓	✓	
2. OTP MARIPIPI		✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. BATO	✓	✓	
2. BONTOC		✓	
3. CAIBIRAN (Tramping)		✓	
4. GUADALUPE		✓	
5. ISABEL		✓	
6. LIMASAWA		✓	
7. LIMASAWA (Anchorage)		✓	
<b>PRIVATE PORTS</b>			

**F. PORT MANAGEMENT OFFICE OF BOHOL (PMO BHL)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. OTAGBILARAN	✓	✓	
2. OTAGBILARAN (Anchorage)		✓	
<b>TMO - JAGNA</b>			
1. OTP JAGNA	✓	✓	
<b>TMO - TALIBON</b>			
1. OTP TALIBON	✓	✓	
<b>TMO - TUBIGON</b>			
1. OTP TUBIGON	✓	✓	
<b>TMO - UBAY</b>			
1. OTP UBAY	✓	✓	
<b>TMO - GETAFE</b>			
1. OTP GETAFE	✓	✓	
<b>TMO - LOON</b>			
1. OTP LOON (Catagbacan)		✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. BIEN-UNIDO		✓	
2. CLARIN		✓	
3. TAPAL		✓	
<b>PRIVATE PORTS</b>			

**2.4 NORTHERN MINDANAO**

**A. PORT MANAGEMENT OFFICE OF MISAMIS ORIENTAL/CAGAYAN DE ORO (PMO MOC)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. CAGAYAN DE ORO	✓	✓	
2. CAGAYAN DE ORO (Anchorage)		✓	
<b>TMO - BALINGOAN</b>			
1. OTP BALINGOAN	✓	✓	
<b>TMO - CAMIGUIN</b>			
1. OTP BENONI	✓	✓	
<b>TMO - OPOL</b>			
1. OTP Opol			
<b>OTHER GOVERNMENT PORTS</b>			
1. BALBAGON	✓	✓	
2. GUINSILIBAN	✓	✓	
3. MEDINA		✓	
4. MOLUGAN		✓	
5. CUGMAN		✓	
6. KIMAYA		✓	
<b>PRIVATE PORTS</b>			

**B. PORT MANAGEMENT OFFICE OF LANA DEL NORTE/ILIGAN (PMO LNI)**

NAME	RORO	NON-RORO	REMARK
<b>BASEPORT</b>			
1. ILIGAN	✓	✓	
<b>TMO - TUBOD</b>			
1. OTP Tubod			
<b>PRIVATE PORTS</b>			

**C. PORT MANAGEMENT OFFICE OF MISAMIS OCCIDENTAL/OZAMIS (PMO MOZ)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. DAIMA	✓		
2. OZAMIZ	✓	✓	
3. OZAMIZ (Anchorage)		✓	
<b>TMO - JIMENEZ</b>			
1. OTP JIMENEZ		✓	
<b>TMO - PLARIDEL</b>			
1. OTP PLARIDEL	✓		
<b>OTHER GOVERNMENT PORT</b>			
1. SAN VICENTE BAJO		✓	
<b>PRIVATE PORTS</b>			

**D. PORT MANAGEMENT OFFICE OF SURIGAO (PMO SUG)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. SURIGAO	✓	✓	
<b>TMO - SIARGAO</b>			
1. OTP DAPA	✓	✓	
2. OTP DAPA MUNICIPAL WHARF		✓	
<b>TMO - DINAGAT</b>			
1. OTP SAN JOSE	✓	✓	
<b>TMO - TANDAG</b>			
1. OTP TANDAG		✓	
<b>TMO - LIPATA</b>			
1. OTP LIPATA		✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. ALBOR		✓	
2. ARAS-ASAN		✓	
3. CANTILAN		✓	
4. DEL CARMEN		✓	
5. DINAGAT		✓	
6. HAYANGABON		✓	
7. LORETO		✓	
8. MALIMONO		✓	
9. STA MONICA		✓	
10. NONOC		✓	
11. PLACER		✓	
12. SOCCORO		✓	
<b>PRIVATE PORTS</b>			



**E. PORT MANAGEMENT OFFICE OF AGUSAN (PMO AGS)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. NASIPIT	✓	✓	
2. NASIPIT (Anchorage)		✓	
<b>TMO - BUTUAN</b>			
1. OTP BUTUAN		✓	
<b>TMO - MASAO</b>			
1. OTP MASAO		✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. BUTUAN		✓	
2. MASAO		✓	
<b>PRIVATE PORTS</b>			

**2.5 SOUTHERN MINDANAO****A. PORT MANAGEMENT OFFICE OF SOCSARGEN (PMO SSG)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. MAKAR WHARF	✓	✓	
<b>TMO - SARANGANI</b>			
1. OTP Sarangani			
<b>PRIVATE PORTS</b>			

**B. PORT MANAGEMENT OFFICE OF DAVAO (PMO DVO)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. SASA WHARF		✓	
2. DALIAO (Anchorage)		✓	
3. LANA O (Anchorage)		✓	
4. MACO (Anchorage)		✓	
5. PANABO (Anchorage)		✓	
6. STA. ANA (Anchorage)		✓	
7. TIBUNGCO (Anchorage)		✓	
<b>TMO - MATI</b>			
1. OTP MATI WHARF		✓	
<b>TMO - BABAK/SAMAL</b>			
1. OTP BABAK		✓	
2. OTP MAE WESS		✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. BANAY-BANAY		✓	
2. DAVAO FISHPORT		✓	
3. PUNTA LINAO		✓	
4. SAN ISIDRO		✓	
<b>PRIVATE PORTS</b>			

**C. PORT MANAGEMENT OFFICE OF ZAMBOANGA (PMO ZBA)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. ZAMBOANGA	✓	✓	
<b>TMO - ISABELA</b>			
1. OTP BASILAN	✓	✓	
<b>TMO - ZAMBOANGA DEL SUR</b>			
1. OTP PAGADIAN		✓	
2. OTP MARGOSATUBIG		✓	
<b>TMO - ZAMBOANGA SIBUGAY</b>			
1. OTP IPIL		✓	
2. OTP MALANGAS		✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. CAWIT (Anchorage)		✓	
2. MASINLOC (Anchorage)		✓	
3. RECODO (Anchorage)		✓	
4. SANGALI (Anchorage)		✓	
5. TALISAYAN (Anchorage)		✓	
<b>PRIVATE PORTS</b>			

**D. PORT MANAGEMENT OF ZAMBOANGA DEL NORTE (PMO ZDN)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. DAPITAN	✓	✓	
<b>TMO - LILOY</b>			
1. OTP LILOY		✓	
<b>TMO - SINDANGAN</b>			
1. OTP SINDANGAN		✓	
<b>OTHER GOVERNMENT PORTS</b>			
1. GALAS	✓		
2. NABILID		✓	
<b>PRIVATE PORTS</b>			

**E. PORT MANAGEMENT OFFICE OF COTABATO (PMO CBO)**

NAME	RORO	NON-RORO	REMARKS
<b>BASEPORT</b>			
1. COTABATO		✓	
<b>TMO – SULTAN KUDARAT</b>			
1. OTP KALAMANSIG		✓	

### 3. MARINA STATISTICAL REPORT FROM 2015-2019

**Table 1**  
**NUMBER OF OPERATING VESSELS BY TYPE OF SERVICE, TOTAL GRT, AVERAGE GRT AND AVERAGE AGE**

TYPE OF SERVICE	NUMBER		TOTAL GRT		AVERAGE GRT		AVERAGE AGE	
	2018	2019	2018	2019	2018	2019	2018	2019
<b>LARGER VESSELS</b>	3,866	3,727	2,632,231.10	2,665,181.20	681.93	715.68	21.42	23.21
Passenger	817	618	387,103.83	311,172.84	476.14	503.52	19.14	18.95
Cargo	1,672	1,653	1,719,412.60	1,808,021.30	1,029.59	1,095.11	19.91	22.20
Tanker	220	225	285,501.87	286,243.74	1,297.74	1,272.19	19.30	20.11
Fishing	395	364	82,327.70	99,469.16	208.42	273.27	23.00	28.83
Others	762	867	157,885.14	160,274.20	207.20	185.07	26.46	26.53
<b>MOTOR BANCA/BOAT</b>	20,263	24,483	255,466.68	294,006.26	12.64	12.03	6.99	7.00
Passenger	8,122	10,474	52,846.78	64,328.41	6.51	6.14	5.88	5.64
Cargo	1,178	1,515	35,032.31	45,554.78	29.74	30.07	8.39	8.70
Fishing	10,544	11,995	164,778.48	181,029.96	15.69	15.15	7.79	8.09
Others	419	499	2,809.11	3,093.11	6.72	6.21	4.42	4.69
<b>TOTAL</b>	<b>*24,129</b>	<b>28,210</b>	<b>2,887,697.80</b>	<b>2,959,187.50</b>	<b>119.93</b>	<b>105.08</b>	<b>9.22</b>	<b>9.15</b>

\*Revised the data in 2018 MARINA Statistical Report

**Table 2**  
**NUMBER, GRT AND AVERAGE AGE OF VESSELS APPROVED FOR IMPORTATION BY TYPE OF SERVICE**

TYPE OF SERVICE	NUMBER					GRT					AVERAGE AGE				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Passenger /RORO	18	29	17	22	22	34,980.06	72,367.60	13,545.91	21,403.00	24,468.70	18	19	19	10	6
Cargo	96	80	66	38	39	152,723.48	153,991.74	132,536.00	122,402.00	68,342.00	17	18	18	15	11
Tanker	5	12	3	1	3	14,430.00	27,627.00	14,575.00	29,877.00	4,936.00	8	3	5	6	9
Tugboat	23	26	32	32	18	5,238.20	5,715.48	5,894.68	6,658.83	4,999.24	28	26	31	29	30
Barge	28	22	11	21	12	22,526.20	23,562.20	9,446.00	16,048.87	17,565.20	3	4	12	13	7
Fishing Vessel	21	20	6	8	17	9,313.00	11,971.77	1,519.00	1,635.15	11,406.92	29	27	30	27	25
Others	177	236	239	102	113	89,866.00	19,115.77	13,865.00	15,076.54	7,655.70	1	1	9	6	8
<b>TOTAL</b>	<b>368</b>	<b>425</b>	<b>374</b>	<b>224</b>	<b>224</b>	<b>329,076.94</b>	<b>314,351.56</b>	<b>191,381.59</b>	<b>213,101.39</b>	<b>139,373.76</b>	<b>15</b>	<b>14</b>	<b>18</b>	<b>15</b>	<b>14</b>

Table 3

## ACQUISITION COST OF VESSELS APPROVED FOR IMPORTATION BY TYPE OF SERVICE

TYPE OF SERVICE	TOTAL COST (in US \$)				
	2015	2016	2017	2018	2019
Passenger /RORO	75,062,559.11	34,904,458.85	67,004,281.77	82,056,360.00	72,664,500.00
Cargo	75,767,146.75	83,083,790.00	60,589,925.00	44,857,432.90	70,687,666.97
Tanker	66,004,800.00	24,521,500.00	29,400,000.00	3,304,408.00	44,400.00
Tugboat	9,165,988.44	16,284,546.00	14,127,020.20	7,617,419.56	9,435,975.55
Barge	16,983,486.28	4,404,650.00	18,381,823.00	96,907,571.56	27,067,174.78
Fishing Vessel	12,215,199.13	2,501,407.00	8,928,320.00	73,419,533.00	4,107,980.75
Others	5,688,816.70	1,320,983.99	19,983,011.59	2,386,509.26	12,612,273.76
<b>TOTAL</b>	<b>260,887,996.41</b>	<b>167,021,335.84</b>	<b>218,414,381.56</b>	<b>310,549,234.29</b>	<b>196,619,971.81</b>

Table 4

## NUMBER, GRT AND AVERAGE AGE OF VESSELS APPROVED FOR BAREBOAT CHARTERING BY TYPE OF SERVICE

TYPE OF SERVICE	NUMBER					TONNAGES (GRT)					AVERAGE AGE				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Passenger /RORO	-	3	1	1	-	-	336.00	172.00	193.00	-	-	21	-	15	-
Cargo	4	-	2	3	5	12,027.00	-	11,761.00	13,875.00	20,696.00	5	-	23	26	9
Tanker	1	-	1	-	-	2,767.00	-	3,490.00	-	-	10	-	18	-	-
Tugboat	-	-	-	-	1	-	-	-	-	3,161.00	-	-	-	-	7
Barge	-	1	2	1	2	-	1,132.00	3,270.00	398.00	2,570.00	-	10	8	2	9
Fishing Vessel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	3	1	-	-	-	3,556.00	491.00	-	-	-	12	37	-	-	-
<b>TOTAL</b>	<b>8</b>	<b>5</b>	<b>6</b>	<b>5</b>	<b>8</b>	<b>18,350.00</b>	<b>1,959.00</b>	<b>18,693.00</b>	<b>14,466.00</b>	<b>26,427.00</b>	<b>9</b>	<b>23</b>	<b>16</b>	<b>14</b>	<b>8</b>

The MARINA issues authority to acquire vessels through bareboat chartering by virtue of Memorandum Circular No. 104 which seeks to implement the present policy of the government to liberalize vessel acquisitions. Vessels of any type, which are not wooden-hulled, (except in the case of local construction) shall be allowed for acquisition under said Circular.

**Table 5**  
**NUMBER OF ISSUED/RE-ISSUED CERTIFICATE OF OWNERSHIP/CERTIFICATE OF PHILIPPINE REGISTRY**

Year	CERTIFICATE OF OWNERSHIP			CERTIFICATE OF PHILIPPINE REGISTRY		
	Total	Central Office	Regional Office	Total	Central Office	Regional Office
2015	4,606	481	4,125	4,914	462	4,452
2016	6,838	301	6,537	7,853	321	7,532
2017	5,269	568	4,701	5,890	597	5,293
2018	6,407	356	6,051	7,101	377	6,724
2019	5,156	388	4,768	6,867	406	6,461

The MARINA issues Certificate of Philippine Registry (CPR) and Certificate of Ownership (CO) pursuant to MARINA CIRCULAR No. 2013-02 which provides that all ships of domestic ownership plying the Philippine waters, regardless of size and utilization must be properly registered and issued a CPR and CO.

Source documents: Issued Certificate of Philippine Registry and Certificate of Ownership

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**Table 6**  
**LICENSES/PERMITS/CERTIFICATES ISSUED/ RE-ISSUED**

License/Permit/Certificate	2015	2016	2017	2018	2019
Coastwise License (CWL)	3,074	3,925	4,160	4,878	5,022
Bay and River License (BRL)	3,259	6,103	4,762	5,066	6,745
Pleasure Yacht License (PYL)	214	291	216	204	329
Commercial Yacht License (CYL)		6	1	0	0
Special Permit (SP) to Navigate	909	1,541	1,469	1,546	1,701
Exemption Permit	1,726	1,736	1,530	1,980	1,799
Minimum Safe Manning Certificate	13,678	18,268	16,325	18,780	21,265
Dispensation Permit	3	62	29	59	59
Passenger Ship Safety Certificate (PSSC)	6,102	9,324	8,131	8,642	10,865
Cargo Ship Safety Certificate (CSSC)	3,083	3,541	3,511	4,015	4,097
Cargo Ship Safety Construction (CSSCC)	302	429	390	415	416
Cargo Ship Safety Equipment (CSSEC)	256	356	371	389	392
High Speed Craft Safety Certificate (HSCSCC)	0	0	11	2	3
Fishing Vessel Safety Certificate (FVSC)	6,163	7,002	7,269	8,372	8,306
Certificate of Fitness	59	66	70	79	99

All Philippine-registered ships regardless of hull construction operating in the Philippine waters, including but not limited to fishing vessels, shall be required to secure the applicable ship safety-related certificates as provided in the SSSIS and in the herein Circular prior to operation. MARINA issues safety certificates pursuant to MC 2015-12, 2012-06, 2011-02, 110, 138, 205 and 203.

**Table 7**  
**DELETION OF VESSEL FROM THE PHILIPPINE REGISTRY**

YEAR	CO	MRO I & 2	MRO IV	MRO V	MRO VI	MRO VII	MRO VIII	MRO IX	MRO X	MRO XI	MRO XII	MRO XIII	TOTAL
2015	72	11	17	21	16	30	5	0	9	3	3	-	187
2016	8	8	8	14	31	4	11	0	5	1	5	16	111
2017	12	14	6	23	6	9	4	0	36	9	8	13	140
2018	10	25	6	16	1	10	24	1	15	8	9	27	152
2019	19	19	7	19		38	31	2	63		8	10	216
<b>TOTAL</b>	<b>121</b>	<b>77</b>	<b>44</b>	<b>93</b>	<b>54</b>	<b>91</b>	<b>75</b>	<b>3</b>	<b>128</b>	<b>21</b>	<b>33</b>	<b>66</b>	<b>806</b>

Source of document: Deletion Certificate

**Table 8**  
**NUMBER OF ISSUED CERTIFICATE OF COMPLIANCE (COC)**

YEAR	COC ISSUED UNDER MC 65/65-A	COC ISSUED UNDER MC 134	COC ISSUED UNDER MC 72
2015	849	2,007	72
2016	947	3,083	37
2017	921	3,478	40
2018	1,456	4,047	90
2019	1,281	4,376	82

MC 65/65A/ MC 134

All owners/operators of interisland passenger service who are holders of Certificate of Public Convenience (CPC)/Provisional Authority (PA)/Special Permit (SP) are required to observe the minimum service standards for passenger accommodation.

MC 72

The MC prescribes all passenger/passenger-cargo vessels 250 GRT and above to implement the showing of the 10-minute film on the safety/health/sanitation features of a vessel.



**Table 9**  
**ISSUED ACCREDITATION OF DOMESTIC SHIPPING COMPANIES / ENTITIES**

YEAR	Number of Issued Accreditation	
	under MC 2006-03	under MC 186
2015	973	90
2016	1,293	60
2017	1,446	69
2018	1,433	51
2019	2,319	74

Source: Domestic Shipping Service /Maritime Regional Office (DSS/MRO)

Under MC 2006-003, the MARINA accredits shipping companies/entities involved in domestic shipping operations in order to prevent the proliferation of incompetent, inefficient, unreliable and fly-by-night operators. It is also intended to foster standards for domestic shipping operations to protect public interest. Accreditation is a pre-requisite prior to grant of permits, licenses or authority to operate. The validity of accreditation is for a period of three (3) years and renewable for the same length of validity.

Accreditation under MC 186 aims to promote the growth and development of maritime-related activities in order to contribute to the country's economic progress. Validity of accreditation is also three (3) years and renewable for same period.

**Table 10**  
**NUMBER OF ISSUED ENDORSEMENTS FOR AVAILMENT OF INCENTIVES**

YEAR	ISSUED ENDORSEMENTS PER TYPE OF INCENTIVE			
	Vessel tax free importation	VAT Exemption	Tax Incentives on Company Registration	Exemption from payment of custom duties and taxes
2015	11	2	2	0
2016	9	1	4	0
2017	6	4	1	0
2018	15	53	6	1
2019	11	81	10	19

Revised Implementing Rules and Regulations (R-IRR) is promulgated pursuant to Republic Act No. 9295 otherwise known as the Domestic Shipping Development Act of 2004. It is prescribed to carry out the policy of the State such as to provide necessary assistance and incentives for the continued growth of the Philippine domestic merchant fleet. Investment incentives ensures the continued viability of domestic shipping industry, and to encourage investments in the domestic shipping industry.

**Table 11**  
**Franchising Issuances**

YEAR	ISSUANCES OF CPC	RENEWAL OF CPC	AMENDMENT OF CPC	EXEMPTION FROM ISSUANCE OF CPC	DECISION FOR SALE AND TRANSFER	ISSUANCE/EXTENSION OF SPECIAL PERMIT
2015	383	256	445	72	226	1,610
2016	594	230	561	83	284	2,158
2017	786	218	518	59	226	1,797
2018	688	217	655	54	315	2,305
2019	1,709	355	679	49	403	2,120

Pursuant to 2014 amendments to the Revised Rules and Regulations Implementing Republic Act No. 9295, MARINA issues Authority to operate to domestic shipping operators to be able to engage in domestic shipping.

**Table 12**  
**INTERNATIONAL SAFETY MANAGEMENT (ISM) SAFETY MANAGEMENT CERTIFICATE (SMC) / DOCUMENT OF COMPLIANCE (DOC) ISSUED**

YEAR	ISM SMC	ISM DOC
2015	578	78
2016	428	162
2017	603	174
2018	570	188
2019	361	100

**MC 143 – Rules and Regulations to implement the International Safety Management (ISM) Code in Domestic Shipping**

The Circular was issued to foster a culture of safety and environmental protection in domestic shipping operations, whereby affected companies and ships shall:

1. Provide safe practices in ship operation and safe working environment;
2. Establish safeguards against all identified risks; and
3. Continuously improve safety management skills of personnel ashore and aboard ships, to include preparing for emergencies related both to safety and environmental protection.

**Document of Compliance (DOC)** means the document issued to a company complying with the requirements of the ISM Code.



**Table 13**  
**NATIONAL SAFETY MANAGEMENT (NSM) SAFETY MANAGEMENT CERTIFICATE (SMC) /**  
**DOCUMENT OF COMPLIANCE (DOC) ISSUED**

YEAR	NSM SMC	NSM DOC
2015	187	83
2016	108	42
2017	60	15
2018	61	18
2019	19	3

**MC 159 - Adoption of a National Safety Management Code and providing rules and regulations for its implementation in the Domestic shipping**

This Circular was issued for the following reasons:

1. To foster safety culture in domestic shipping operations by institutionalizing the adoption, implementation and maintenance of a Safety Management System (SMS) by shipping companies, designed to ensure personnel competence in every aspect of ship operations.
2. To enable companies to achieve and maintain high standards of safety and marine environment protection
3. To ensure compliance with mandatory rules and regulations, codes and standards governing safety and environment protection

**Document of Compliance (DOC)** refers to the document issued to a company that complies with the requirements of the National Safety Management Code.

**Safety Management Certificates (SMC)** refers to the document issued to a ship, which signifies that the Company and its shipboard management operate in accordance with the approved SMS.

**Table 14**  
**AUDITS UNDERTAKEN RELATIVE TO INTERNATIONAL SAFETY MANAGEMENT (ISM) /**  
**NATIONAL SAFETY MANAGEMENT (NSM)**

YEAR	ISM (143)		NSM (159)	
	COMPANY AUDIT	SHIP AUDIT	COMPANY AUDIT	SHIP AUDIT
2015	87	242	63	128
2016	132	323	126	162
2017	205	455	28	81
2018	158	360	15	16
2019	224	436	8	5

**MC 143 – Rules and Regulations to implement the International Safety Management(ISM) Code in Domestic Shipping**

This MC was issued to ensure safety and environmental protection in domestic shipping operations which shall cover the following vessels :

- Passenger High Speed Crafts
- Passenger-carrying ships required to be classed and those currently classed
- Oil Tankers, Chemical Tankers and Gas Carriers 500 gross tons and above
- Bulk Carriers 500 gross tons and above and required to be classed.

**MC 159 – Adoption of a National Safety Management Code and providing rules and regulations for its implementation in the Domestic shipping**

This Circular shall apply to the following steel/wooden hulled ships, whenever operating in Philippine waters:

- All passenger-carrying ships not required to be classed;
- Tankers not required to be classed;
- Bulk Carriers not required to be classed;
- Other cargo Ships not required to be classed;
- Tug boats, whenever pulling/pushing non-propelled tanker barges carrying oil products.

Exempted are the following :

- Vessels covered by Memorandum Circular No. 143
- fishing boats;
- non-propelled barges;
- sailing ships;

**Table 15**  
**MARITIME ACCIDENTS INVESTIGATED BY MARINA**  
**BY TYPE OF ACCIDENT**

TYPE OF ACCIDENT	NUMBER OF VESSELS			
	2016	2017	2018	2019
Grounding	20	12	36	50
Loss Of Control	0	1	5	1
Hull Failure	3	0	1	1
Listing/Capsizing	6	5	11	19
Damage To Ship Or Equip	2	10	25	23
Collision	2	5	10	6
Contact/Allision/Ramming	3	1	12	14
Flooding	1	0	3	0
Fire/Explosion	1	4	6	12
Others	5	10	43	22
<b>TOTAL</b>	<b>43</b>	<b>48</b>	<b>152</b>	<b>148</b>

Source: MARINA Enforcement Service

**Table 16**  
**MARITIME ACCIDENTS INVESTIGATED BY MARINA**  
**BY AREA OF JURISDICTION**

AREA OF JURISDICTION	2016	2017	2018	2019
Central Office	2	0	8	2
MRO I & II	1	4	4	6
MRO IV	17	10	19	28
MRO V	1	1	11	16
MRO VI	1	1	23	23
MRO VII	1	4	21	26
MRO VIII	3	7	20	16
MRO IX	1	1	9	7
MRO X	1	4	15	6
MRO XI	4	1	2	3
MRO XII	0	6	4	3
MRO XIII	11	9	16	12
<b>TOTAL</b>	<b>43</b>	<b>48</b>	<b>152</b>	<b>148</b>

Source: MARINA Enforcement Service

**Table 17**  
**MARITIME ACCIDENTS INVESTIGATED BY MARINA**  
**BY INCIDENT CLASSIFICATION**

YEAR	TOTAL NUMBER OF ACCIDENTS/INCIDENTS	VERY SERIOUS ACCIDENTS	SERIOUS ACCIDENTS	OTHERS
2016	43	5	33	5
2017	48	8	34	6
2018	152	31	89	32
2019	148	23	97	28
<b>TOTAL</b>	<b>391</b>	<b>67</b>	<b>253</b>	<b>71</b>

Source: MARINA Enforcement Service

**Table 18**  
**CARGO AND PASSENGER STATISTICS**

YEAR	CARGO THROUGHPUT (in metric tons)						PASSENGER TRAFFIC			TOTAL
	DOMESTIC			FOREIGN						
	INWARD	OUTWARD	TOTAL	IMPORT	EXPORT	TOTAL	DISEMBARKED	EMBARKED	Cruise Ships Passengers	
2015	48,953,410	37,320,037	86,273,447	73,215,849	46,414,959	119,630,808	31,390,804	29,763,956	N/A	61,154,760
2016	53,957,437	41,368,117	95,325,554	84,716,268	66,952,343	151,668,611	35,569,702	33,273,975	N/A	68,843,677
2017	58,184,762	44,348,750	102,533,512	89,029,196	62,506,609	151,535,805	37,090,295	34,910,926	50,725	72,051,946
2018	59,574,429	45,815,751	105,390,180	100,793,335	54,769,957	155,563,292	39,297,414	37,049,698	451,063	76,798,175
2019	57,862,053	46,566,300	104,428,354	100,298,176	61,690,679	161,988,855	42,308,684	41,198,946	213,765	83,721,395

**Table 19**  
**NUMBER OF SHIPCALLS**

YEAR	DOMESTIC	FOREIGN	TOTAL
2015	375,642	10,065	385,707
2016	420,115	12,252	432,367
2017	434,380	11,883	446,263
2018	457,048	11,391	468,439
2019	491,836	11,262	503,098



Source: Philippine Ports Authority (PPA)

**Table 1**  
**ACCREDITED OVERSEAS SHIPPING COMPANIES**

YEAR	ACCREDITED COMPANIES UNDER MC 181		ACCREDITED COMPANIES UNDER MC 186	
	NUMBER	TOTAL PAID-UP CAPITALIZATION (PhP)	NUMBER	TOTAL PAID-UP CAPITALIZATION (PhP)
2015	65	1,532,923,864.00	475	3,154,921,570.65
2016	64	1,521,517,824.00	466	3,270,650,406.38
2017	61	2,179,495,424.00	487	4,091,039,702.03
2018	62	2,445,899,900.00	501	4,673,476,703.41
2019	61	2,567,513,900.00	516	8,313,024,797.18

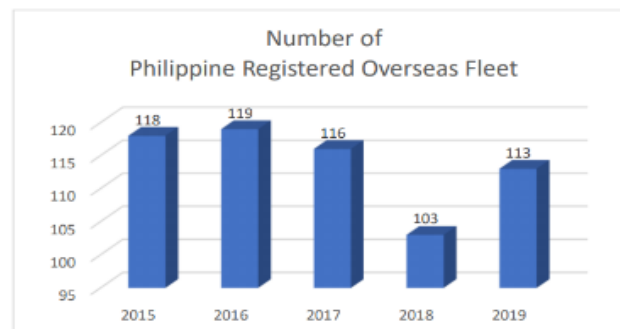
For Memorandum Circular No. 181, the MARINA registers/accredits shipping companies which shall register ships in the Philippines and operate the same in international waters. The validity of accreditation is three (3) years and renewable for the same period length.

On the other hand, accreditation under MC 186 aims to promote the growth and development of maritime-related activities in order to contribute to the country's economic progress. The validity of accreditation is also three (3) years and renewable for same period length.

Source document is the MARINA Certificate of Accreditation.

**Table 2**  
**PHILIPPINE-REGISTERED OVERSEAS FLEET, BY MODE OF ACQUISITION**

Year	Owned			Bareboat Chartered			TOTAL		
	Number	GRT	DWT	Number	GRT	DWT	Number	GRT	DWT
2015	1	4,028	6,503	117	2,824,404	4,859,206	118	2,828,432	4,865,709
2016	1	4,028	6,503	118	2,675,983	4,492,351	119	2,680,011	4,498,854
2017	2	8,073	6,503	114	2,343,146	3,821,468	116	2,351,219	3,827,971
2018	2	33,922	0	101	2,046,646	3,337,826	103	2,080,568	3,337,826
2019	3	60,332	27,315	110	2,600,140	4,378,594	113	2,660,472	4,405,909



**Table 3**  
**NUMBER OF OVERSEAS OPERATING FLEET BY TYPE OF SERVICE**

TYPE OF SERVICE	NUMBER				
	2015	2016	2017	2018	2019
General Cargo	26	27	29	24	23
Bulk Carrier	64	63	56	53	70
Tanker	15	17	20	20	19
Roll-On Roll-Off	-	-	-	-	-
Livestock Carrier	8	7	6	4	-
Container/GC	-	-	-	-	-
Dry Cargo	1	1	-	-	-
Wood Chip Carrier	-	-	-	-	-
Container Carrier	2	2	2	-	-
Car/vehicle Carrier	-	-	-	-	-
Multi-Purpose/Dry Cargo	2	2	2	1	-
Chip Carrier	-	-	-	-	-
Cable Layer	-	-	1	1	1
<b>TOTAL</b>	<b>118</b>	<b>119</b>	<b>116</b>	<b>103</b>	<b>113</b>

Source: MARINA/OSS

**Table 4**  
**TONNAGES OF OVERSEAS OPERATING FLEET BY TYPE OF SERVICE**

TYPE OF SERVICE	TONNAGES									
	G R T					DWT				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
General Cargo	266,500.00	277,254.00	286,428.00	247,496.00	233,699.00	374,118.30	386,618.30	397,200.30	343,954.30	327,757.30
Bulk Carrier	2,238,224.00	1,985,554.00	1,585,976.00	1,449,862.00	2,089,663.00	4,020,852.60	3,476,445.60	2,703,735.42	2,445,110.82	3,566,169.82
Tanker	197,603.00	294,281.00	353,089.00	340,172.00	327,553.00	330,883.00	497,683.00	591,683.00	517,183.00	505,139.00
Multi-Purpose Carrier	-	-	-	-	-	-	-	-	-	-
Roll-On Roll-Off	-	-	-	-	-	-	-	-	-	-
Livestock Carrier	39,634.00	36,451.00	33,726.00	27,212.00	-	27,091.00	25,343.00	22,248.00	16,547.00	-
Car Carrier	-	-	-	-	-	-	-	-	-	-
Container/GC	-	-	-	-	-	-	-	-	-	-
Passenger	-	-	-	-	-	-	-	-	-	-
Dry Cargo	4,028.00	4,028.00	-	-	-	6,503.00	6,503.00	-	-	-
Wood Chip Carrier	-	-	-	-	-	-	-	-	-	-
Container Carrier	69,899.00	69,899.00	69,899.00	-	-	89,367.00	89,367.00	89,367.00	-	-
Car/Vehicle Carrier	-	-	-	-	-	-	-	-	-	-
Multi-Purpose/Dry Cargo	12,544.00	12,544.00	12,544.00	6,269.00	-	16,894.63	16,894.63	16,894.63	8,188.63	-
Chip Carrier	-	-	-	-	-	-	-	-	-	-
Cable Layer	-	-	9,557.00	9,557.00	9,557.00	-	-	6,843.00	6,843.00	2,867.00
<b>TOTAL</b>	<b>2,828,432.00</b>	<b>2,680,011.00</b>	<b>2,351,219.00</b>	<b>2,080,568.00</b>	<b>2,660,472.00</b>	<b>4,865,709.53</b>	<b>4,498,854.53</b>	<b>3,827,971.35</b>	<b>3,337,826.75</b>	<b>4,405,909.12</b>

Source: MARINA/OSS

**Table 5**  
**AVERAGE AGE OF OVERSEAS OPERATING FLEET BY TYPE OF SERVICE**

TYPE OF SERVICE	AVERAGE AGE				
	2015	2016	2017	2018	2019
General Cargo	7	7	8	8	8
Bulk Carrier	5	4	4	5	4
Tanker	4	3	4	5	5
Multi-Purpose Carrier	-	-	-	-	-
Roll-On Roll-Off	-	-	-	-	-
Livestock Carrier	20	20	19	20	-
Container/GC	-	-	-	-	-
Dry Cargo	32	33	-	-	-
Wood Chip Carrier	-	-	-	-	-
Container Carrier	6	7	8	-	-
Car/vehicle Carrier	-	-	-	-	-
Multi-Purpose/Dry Cargo	18	19	20	19	-
Chip Carrier	-	-	-	-	-
Cable Layer	-	-	18	19	20
<b>AVERAGE</b>	<b>7</b>	<b>6</b>	<b>7</b>	<b>6</b>	<b>5</b>

Source: MARINA/OSS

**Table 6**  
**NUMBER OF CERTIFICATE OF OWNERSHIP (CO)/CERTIFICATE OF PHILIPPINE REGISTRY (CPR) ISSUED**

YEAR	CERTIFICATE OF OWNERSHIP		CERTIFICATE OF PHILIPPINE REGISTRY	
	NEW	EXISTING	NEW	RENEWAL
2015	0	0	25	8
2016	0	0	19	17
2017	1	0	14	0
2018	1	0	5	22
2019	2	0	25	25

Source: MARINA/OSS

Memorandum Circular No. 182, as amended by MC 2015-01, provides the rules in the acquisition of ships under Presidential Decree (PD) 760, as amended, and the Implementing Rules under Chapter XV of the 1997 Philippine Merchant Marine Rules and Regulations (PMMRR) on Registration, Documentation and Licensing of Ships for International Voyage.

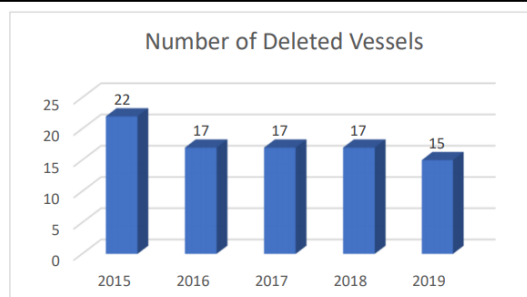
Source documents are the Certificate of Philippine Registry and the Certificate of Ownership.

**Table 8**  
**NUMBER AND TONNAGE OF VESSELS DELETED**  
**BY TYPE OF SERVICE**

TYPE OF SERVICE	2015		2016		2017		2018		2019	
	Number	GRT	Number	GRT	Number	GRT	Number	GRT	Number	GRT
General Cargo	5	85,151	1	7,463	1	15,349	5	38,932	4	40,690
Bulk Carrier	13	361,445	13	579,795	13	561,368	7	225,139	4	78,929
Multi-Purpose Dry Cargo	1	5,519	-	-	-	-	1	6,275	1	6,269
Livestock Carrier	-	-	1	3,183	1	2,725	1	1,762	4	27,212
Wood Chip/Chip Carrier	-	-	-	-	-	-	-	-	-	-
Vehicle Carrier	1	45,796	-	-	-	-	-	-	-	-
Product Tanker	-	-	-	-	-	-	1	42,794	2	24,190
Chemical Tanker	1	4,045	2	23,122	2	54,365	-	-	-	-
Container Carrier	-	-	-	-	-	-	2	69,899	-	-
Roll On – Roll Off	1	6,788	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>22</b>	<b>490,809</b>	<b>17</b>	<b>613,563</b>	<b>17</b>	<b>633,807</b>	<b>17</b>	<b>384,801</b>	<b>15</b>	<b>177,290</b>

Source: MARINA/OSS

Source document is the Deletion Certificate.



**Table 9.1**  
**TOP TEN (10) SHIPPING COMPANIES BY TONNAGES**  
**As of December 2019**

COMPANY NAME		TOTAL GRT
1.	ST. VINCENT SHIPPING, INC.	474,698.00
2.	SEAFARER'S SHIPPING, INC.	448,517.00
3.	SEA QUEEN SHIPPING, CORP.	388,224.00
4.	SAGANA SHIPPING, INC.	317,379.00
5.	VICTORIA SHIP MANAGEMENT, INC.	259,548.00
6.	FILSCAN SHIPPING, INC.	170,890.00
7.	VINTEX SHIPPING PHILS, CORP.	101,281.00
8.	VIKING INTERNATIONAL CARRIERS, INC.	88,501.00
9.	AMETHYST SHIPPING, CORP.	80,725.00
10.	INDUSTRY MOVERS, CORP.	30,455.00

Source: MARINA/OSS



**Table 9.2**  
**TOP TEN (10) SHIPPING COMPANIES BY TONNAGES**  
**As of December 2018**

	COMPANY NAME	TOTAL GRT
1.	SAGANA SHIPPING, INC.	280,619.00
2.	SEAFARERS SHIPPING, INC.	265,416.00
3.	SEA QUEEN SHIPPING CORP.	260,516.00
4.	VICTORIA SHIP MANAGEMENT, INC.	259,548.00
5.	FILSCAN SHIPPING, INC.	170,890.00
6.	ST. VINCENT SHIPPING, INC.	142,566.00
7.	VIKING INTERNATIONAL CARRIERS, INC.	138,644.00
8.	VINTEX SHIPPING PHILS. CORP.	101,281.00
9.	AMETHYST SHIPPING CO.	80,725.00
10.	SINABANALI SHIPPING INC.	26,220.00

Source: MARINA/OSS

## Shipbuilding and Shiprepair Sector

Table 1	ISSUED ACCREDITATION OF MARINE SURVEYING COMPANIES
Table 2	LICENSED SBSR ENTITIES BY REGION AND CATEGORY
Table 3	WORKERS EMPLOYED BY CATEGORY OF LICENSED SBSR ENTITIES
Table 4	TOP EIGHT (8) LICENSED SBSR ENTITIES BY PAID-UP CAPITALIZATION
Table 5	NUMBER AND GRT OF LOCALLY CONSTRUCTED VESSELS
Table 6	NUMBER OF VESSELS ISSUED WAIVER UNDER PD 1221
Table 7	NUMBER AND AMOUNT OF ISSUED VAT EXEMPTION ON IMPORTATION UNDER RA 9295

**Table 1**  
**ISSUED ACCREDITATION OF MARINE SURVEYING COMPANIES**

YEAR	NUMBER
2019	7
2018	12
2017	11
2016	8
2015	10

Source: MARINA/SRO

### MC 108

The guidelines under MC 108 shall govern the accreditation of marine surveying companies and entities. Accreditation shall serve as a prerequisite to the grant of permits, licenses, authorities and incentives pertaining to marine surveying.

Source document is the Certificate of Accreditation

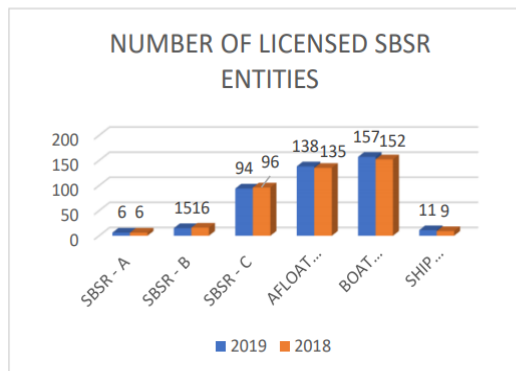
**Table 2**  
**NUMBER OF LICENSED SBSR ENTITIES BY REGION AND CATEGORY**

REGION	TOTAL		CATEGORY											
			SBSR - A		SBSR - B		SBSR - C		AFLOAT SHIP REPAIR		BOAT BUILDING		SHIP BREAKER	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
NCR	107	101	3	3	7	7	35	35	34	34	22	17	6	5
Region I & II	20	1	0	0	0	0	0	1	0	0	20	0	0	0
Region IV A & B	4	12	1	1	0	0	3	2	0	2	0	7	0	0
Region V	7	4	0	0	0	0	1	1	1	0	5	3	0	0
Region VI	19	15	1	1	0	0	6	7	2	3	8	4	2	0
Region VII	153	172	1	1	4	4	14	15	83	74	49	75	2	3
Region VIII	9	8	0	0	1	1	0	0	0	0	8	7	0	0
Region IX	18	24	0	0	0	1	13	12	4	8	1	3	0	0
Region X	22	14	0	0	0	0	1	1	8	4	13	9	0	0
Region XI	23	21	0	0	0	0	1	1	0	0	22	20	0	0
Region XII	29	34	0	0	2	2	17	18	6	10	3	4	1	0
Region XIII	10	8	0	0	1	1	3	3	0	0	6	3	0	1
<b>TOTAL</b>	<b>421</b>	<b>414</b>	<b>6</b>	<b>6</b>	<b>15</b>	<b>16</b>	<b>94</b>	<b>96</b>	<b>138</b>	<b>135</b>	<b>157</b>	<b>152</b>	<b>11</b>	<b>9</b>

MC 2007-02

The circular aims to provide uniform and upgraded standards, requirements and guidelines for the registration of companies/entities to engage in ship building, ship repair, boatbuilding / repairing and afloat ship repair/service contracting activities in the country.

Source document is the Certificate of Registration.



**Table 3**  
**WORKERS EMPLOYED BY CATEGORY OF LICENSED SBSR ENTITIES**

CATEGORY OF EMPLOYMENT	CATEGORY OF OPERATIONS											
	SBSR - A		SBSR - B		SBSR - C		AFLOAT SHIP REPAIR		BOAT BUILDER		SHIP BREAKER	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
TECHNICAL												
Permanent	510	170	217	75	849	353	640	824	118	79	41	36
- Contractual	100	32	24	9	367	83	70	1533	72	57	19	1
SKILLED/SEMI-SKILLED												
- Permanent	1125	358	1091	354	3072	1659	1686	1233	371	422	83	251
- Contractual	2466	450	923	253	2765	976	2397	2651	287	351	101	52
ADMINISTRATIVE	106	37	72	33	309	231	192	325	90	61	50	4
MANAGERIAL	79	25	32	12	144	129	125	174	100	73	15	3

Source: MARINA

**Table 4**  
**TOP LICENSED SBSR ENTITIES BY PAID-UP CAPITALIZATION 2019**

SBSR ENTITIES	PAID-UP CAPITALIZATION (in PhP)
Rio Tuba Nickle Mining Corp.	2,600,904,955.00
Keppel Batangas Shipyard	2,600,826,822.00
Keppel Subic Shipyard	1,023,022,107.00
Austal Philippines Pty Ltd	851,422,040.00
Tsuneishi Heavy Industries (Cebu) Inc.	450,000,000.00
Philippine Iron and Construction of Marine Works Inc.	341,617,980.00
Gerona Shipping Services	318,378,463.00
San Andres Fishing Industries, Inc.	279,000,000.00

Source: MARINA

**Table 5**  
**NUMBER AND GRT OF LOCALLY CONSTRUCTED VESSELS**

TYPE OF SHIPS	2015		2016		2017		2018		2019	
	No.	GRT	No.	GRT	No.	GRT	No.	GRT	No.	GRT
PASSENGER	1,031	18,470.69	902	9,165.92	1,381	30,001.87	574	6,307.68	620	13,801.81
CARGO	178	1,374,558.37	192	819,842.48	177	495,248.19	171	461,931.71	128	599,260.32
TUGS/DREDGER	21	1,440.38	13	1,672.51	26	3,498.43	39	5,060.40	9	2,120.24
TANKER	19	38,686.34	15	19,125.51	15	11,018.97	15	24,261.21	5	3,560.08
FISHING VESSEL	1,075	15,003.52	1,012	10,581.50	529	16,156.29	572	11,185.82	382	5,246.56
SPECIAL PURPOSE	3	458.00	4	58.84	4	21.03	3	8412.54	2	8.04
MISC	48	375.63	32	225.94	28	1,364.13	56	1,324.17	103	3,026.77
<b>TOTAL</b>	<b>2,375</b>	<b>1,448,992.93</b>	<b>2,170</b>	<b>860,672.70</b>	<b>2,161</b>	<b>557,308.91</b>	<b>1,430</b>	<b>518,483.53</b>	<b>1,249</b>	<b>627,023.82</b>

**Table 6**  
**VESSELS ISSUED WAIVER UNDER PD 1221**

YEAR	NUMBER
2019	25
2018	33
2017	28
2016	12
2015	25

Source: MARINA/SRO

**PD 1221**

All Philippine-owned and/or registered vessels shall undertake all repairs, improvement, alteration, reconditioning, conversion or drydocking with MARINA-registered ship repair yards, however, the Maritime Industry Authority may exempt any such vessel from this requirement in any of the following cases:

1. the vessel suffers damage abroad, and it is impracticable that such vessel be brought to the Philippines for the needed repairs;
2. the repairs of works sought to be undertaken on the vessels cannot be accommodated by MARINA-registered ship repair yards
3. the Philippines is not one of the vessels' port of call;
4. all other meritorious cases determined by MARINA.

Source document is the letter-approval.

**Table 7**  
**NUMBER AND AMOUNT OF ISSUED VAT EXEMPTION ON IMPORTATION UNDER RA 9295**

YEAR	NUMBER	AMOUNT (US \$)
2019	0	0
2018	0	0
2017	0	0
2016	0	0
2015	0	0

REPUBLIC ACT NO. 9295

The importation of the articles under Section 4(a) and (b) of the Act shall be granted exemption from value added tax subject to the following conditions: (1) that said articles are not manufactured domestically in sufficient quantity, of comparable quality and at reasonable prices; (2) the said articles are directly imported by a MARINA-registered domestic shipping operator; (3) that said articles are reasonably-needed and will be used exclusively by the registered domestic shipping operators in its transport operations; (4) that the approval of MARINA was obtained prior to the importation of said articles; (5) the Exemption from value-added tax on the importation of said articles shall be granted to all domestic shipping operators within a period of ten (10) years from the effectivity of this Act.

Source document is the letter-approval.

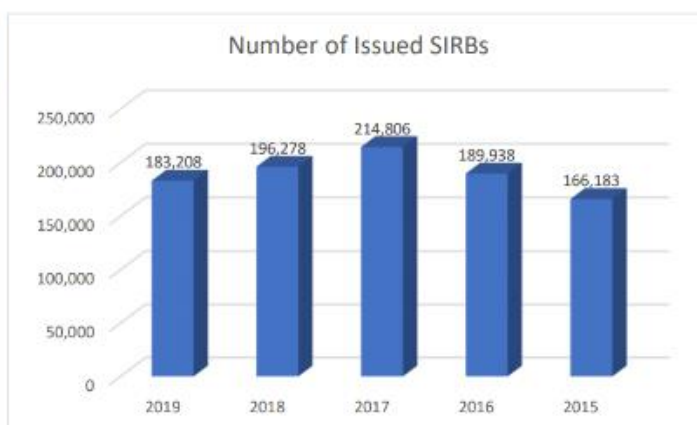
## Manpower Development Sector

Table 1	SEAFARERS IDENTIFICATION AND RECORD BOOK (SIRB) ISSUED
Table 2	EXAMINATION PERMIT / CERT OF MARINE PROFICIENCY / LICENSE ISSUED
Table 3	DOMESTIC – CERTIFICATE OF COMPETENCY (D-COC) / QUALIFICATION DOCUMENT CERTIFICATES (QDC) ISSUED
Table 4	ACCREDITED TRAINING PROGRAMS / CENTERS FOR DOMESTIC TRADE
Table 5	NUMBER OF CERTIFICATE OF PROFICIENCY (COP) / CERTIFICATE OF COMPETENCY (COC) / CERTIFICATE OF ENDORSEMENTS (COE) ISSUED
Table 6	MARINE OFFICERS THEORETICAL EXAMINATION
Table 7	APPROVAL OF MARITIME TRAINING COURSES
Table 8	NUMBER OF ACCREDITED INSTRUCTORS, SUPERVISORS AND ASSESSORS
Table 9	NUMBER OF MARITIME TRAINING CENTER WITH VALID ACCREDITATION, BY REGION
Table 10	ENROLLMENT FOR BS MARINE ENGINEERING AND BS MARINE TRANSPORTATION, BY GENDER
Table 11	REMITTANCES OF OVERSEAS FILIPINO WORKERS
Table 12	PROCESSED EMPLOYMENT CONTRACTS
Table 13	SEAFARERS DEPLOYED OVERSEAS BY CATEGORY



**Table 1**  
**SEAFARERS IDENTIFICATION AND RECORD BOOK (SIRB) ISSUED**

YEAR	NUMBER	% CHANGE
2019	183,208	(7)
2018	196,278	(9)
2017	214,806	13
2016	189,938	14
2015	166,183	



MC No. 2009-10

To maintain a complete and continuing record of Filipino seafarer's services on board ships; and to adopt the provisions of ILO Convention No. 108, MARINA issues Seafarer's Identification Record Book (SIRB).

**Table 2**  
**EXAMINATION PERMIT / CERT. OF MARINE PROFICIENCY / LICENSE ISSUED**

YEAR	NUMBER OF EXAMINATION PERMIT ISSUED FOR BC, MAP, MIP, MDM & MTM	% CHANGE	NUMBER OF CMP/ LICENCES ISSUED FOR BC, MAP, MIP, MDM and Motorman			
			CMP (issuance/ replacement)	% CHANGE	License ID Card	% CHANGE
2019	6,824	16	5,753	1	5,957	48
2018	5,888	26	5,673	9	4,013	23
2017	4,689	(30)	5,202	(71)	3,270	(39)
2016	6,717	125	17,663	137	5,383	231
2015	2,982		7,453		1,625	

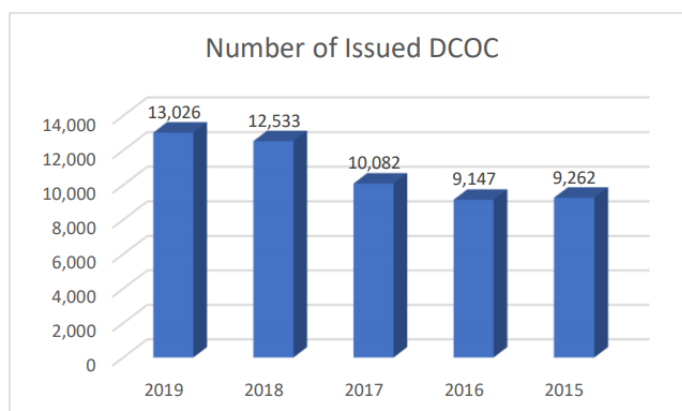
MC No. 2012-13

To ensure that only qualified and licensed seafarer's shall man domestic ships of below 500 GT or with engine propulsion power of below 750 Kw for safe navigation and operation, MARINA issues the above-mentioned permits, certificates and licenses.



**Table 3**  
**DOMESTIC CERTIFICATE OF COMPETENCY (D-COC) / QUALIFICATION DOCUMENT CERTIFICATES (QDC) ISSUED**

YEAR	NUMBER	% CHANGE
2019	13,026	4
2018	12,533	24
2017	10,082	10
2016	9,147	(1)
2015	9,262	



#### DCOC

Pursuant to MC No. 2012-04, MARINA issues DCOC (previously issuing QDC pursuant to MC 164) to ensure that all seafarers onboard domestic ships are properly certificated, qualified, competent and medically fit to perform their duties and responsibilities.

Said certificate maybe issued to all seafarers performing watchkeeping duties onboard all types of ships, except those onboard the following:

- 1.1. Warships, naval auxiliaries or other ships owned or operated by a State and engaged only on government non-commercial service
- 1.2. Fishing vessels
- 1.3. Pleasure yachts not engaged in commercial trade
- 1.4. Wooden ships of primitive built

Source document is the QDC/DCOC Certificate

**Table 4**  
**ACCREDITED TRAINING PROGRAMS / CENTERS FOR DOMESTIC TRADE**  
**2015-2019**

YEAR	No. of Training Programs	No. of Training Centers
2019	28	12
2018	13	44
2017	9	28
2016	9	26
2015	9	6



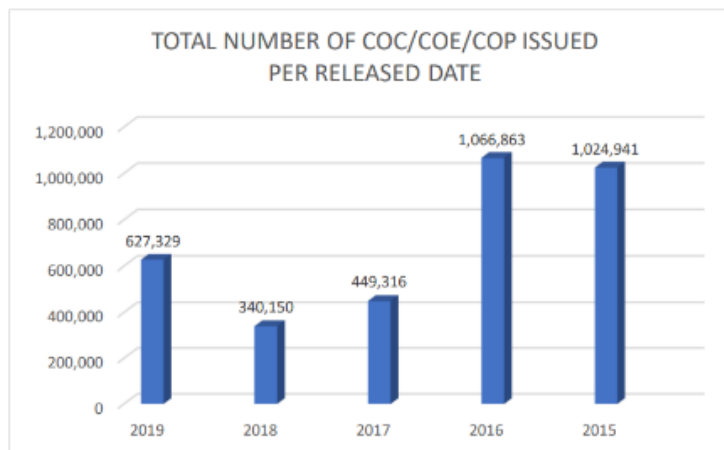
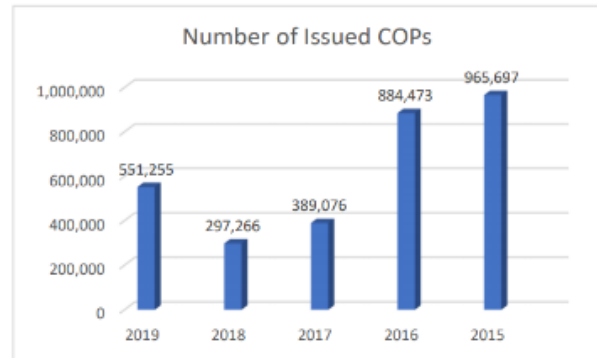
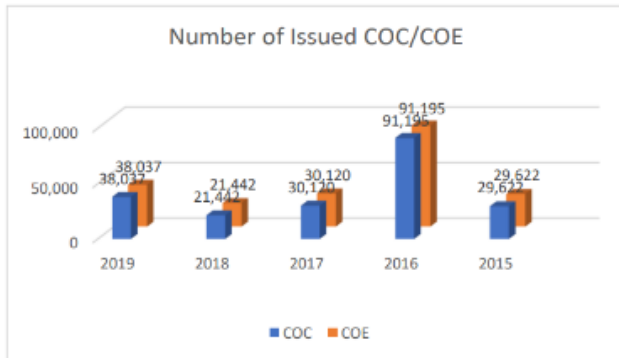
**MC No. 174**

These rules shall apply to all maritime training centers and concerned maritime training entities which will offer and conduct training required by the MARINA for officers and crew on board Philippine-registered ships operating in Philippine waters.

**Table 5**  
**NUMBER OF CERTIFICATE OF PROFICIENCY (COP) / CERTIFICATE OF COMPETENCY (COC) / CERTIFICATE OF ENDORSEMENTS (COE) ISSUED BASED ON RELEASED/PRINTED DATE**  
**2015 - 2019**

YEAR	COC	COE	COP	TOTAL
2019	38,037	38,037	551,255	627,329
2018	21,442	21,442	297,266	340,150
2017	30,120	30,120	389,076	449,316
2016	91,195	91,195	884,473	1,066,863
2015	29,622	29,622	965,697	1,024,941
<b>TOTAL</b>	<b>180,721</b>	<b>180,721</b>	<b>2,616,064</b>	<b>2,977,506</b>

Source: MARINA STCWO



**Table 6**  
**MARINE OFFICERS THEORETICAL EXAMINATION**  
**2015 - 2019**

PARTICULARS		MASTER	CHIEF MATE	OIC-NW	CHIEF ENGINEER	2ND ENGINEER	OIC-EW
2019	No. of Examinees	1,332	718	7,400	1,128	516	6,218
	No. of Passers	1,288	643	6,282	1,077	511	5,221
	% of Passing	96.70%	89.55%	84.89%	95.48%	99.03%	83.97%
2018	No. of Examinees	2,142	1,002	9,897	1,867	627	6,881
	No. of Passers	1,780	942	8,479	1,493	549	5,923
	% of Passing	83.10%	94.01%	85.67%	79.97%	87.56%	86.08%
2017	No. of Examinees	3,260	1,161	7,990	2,326	706	5,399
	No. of Passers	3,004	1,020	7,405	1,918	595	4,409
	% of Passing	92.15%	87.86%	92.68%	82.46%	84.28%	81.66%
2016	No. of Examinees	4,230	1,241	8,989	2,602	804	5,560
	No. of Passers	3,968	1,172	8,202	2,364	762	5,097
	% of Passing	93.81%	94.44%	91.24%	90.85%	94.78%	91.67%
2015	No. of Examinees	2,137	802	6,759	1,058	527	3,748
	No. of Passers	1,848	730	5,639	834	436	3,144
	% of Passing	86.48%	91.02%	83.43%	78.83%	82.73%	83.88%

Source: MARINA STCWO

**Table 7**  
**APPROVAL OF MARITIME TRAINING COURSES**

YEAR	Total No. of applications received for course approval	Total No. of Courses Approved	Total No. of Courses approved under Provisional Authority	Total No. of Courses under Notice of Deficiencies (NOD) Status	Total No. of Courses Denied
2019	248	115	60	122	7
2018	398	202	141	463	51
2017	639	358	109	426	17
2016	384	335	15	29	17

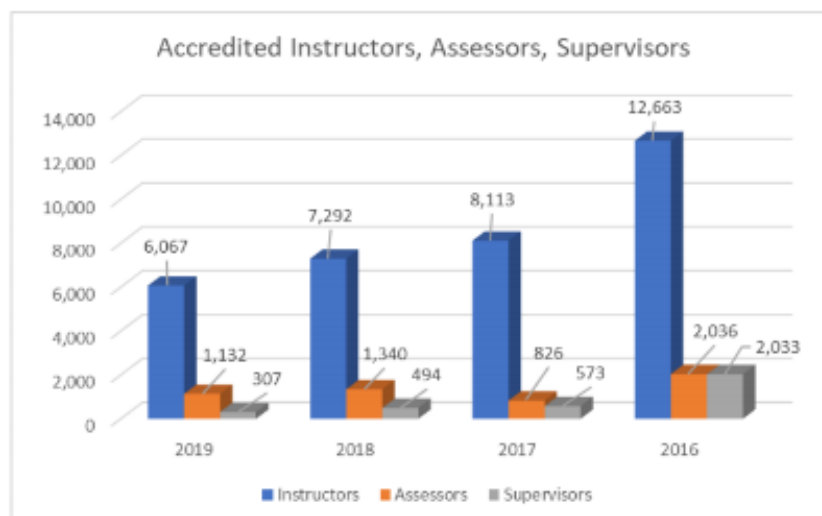
Source: MARINA STCWO

**Table 8**  
**NO. OF ACCREDITED INSTRUCTORS, SUPERVISORS AND ASSESSORS**

**Approved Number of COA - Instructors, Assessors and Supervisors with FULL Accreditation**

	2019	2018	2017	2016
Instructors	6,067	7,292	8,113	12,663
Assessors	1,132	1,340	826	2,036
Supervisors	307	494	573	2,033
<b>TOTAL</b>	<b>7,506</b>	<b>9,126</b>	<b>9,512</b>	<b>16,732</b>

Source: MARINA STCWO



**TABLE 9**  
**MARITIME TRAINING CENTER WITH VALID ACCREDITATION BY REGION**  
**2015-2019**

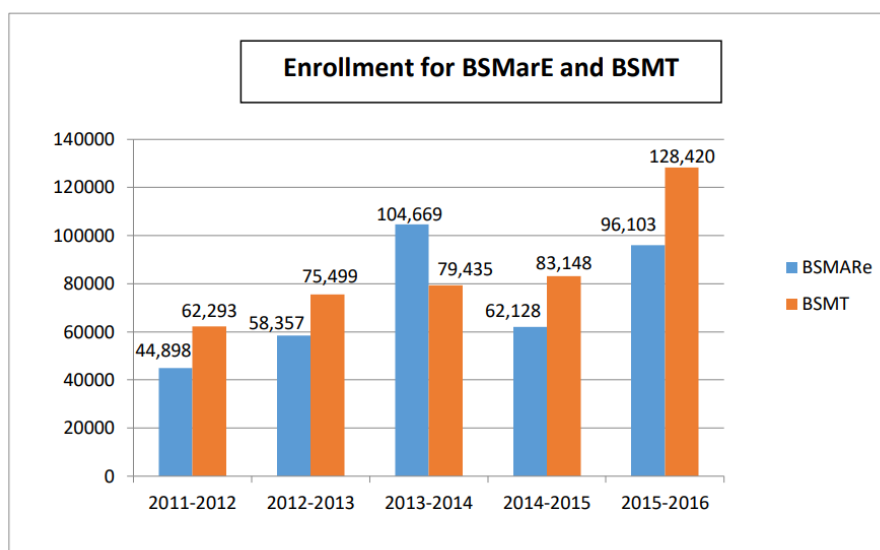
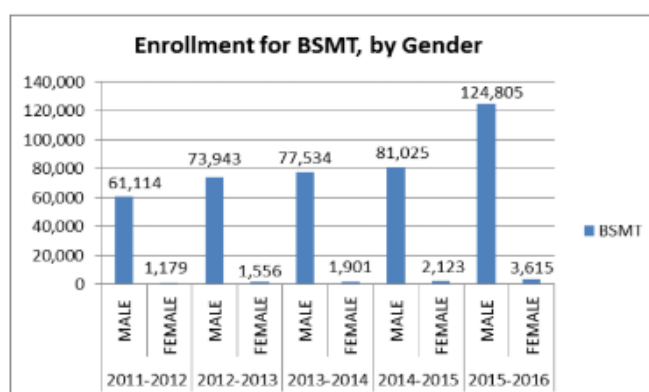
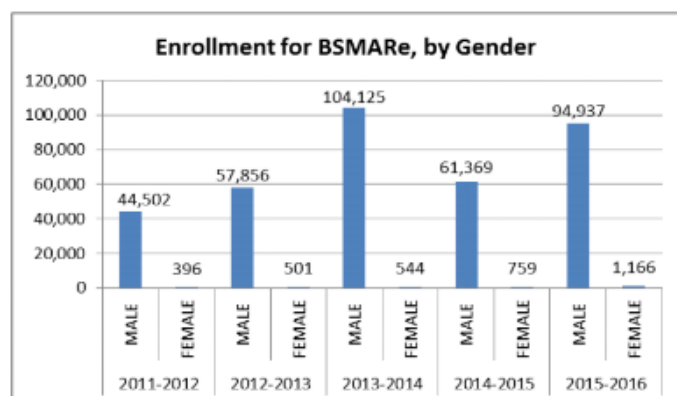
REGION	NUMBER (2019)	NUMBER (2018)	NUMBER (2017)	NUMBER (2016)	NUMBER (2015)
NCR	51	61	71	79	72
REGION I	2	2	2	2	2
REGION III	3	2	2	2	2
REGION IV	8	9	8	10	6
REGION V	2	0	1	1	2
REGION VI	12	13	13	11	9
REGION VII	15	14	14	13	11
REGION VIII	2	2	2	2	2
REGION IX	1	1	1	1	1
REGION X	3	3	2	3	3
REGION XI	5	5	7	8	6
REGION XII	1	1	2	2	2
REGION XIII	0	0	1	1	1
<b>TOTAL</b>	<b>105</b>	<b>113</b>	<b>126</b>	<b>135</b>	<b>119</b>

Source: MARINA STCWO

**Table 10**  
**ENROLLMENT FOR BS MARINE ENGINEERING AND BS MARINE TRASPORTATION, BY GENDER**

COURSE	2011-2012			2012-2013			2013-2014			2014-2015			2015-2016		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
<b>BSMAR-E</b>	44,502	396	44,898	57,856	501	58,357	104,125	544	104,669	61,369	759	61,128	94,937	1,166	96,103
<b>BSMT</b>	61,114	1,179	62,293	73,943	1,556	81,101	77,534	1,901	79,435	81,025	2,123	83,148	124,805	3,615	128,420

Source : CHED

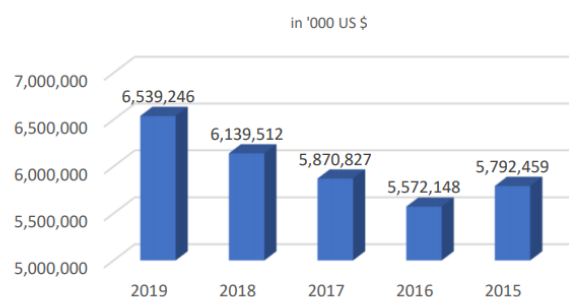


**Table 11**  
**REMITTANCES OF OVERSEAS FILIPINO WORKERS**

YEAR	AMOUNT ( in thousand US DOLLAR)			
	SEABASED	LANDBASED	TOTAL	% SHARE OF SEABASED FROM TOTAL
2019	6,539,246	23,594,054	30,133,300	22
2018	6,139,512	22,803,600	28,943,112	21
2017	5,870,827	22,188,962	28,059,789	21
2016	5,572,148	21,327,692	26,899,840	21
2015	5,792,459	19,814,372	25,606,830	23

Source: Bangko Sentral ng Pilipinas (BSP)

**REMITTANCES OF SEABASED OFWs**



**Table 12**  
**PROCESSED EMPLOYMENT CONTRACTS**

YEAR	PROCESSED EMPLOYMENT CONTRACT	% CHANGE
2019	No available data	
2018	No available data	
2017	510,230	1.84
2016	501,005	(3.65)
2015	519,977	0.39
2014	517,972	10.70
2013	467,915	

Source: Philippine Overseas Employment Administration (POEA)

**Table 13**  
**SEAFARERS DEPLOYED OVERSEAS BY MAJOR CATEGORY**

YEAR	OFFICERS		RATINGS		NON-MARITIME		OTHERS (NEC)		DEPLOYED SEAFARERS	
	NUMBER	% CHANGE	NUMBER	% CHANGE	NUMBER	% CHANGE	NUMBER	% CHANGE	TOTAL	% CHANGE
<b>2019</b>	<b>NO AVAILABLE DATA</b>									
<b>2018</b>	<b>NO AVAILABLE DATA</b>									
<b>2017</b>	100,185	(0.42)	163,903	2.53	185,375	3.44	-		<b>449,463</b>	
<b>2016</b>	100,605	7.04	159,858	7.81	179,203	10.98	3,154	13.62	<b>442,820</b>	<b>8.93</b>
<b>2015</b>	93,992	0.33	148,283	(4)	161,480	7	2,776	56	<b>406,531</b>	<b>1</b>
<b>2014</b>	93,686	8	154,963	11	151,402	14	1,775	(80)	<b>401,826</b>	<b>9</b>
<b>2013</b>	86,636	2	139,211	2	132,396	2	8,923	(43)	<b>367,166</b>	<b>.08</b>

Source: Philippine Overseas Employment Administration (POEA)



## **LAWS DEFINING MARINA FUNCTIONS**

PRESIDENTIAL DECREE No. 474 June 1, 1974

PROVIDING FOR THE REORGANIZATION OF MARITIME FUNCTIONS IN THE PHILIPPINES, CREATING THE MARITIME INDUSTRY AUTHORITY, AND FOR OTHER PURPOSES

WHEREAS, the efficient sea transport of raw materials, products, commodities and people is vital to the growth of the Philippine economy;

WHEREAS, the functions pertaining to the development and regulation of shipping enterprises are fragmented among various government agencies, resulting in inadequate and inefficient shipping facilities, dependence on external shipping interests, maldistribution of commodities, and piece-meal solutions;

WHEREAS, there is imperative need to modernize and expand the Philippine merchant fleet, and to rationalize and improve their operations in order to make them effective instruments in promoting domestic production, interisland and overseas trade, price stabilization, and employment generation; lawphi1.net

WHEREAS, it is urgently necessary to provide a strong organizational framework to effect the accelerated and integrated development and effective regulation of shipping enterprises;

NOW, THEREFORE, I, FERDINAND E. MARCOS, President of the Philippines, by virtue of the powers vested in me by the Constitution, in order to effect the desired changes and reforms in the social, economic and political structure of our society, do hereby decree and order that the following be adopted and made part of the laws of the land:

Section 1. Title. This Decree shall be known as the Maritime Industry Decree of 1974.

Section 2. Declaration of Policies and Objectives. It is hereby declared the policy of the State to accelerate the integrated development of the maritime industry of the Philippines to attain the following objectives: (a) To increase production and productivity in the various islands and regions of the archipelago through the provision of effective sea linkage; (b) To provide for the economical, safe, adequate and efficient shipment of raw materials, products, commodities and people; (c) To enhance the competitive position of Philippine flag vessels in the carriage of foreign trade; (d) To strengthen the balance of payments position by minimizing the outflow of foreign exchange and increasing dollar earnings; (e) To generate new and more job opportunities.

For the attainment of these objectives, the Government through the Maritime Industry Authority hereinafter created shall:

(a) Adopt and implement a practicable and coordinated Maritime Industry Development Program which shall include, among others, the early replacement of obsolescent and uneconomic vessels; modernization and expansion of the Philippine merchant fleet, enhancement of domestic capability for shipbuilding, repair and maintenance; and the development of reservoir of trained manpower;

(b) Provide and help provide the necessary; (i) financial assistance to the industry through public and private financing institutions and instrumentalities; (ii) technological assistance; and (iii) in general, a favorable climate for expansion of domestic and foreign investments in shipping enterprises; and

(c) Provide for the effective supervision, regulation and rationalization of the organizational management, ownership and operations of all water transport utilities, and other maritime enterprises.

Section 3. Definition of Terms. The terms, as used, in this Decree, shall have the following meaning, unless the context of the particular usage of the term indicates otherwise;

a. "Maritime Industry", briefly referred to as "industry" in the broadest concept of the term. All enterprises engaged in the business of designing, constructing, manufacturing, acquiring, operating, supplying, repairing and/or maintaining vessels, or component parts thereof; of managing and/or operating shipping lines, stevedoring arrastre and customs brokerage services, shipyards, drydocks, marine railways, marine repair shops, shipping and freight forwarding agencies and similar enterprises.

b. "Vessels" or "Watercraft" Any barge, lighter, bulk carrier, passenger ship freighter, tanker, container ship, fishing boats or other artificial contrivance utilizing any source of motive power, designed, used or capable of being used as a means of water transportation operating either as common contract carrier, including fishing vessels covered under Presidential Decree No. 43, except (1) those owned and/or operated by the Armed Forces of the Philippines and by foreign governments for military purposes, and (ii) bancas, sailboats and other waterborne contrivance of less than three gross tons capacity and not motorized.

c. "Philippine national" A citizen of the Philippines; or a partnership or association wholly owned by and composed of citizens of the Philippines; or a corporation organized under the laws of the Philippines of which at least sixty per cent of the capital stock outstanding and entitled to vote is owned and held by Philippine citizens; or a trustee of funds for pensions or other employee retirement or separation benefits, where the trustee is a Philippine national and at least sixty per cent of the funds will accrue to the benefit of the Philippine nationals: Provided, That where a corporation and its non-Filipino stockholders own stock in an enterprise, at least sixty percent of the members of the governing board of both corporations must be Philippine nationals.

d. "Philippine flag vessel" A vessel or watercraft registered under Philippine laws.

e. "Foreign flag vessel" A vessel or watercraft registered under the laws of a country other than the Philippines.

f. "Philippines shipping companies" Philippine nationals registered and licensed under the laws of the Philippines to engage in the business of overseas and/or domestic water transportation.

#### A. MARITIME INDUSTRY AUTHORITY

Section 4. Maritime Industry Authority, Creation and Organization. There is hereby created a Maritime Industry Authority, hereinafter referred to as the "Authority", under the Office of the President. It shall be composed of a governing board of directors to be known as Maritime Industry Board and the Management.

The Authority shall have general jurisdiction and control over all persons, corporations, firms or entities in the maritime industry of the Philippines and shall supervise, regulate in accordance with this Decree.

The principal office of the Authority shall be in the Greater Manila Area Regional or branch offices may be established at such other place or places within the Philippines as may be deemed necessary by the Board.

Section 5. Maritime Industry Development Program. The Authority shall prepare and annually update a Ten-Year Maritime Industry Development Program, hereinafter referred to as "Program" which shall contain a rational and integrated development of the maritime industry. The Authority shall submit the same for approval by the President of the Philippines.

Upon approval of the Program by the President, all government departments, bureaus, agencies and instrumentalities shall implement the same within their respective jurisdictions. The Authority shall ensure that the approved program is being effectively implemented by the participating agencies. No government body or instrumentality shall adopt any policy or take course of action contrary to or inconsistent with the Program.

#### B. MARITIME INDUSTRY BOARD

Section 6. Powers and Function of the Board. The Maritime Industry Board shall have the following powers, functions, and duties, among others:

- a. To provide comprehensive policy guidance for the promotion and development of the maritime industry as provided for in this, Decree;
- b. To promulgate and prescribe such promotional and developmental rules and regulations, standards, guidelines and procedures and recommend laws or measures as may be necessary for the growth and effective regulation of shipping enterprises;

- c. To formulate a comprehensive and practicable Maritime Industry Development Program for a ten-year period and review and update the same annually;
- d. To prescribe specific policies in the determination of just and reasonable passenger fares, freight rates and other charges relative to the operation of inter-island vessels. Accordingly, the Board of Transportation shall exercise its rate fixing functions in accordance with such policies;
- e. To recommend to the President that the State, through such agency or agencies as the President may designate, purchase, lease, manage, operate or requisition any vessel, ship or shipping enterprise, for national security purposes, to meet emergency situations or when the national interest so requires;
- f. To approve contracts;
- g. To approve the organizational structure, staffing pattern, and budget of the Authority upon the recommendation of the Administrator;
- h. To appoint, discipline and remove, and determine the composition of the Authority technical staff and other personnel: Provided, That all regular professional and technical personnel in the Authority shall be permanent and career in status, but exempt from WAPCO and Civil Service rules and regulations: Provided, further, That the personnel shall be entitled to the benefits normally accorded to government employees, such as retirement, GSIS insurance, leave and similar matters: Provided, furthermore, That appointments of personnel in the management below the rank of section chief shall be made by the Administrator, in accordance with the approved budget and staffing pattern and shall be noted by the Board: Provided, finally, That the Board or the Administrator may engage on contractual basis or other arrangements for the temporary services, and fix the compensation of highly qualified professionals, expert technical advisers or consulting firms;
- i. To adopt a common seal for the Authority which shall be juridically noticed, determine the exact location of its office and prescribe the rules and regulations to govern its proceedings;
- j. To recommend to the President, through the National Economic and Development Authority, the grant of necessary incentives for the development of shipping and other related maritime enterprises; and
- k. To perform such acts as are proper and necessary to implement this Decree.

Section 7. Composition and Organization. The Board shall be composed of eight members as follows: The Secretary of Trade, the Secretary of Public Works, Transportation and Communications, the Secretary of National Defense, the Executive Secretary, the Chairman of the Board of Investments, the Chairman of the Development Bank of the Philippines, the Chairman of the Board of Transportation and the Maritime Administrator. The Chairman of the Board shall be appointed by the President of the Philippines from among its members.

The officials next in rank to the regular members shall serve as permanent alternate members, except that, in the absence of the Chairman, the Board shall elect a temporary presiding officer. The alternate members shall attend meetings of the Board and committees assigned to their principals and receive the corresponding per diems whenever their principal is absent or the said position is vacant.

The Board shall meet regularly once a month and may hold special meetings to consider urgent matters upon call of the Chairman or any three members thereof. A majority shall constitute a quorum for the transaction of business.

Each member shall receive a monthly commutable allowance of five hundred pesos and per diem of one hundred for every meeting of the Board or committee thereof actually attended: Provided, That the total amount of per diems which each may receive shall not exceed five hundred pesos a month.

### C. MANAGEMENT

Section 8. Management Head. The management of the Authority shall be vested in the Maritime Administrator who shall be directly assisted by the Deputy Administrator for planning and a Deputy Administrator for Operations hereinafter referred to as "Deputy Administrator."

Section 9. The Maritime Administrator and Deputy Administrator. The Maritime Administrator and Deputy Administrators shall be appointed by the President for a term of six years: Provided, That upon the expiration of their respective terms, they shall continue to serve until their successor shall have been appointed and qualified: Provided, further, That no vacancy shall be filled except for the unexpired portion of the term: Provided, finally, That the President may remove the Administrator and Deputy Administrators from office for cause upon recommendation of the Board.

The Maritime Administrator and Deputy Administrators shall be citizens of the Philippines, at least thirty-five years old on the date of their appointment, of good moral character, or recognized executive ability and competence in previous public or private employment, with adequate training and experience in economics, technology, finance, law, management, public utility, or in other phases or aspects of the maritime industry receive an annual salary of fifty thousand pesos and a monthly commutable allowance of two thousand pesos. Each Deputy Administrator shall receive an annual salary of forty thousand pesos and a monthly allowance of one thousand five hundred pesos.

The Administrator shall be directly responsible to the Board, and shall have powers, functions and duties as provided in this Decree. The Deputy Administrator shall be directly responsible to the Administrator, and their respective powers, functions and duties shall be determined by the Board, upon recommendation of the Administrator.

Section 10. Authority to Administer Oath. The Chairman of the Board, the Administrator, the Deputy Administrators, the Chief Legal Officer and heads of divisions of the Authority shall have the power to administer oaths for the transaction of official business.

Section 11. General Powers and Functions of the Administrator. Subject to the general supervision and control of the Board, the Administrators shall have the following general powers, functions and duties;

- a. To implement, enforce and apply the policies, programs, standards, guidelines, procedures, decisions and rules and regulations issued, prescribed or adopted by the Board pursuant to this Decree;
- b. To undertake researches, studies, investigations and other activities and projects, on his own initiative or upon instructions of the Board, and to submit comprehensive reports and appropriate recommendations to the Board for its information and action; lawphi1.net
- c. To undertake studies to determine present and future requirements for port development including navigational aids, and improvement of waterways and navigable waters in consultation with appropriate agencies;
- d. To pursue continuing research and developmental programs on expansion and modernization of the merchant fleet and supporting facilities taking into consideration the needs of the domestic trade and the need of regional economic cooperation schemes; and
- e. To manage the affairs of the Authority subject to the provisions of this Decree and applicable laws, orders, rules and regulations of other appropriate government entities.

Section 12. Specific Powers and Functions of the Administrator. In addition to his general powers and functions, the Administrator shall;

- a. Issue Certificate of Philippine Registry for all vessels being used in Philippine waters, including fishing vessels covered by Presidential Decree No. 43 except transient civilian vessels of foreign registry, vessels owned and/or operated by the Armed Forces of the Philippines or by foreign governments for military purposes, and bancas, sailboats and other watercraft which are not motorized, of less than three gross tons;
- b. Provide a system of assisting various officers, professionals, technicians, skilled workers and seamen to be gainfully employed in shipping enterprises, priority being given to domestic needs;
- c. In collaboration and coordination with the Department of Labor, to look into, and promote improvements in the working conditions and terms of employment of the officers and crew of vessels of Philippine registry, and of such officers and crew members who are Philippine citizens and employed by foreign flag vessels, as well as of personnel of other shipping enterprises, and to assist in the settlement of disputes between the shipowners and ship operators and such

officers and crew members and between the owner or manager of other shipping enterprises and their personnel;

d. To require any public water transport utility or Philippine flag vessels to provide shipping services to any coastal areas in the country where such services are necessary for the development of the area, to meet emergency sealift requirements, or when public interest so requires;

e. Investigate by itself or with the assistance of other appropriate government agencies or officials, or experts from the private sector, any matter within its jurisdiction, except marine casualties or accidents which shall be undertaken by the Philippine Coast Guard;

f. Impose, fix, collect and receive in accordance with the schedules approved by the Board, from any shipping enterprise or other persons concerned, such fees and other charges for the payment of its services;

g. Inspect, at least annually, the facilities of port and cargo operators and recommend measures for adherence to prescribed standards of safety, quality and operations;

h. Approve the sale, lease or transfer of management of vessels owned by Philippine Nationals to foreign owned or controlled enterprises;

i. Prescribe and enforce rules and regulations for the prevention of marine pollution in bays, harbors and other navigable waters of the Philippines, in coordination with the government authorities concerned;

j. Establish and maintain, in coordination with the appropriate government offices and agencies, a system of regularly and promptly producing, collating, analyzing and disseminating traffic flows, port operations, marine insurance services and other information on maritime matters;

k. Recommend such measures as may be necessary for the regulation of the importation into and exportation from the Philippines of vessels, their equipment and spare parts;

l. Implement the rules and regulations issued by the Board of Transportation; lawphi1.net

m. Compile and codify all maritime laws, orders, rules and regulations, decisions in leasing cases of courts and the Authority's procedures and other requirements relative to shipping and other shipping enterprises, make them available to the public, and, whenever practicable to publish such materials;

n. Delegate his powers in writing to either of the Deputy Administrators or any other ranking officials of the Authority; Provided, That he informs the Board of such delegation promptly; and

o. Perform such other duties as the Board may assign, and such acts as may be necessary and proper to implement this Decree.

Section 13. Maritime Industry Manpower Needs. The Authority shall establish and support a system of maintaining and developing a reservoir of trained manpower to meet the current and future needs of the industry. For the attainment of this objective, it shall undertake the following:

a. Evaluate, in collaboration with the Department of Education and Culture, the capability of maritime educational and training institutions and programs in the Philippines, including the Philippine Merchant Marine Academy, herein placed under the administrative supervision of the authority, to supply shipping and shipyard manpower needs.

b. Inspect and evaluate periodically the standards, facilities and performance of the maritime educational and training programs of government and private schools and enterprises and recommend to the Department of Education and Culture and other appropriate government agencies such changes in the curriculum as may be necessary.

c. Conduct or arrange for the holding of pre-employment, on-the-job and other training programs to provide and upgrade shipping skills and techniques, with the cooperation and support of private enterprises and government agencies.

d. Provide incentives for education and training in shipping and shipbuilding fields, specially those which are not attractive to students such as naval architecture, including scholarships and fellowships, in the Philippines or abroad, with liberal grants for the entire duration of the course, to be sponsored directly or arranged by the Administration.

Section 14. Penalties. Any person who gives false or misleading data or information or willfully or through gross negligence, conceals or falsifies a material fact, in any investigation, inquiry or hearing, or other proceedings held pursuant to this Decree, shall be punished with imprisonment or not less than two nor more than six months and with a fine of not less than five hundred nor more than one thousand pesos: Provided, however, That if the false or misleading data or information shall have been given under oath, the maximum penalty for giving false testimony or perjury shall be imposed.

#### D. MISCELLANEOUS PROVISIONS

Section 15. Auditor. The Commission on Audit shall be the ex-officio Auditor of the Authority and it shall appoint its representative therein, who shall audit all accounts thereof.

Section 16. Reorganizational Changes.

a. Department of Trade. The Shipping and Freight Study Unit of the Department of Trade is hereby transferred to the Authority together with its applicable appropriations, records, equipment, property and such personnel as may be necessary.



b. Bureau of Transportation. The powers and functions pertaining to the development and supervision of maritime shipping of the Bureau of Transportation for Water are hereby transferred to the Authority. Accordingly the Water Transportation Division of the Bureau is hereby abolished.

c. National Development Company. The powers and functions of the National Development Company relative to ship acquisition under Republic Act No. 1407, as amended (Philippine Overseas Act of 1955), are hereby transferred to the Authority together with its applicable records, equipment and property.

In addition to the powers and functions herein transferred, balances of all appropriations, funds, accounts and notes receivable derived from shipping companies, equipment, records and supplies are likewise transferred to the Authority.

Section 17. Retention of the Functions and Powers of the Philippine Coast Guard. Nothing in this Decree shall be construed to affect or delimit the present functions and powers of the Philippine Coast Guard relative to maritime affairs. All such functions and powers of the Philippine Coast Guard are retained by it. Furthermore in the performance of its functions, especially in the classification and inspection of vessels, the Philippine Coast Guard will be assisted by the Authority; Provided, That within two years from the issuance of this Decree, the President may transfer to the Authority such regulatory functions of the Philippine Coast Guard pertaining to maritime affairs as may be necessary for the achievement of the aims and purposes of the Authority. The Authority shall coordinate with the Philippine Coast Guard in the exercise of supervision and regulation of the operation of water transport utilities.

Section 18. Coordination with Other Agencies. The Authority shall coordinate with the Department of Labor, the Department of Education and Culture and the National Manpower and Youth Council in the exercise of its pertinent functions that have relation to the functions of the abovementioned agencies, particularly as these pertain to the development of trained and qualified seamen for Philippine vessels.

In order to strengthen its coordinative functions, the Authority shall hire and train appropriate technical personnel which may be assigned to other government agencies involved in the implementation of laws, rules and regulations relative to maritime affairs.

Section 19. Transitory Provision. Officials and employees of all existing offices or agencies which are abolished or reorganized under this Decree may be absorbed into the Authority on the basis of merit and fitness: Provided, That employees who shall be laid off by reason of this Decree shall be given gratuity equivalent to one month's salary for every year of service but in no case more than twenty-four months salary, in addition to all benefits to which they are entitled under existing laws and regulations.

To carry out the provisions of this Section there is hereby appropriated the sum of Five-hundred thousand pesos out of the unappropriated funds in the National Treasury.

Section 20. Appropriations. To carry out the provisions of this Decree, there is hereby appropriated the sum of two million pesos out of the funds in the National Treasury not otherwise appropriated. Thereafter, the succeeding appropriations of the Authority shall be included in the Annual Appropriations Act.

In addition to the above, the Authority is hereby authorized to retain fifty per cent of its collections from fees, charges and fines to defray any deficiency in annual appropriations and to finance its other projects.

Section 21. Repealing and Separability Clauses. All laws, decrees, orders, rules and regulations, policies, programs or parts thereof, which are inconsistent with any of the provisions of this Decree, are hereby repealed or modified accordingly.

If for any reason any section or provision of this Decree is declared to be unconstitutional or invalid, the other sections or provisions hereof, which are not affected thereby, shall continue in full force and effect.

Section 22. Effectivity. This Decree shall take effect upon its promulgation: Provided, That these portions hereof which may require a transition period to assure the orderly transfer of powers and functions shall take effect as stated in the implementing details: Provided, further, That such implementing details shall be prepared by the Board, in consultation with the government agency heads concerned, and submitted to the President for approval within four months after issuance of this Decree.

Done in the City of Manila, this 1st day of June, in the year of Our Lord, nineteen hundred and seventy-four.

## **4. Executive Order No. 125**

### **REORGANIZING THE MINISTRY OF TRANSPORTATION AND COMMUNICATIONS DEFINING ITS POWERS AND FUNCTIONS AND FOR OTHER PURPOSE**

**RECALLING** that the reorganization of the government is mandated expressly in Article II, Section 1(a), and Article III of the Freedom Constitution:

**HAVING IN MIND** that pursuant to Executive Order No. 5 (1996), it is directed that necessary and proper changes in the organizational and functional structures of the government, its agencies and instrumentalities, be effected in order to promote efficiency and effectiveness in the delivery of public service:

**CONSIDERING** that viable and dependable transportation and communication networks are necessary tools for economic recovery:

**CONSIDERING** further that rapid technological advances in communication facilities require a distinct response to the peculiar problem of this field:

**REALIZING** that the growing complexity of the transportation sector has necessitated its division into various sub-sectors to facilitate the regulation and promotion of the sector as a whole: and

**REALIZING** further that the state needs to regulate this network and promote their continuous upgrading in order to preserve their viability and enhance their dependability:

**NOW, THEREFORE, I, CORAZON C. AQUINO, President of the Philippines** , by virtue of powers vested in me by the sovereign will of the Filipino people and the Freedom Constitution, do hereby order:

**SECTION 1. Title.** This Executive Order shall otherwise be known as the Reorganization Act of the Ministry of Transportation and Communication.

**SECTION 2. Reorganization.** The Ministry of Transportation and Communication is hereby reorganized, structurally and functionally, in accordance with the provisions of this Executive Order.

**SECTION 3. Declaration of Policy.** The state is committed to the maintenance and expansion of viable, efficient and dependable transportation and communication system as effective instrument for national recovery and economic progress. It shall not compete as a matter of policy with private enterprises and shall operate transportation and communication facilities only in those areas where private initiatives are inadequate or nonexistent.

**SECTION 4. Mandate.** The Ministry shall be the primary policy, planning, programming, coordinating, implementing, regulating, and administrative entity of the Executive Branch of the government in the promotion, development and regulation of dependable and coordinated networks of transportation and communication system, as well as in the fast, sale, efficient and reliable postal, transportation and communication services.

**To accomplish such mandate, the Ministry shall have the following objectives:**

1. Promote the development of dependable and coordinated networks of transportation and communication systems;
2. Guide government and private investment in the development of the country's inter- model transportation and communication systems in a most practical, expeditious, and orderly fashion for maximum safety, service, and cost effectiveness;
3. Impose appropriate measure so that technical, economic and other condition for the continuing economic viability of the transportation and communication entities are not jeopardized and do not encourage inefficiency and distortion of traffic patronage;
4. Develop an integrated plan for a nationwide transmission system in accordance with the national and international telecommunication service requirement including, among others, radio and television broadcast relaying, leased channel services and data transmission;
5. Guide government and private investment in the establishment, operation and maintenance of an international switching system for incoming and outgoing telecommunication services;
6. Encourage the development of a domestic telecommunication industry in coordination with the concern entities particularly, the manufacture of communications/ electronics equipment and components to complement and support as much as possible, the expansion, development, operation and maintenance of the nationwide telecommunications network;
7. Provide for a safe, reliable and efficient postal system for the country.

**SECTION 5. Powers and functions.** To accomplish its mandate, the Ministry shall have the following powers and functions:

Formulate and recommend national policies and guidelines for the preparation and implementation of integrated and comprehensive transportation and communication system at the national, regional and local levels;

1. Establish and administer comprehensive and integrated program for transportation and communications, and for its purpose, may call on any agency corporation, or organization, whether public or private, whose development progress include transportation and communications, as an integral part thereof, to participate and assist in the preparation and implementation of such programs;
2. Assess, review and provide direction to transportation and communication research and development programs of the government in coordination with other institutions concerned;
3. Administer all laws, rules and regulations in the field of transportation and communication;
4. Coordinate with the Ministry of Public Works and Highways in the design, development, rehabilitation, improvement, construction, maintenance and repair of telecommunications, ports, airports and railways project and facilities including navigational aids and implement its development works through competitive bidding, negotiated, contracts or other methods as the President may authorize;
5. Establish, operate and maintain a nationwide postal system that shall include mail processing delivery services, and money order services and promote the art of philately;
6. Sub-allocate series of frequencies of bands allocated by the International Telecommunications Union to the specific services;
7. Accredite foreign aircraft manufacturer and/or international organizations for aircraft certification in accordance with procedures and standards established by the Bureau of Air Transportation;
8. Deputize the Philippine Airlines and/or the Airline Pilots Association of the Philippines for licensing of pilots in accordance with the rules, procedures and the standards established by the Bureau of Air Transportation;
9. Perform such other power and function as may be prescribed by law.

SECTION 6. Authority and Responsibility. The authority and responsibility for the exercise of the candidate of the Ministry and for the discharge of its powers and functions shall be vested in the Minister of transportation and communication, herein after referred to as the Minister, who shall have supervision and control over the Minister and shall be appointed by the President.

SECTION 7. Office of the Minister. The Office of the Minister shall consist of the Minister and his immediate staff.

SECTION 8. Deputy Ministers. The Minister shall be assisted by four(4) Deputy Ministers appointed by the president upon the recommendation of the Minister, one to be responsible for the attached Agency and Corporation, one for Transportation, one for Communication and one for Minister Regional Offices.

SECTION 9. Assistant Ministers. The Minister shall also be assisted by seven (7) assistant Ministers appointed by the Minister upon the recommendation of the Minister, each of whom shall head each of the following:

1. Administrative and Legal Services;
2. Finance and Management Services;
3. Planning and Research Services;
4. Technical Services;
5. Luzon Regional Offices;
6. Visayas Regional Offices;
7. Mindanao Regional Offices.

SECTION 10. Structural Organization. The Ministry, aside from the Ministry Proper which is comprised of the Offices of the Minister, Deputy and Assistant Ministers, shall be composed of the Bureaus and Ministry Regional Offices. There shall be four (4) Bureaus, namely: Bureau of Land Transportation, Bureau of Air Transportation, Bureau of Post, and Bureau of Telecommunications. The Office of the Minister shall have direct line supervision and control over the ureaus and Ministry Regional Offices. The Ministry Proper shall be responsible for developing and implementing policies, plans programs, and projects for the Ministry. The Bureau shall be essentially staff in character.

SECTION 11. Ministry Regional Offices. The Ministry shall have two (2) Ministry Regional Offices in each of the administrative regions of the country: the Ministry Regional Office for Transportation and the Ministry Regional Office for Communications. The present Regional Offices of the Bureau of Air Transportation and Land Transportation Commission are hereby abolished and their functions are transferred to the respective Ministry Regional Offices for Transportation. A Ministry Regional Office for Transportation shall be headed by a Ministry Regional Directed assisted by two(2) Assistant Ministry Regional Directors responsible for Air and land affairs, respectively. The present Regional Offices of the Bureau of Post and Bureau of Telecommunications are hereby abolished and their functions are transferred to respective Ministry Regional Office for Communications. A

Ministry Regional Office for Communications shall be headed by a Ministry Regional Director assisted by two(2) Assistant Ministry Regional Directors for telecommunications and postal services, respectively. The abolition of the herein Regional Offices and the transfer of their function shall be govern by the provision of Section 19 (b) hereof. The Ministry Regional Offices shall be under the direct supervision of the Deputy Minister for Regional Offices. The Ministry Regional Offices shall be essentially line in character and shall be responsible for the delivery of all front line services of the Ministry. For such purposes, a Ministry Regional Offices shall have its administrative region, the following functions:

1. Implement laws, and policies, plans, programs, projects, rules and regulation of the Ministry;
2. Provide efficient and effective service to the people;
3. Coordinate with regional offices of other ministries, offices and agencies;
4. Coordinate with local government units;
5. Perform such other functions as may be provided by law.

SECTION 12. Bureau of Air Transportation. The Bureau of Air Transportation, as reorganized herein, shall have the function of developing, formulating and recommending plans, policies, program, projects, standards, specification and guidelines related to Air Transportation including air space utilization, air traffic control and aeronautics communication and information services, aircraft and air navigational facilities, services, maintenance and operations. For such purposes, it shall, with the approval of the Minister:

1. Establish and prescribe rules and regulations for the inspection and registration of aircrafts;
2. Establish and prescribe rules and regulations for the issuance of licenses to qualified airmen;
3. Establish and prescribe rules and regulations for the enforcement of laws governing air transportation, including the penalties for violations thereof, and for the deputization of appropriate law enforcement agencies in pursuant thereof;
4. Determine, fix and/or prescribe charges and/or rates pertinent to the operation of public air utility facilities and services except in cases where charges or rates are established by international bodies or associations of which the Philippines is a participating member or by bodies or associations reorganized by the Philippine Government as the proper arbiter of such charges or rates;
5. Administer and operate the Civil Aeronautics Training Center;
6. Perform such other function as may be provided by law.

SECTION 13. Bureau of Land Transportation. The Bureau of Land Transportation is hereby created and shall have the functions of developing, formulating and recommending plans, programs, policies, standards, specifications and guidelines pertaining to land transportation. For such purposes, it shall, with the approval of the Minister:

1. Establish a prescribe rules and regulations for routes, zones and/or areas of particular operators of public land services;
2. Establish and prescribe rules and regulations for the issuance of certificates of public convenience for the operation of public and land transportation utilities and services such as motor vehicles, trimobiles, and railroad lines;
3. Establish and prescribe rules and regulation for the inspection and registration of public and land transportation facilities such as motor vehicles, trimobiles, and railroad lines;
4. Establish and prescribe rules and regulations for the issuance of licenses to qualified motor vehicle drivers, trimobile drivers, motor vehicle conductors, train engineers and train conductors;
5. Establish and prescribe the corresponding rules and regulation for the enforcement of laws governing land transportation, including the penalties for violation thereof, and for the deputation of appropriate law enforcement agencies in pursuance thereof;
6. Determine, fix and/or prescribe charges and/or rates pertinent to the operation of public and land utility facilities and services except in cases where charges or rates are established by international bodies or association of which the Philippines is a participating member or by bodies or association recognized by the Philippine Government as the proper arbiter of such charges or rates;
7. Establish and prescribe the rules, regulations, procedures and standards for the accreditation of driving schools;
8. Performs such other functions as may be provided by law.

SECTION 14. Maritime Industry Authority. The Maritime Industry Authority is hereby retained and shall have the following functions:

9. Develop and formulate, plans, policies, programs, project, standards, specifications and guidelines geared towards the promotion and development of the Maritime Industry, the growth and effective regulation of shipping enterprises, for the national security objectives of the country;
10. Establish, prescribe and regulate routes, zones and /or areas of operation of particular operators of public water services;
11. Issue certificates of public convenience for the operation of domestic and overseas water carriers;



12. Register vessels as well as issue certificates, licenses or documents necessary or incident thereto;
13. Undertake the safety regulatory functions pertaining to vessels construction and operations including the determination of manning levels and issuance of certificates competency to seamen;
14. Enforce laws, prescribe and enforce rules and regulation, including penalties for violation thereof, governing water transportation and the Philippine merchant marine with the aid of other law enforcement agencies;
15. Undertake the issuance of licenses to qualified seamen and harbor, bay and river pilots;
16. Determine, fix and/or prescribe charges and/or rates pertinent to the operation of public water transport utilities, facilitate all services except in cases where charges or rates are established by international bodies or association of which the Philippine is a participating member or by bodies or association recognized by the Philippine Government as the proper arbiter of such charges or rates;
17. Accredite marine surveyors and maritime enterprises engaged in shipbuilding, ship repair, ship breaking, domestic and overseas shipping, ship management and agency;
18. Supervise the Philippine Merchant Marine Academy as recognized herein in accordance with its charter, the provision hereof and applicable laws, rules and regulation under the chairmanship of the maritime administrator;
19. Issue and register the Continuous Discharge Book of Filipino Seamen;
20. Establish and prescribe rules and regulation, standards and procedures for the efficient and effective discharge of the above functions;
21. Perform such other function as may now or hereafter be provided by the law.

SECTION 15. Bureau of Telecommunications. The Bureau of Telecommunications, as reorganized herein, shall develop, formulate and recommend plans, policies, programs, standards, specifications and guidelines to provide telecommunications facilities, including telecommunications systems for purposes of augmenting limited or inadequate existing private telecommunication service; provide telecommunications in areas where no such services are available; and assist the private sector engage in telecommunication services. For such purposes, it shall, with the approval of the Minister:

1. Establish and prescribe rules and regulation for the operation and maintenance of such telecommunications facilities in areas not adequately served by the private sector in order to render such domestic and overseas services that are necessary or proper with due consideration for advances in technology;
2. Administer and operate the Telecommunication Training Institute;

3. Perform such other function as may be provided by law.

SECTION 16. Bureau of Post. The Bureau of Posts, presently existing, shall have the function of developing, formulating and recommending plans, policies, programs, standards, specification and guidelines to provide safe, fast, reliable and efficient postal service in the country. For such purposes, it shall, with the approval of the Minister:

1. Establish and prescribe rule and regulation for the enforcement of laws governing postal service, including the penalties for the violation thereof and for the deputation of appropriate law enforcement agencies in pursuance thereof;

2. Determine, fix and/or prescribe charges and/or rates for postal services except in cases where charges or rates are establish by international bodies or association of which the Philippines is a participating member or by bodies or association recognized by the Philippine Government as the proper arbiter of such charges or rates;

3. Establish and prescribe rules and regulation for the operation and maintenance of a nationwide postal system that shall include mail processing, delivery services, and money order services and the promotion of philately;

4. Perform such other functions as may be provided by law.

SECTION 17. Abolition/Transfer/Consolidation:

1. The Land Transportation Commission hereby abolished and its staff functions are transferred to the Bureau of Land Transportation as provided in Section 13 herein and its line functions are transferred to the Ministry Regional Offices as provided in Section 11 herein, such transfer of functions is subject to the provision of Section 19 (b) hereof.

2. PNL Leasing, Inc. is hereby abolished and its functions are transferred to the Philippine National Lines, Inc. subject to the provision of Section 19 (b) hereof.

3. The National Aero Manufacturing, Inc. and the Philippine Aero Systems, Inc. are hereby abolished in accordance with the provision of Section 19 (a) hereof.

4. The Civil Aeronautics Board is hereby transferred from the Ministry of Tourism to the Ministry as an attached agency in accordance with the provision of Section 19 (a) hereof.

SECTION 18. Attached Agencies and Corporation.

1. The following agencies and corporation are attached to the Ministry: the Philippine National Railways, the Maritime Industry Authority, the Philippine National Lines, the Philippine Aerospace Development Corporation, the Metro Manila Transit Corporation, the Office of Transportation Cooperatives, the Philippine Ports Authority, the Philippine Merchant Marine Academy, the Toll Regulator Board, the Light Rail Transit Authority, the Transport Training Center, the Civil Aeronautics Board, the National Telecommunications Commission and the Manila International Airport Authority.

2. An Airport Security Center is hereby created within the Manila International Airport Authority, to plan, supervise, control, coordinate, integrate and direct intelligence and operational activities of all police and military units, security and safety service units, government monitoring and intelligence units and other security operating units employed by government entities and/or by private agencies in the Manila International Airport. The center is under the direct supervision and control of MIAA General Manager. Moreover, the Authority shall be authorized to organize a Manila International Airport Police Force with all the police powers necessary to implement the objectives of the Center.

3. The exercise of supervision and control by the Airport Security Center does not include the transfer of appropriation, equipment and personnel and the said authority; PROVIDED, that the Airport Security Center may cause the deployment of equipment and the personnel in such manner it deems necessary in the discharge of its functions.

SECTION 19. Transitory Provision. In accomplishing the acts of reorganization herein prescribed, the following transitory provisions shall be complied with, unless otherwise provided elsewhere in this Executive Order:

1. The transfer of a government unit shall include the function, appropriation, funds, records, equipment, facilities, chooses in actions, rights, other assets, and liabilities, if any, of the transferred unit as well as the personnel thereof, as may be necessary, who shall, in a hold over capacity, continue to perform their respective duties and responsibilities and receive the corresponding salaries and benefits unless in the meantime they are separated from the government service pursuant to Executive Order No.17 (1986) or Article III of the Freedom Constitution. Those personnel of the transferred unit whose positions are not included in the Ministry's new position structures and staffing pattern approved and prescribed by the Minister or who are not re-appointed shall be deemed separated from the service and shall be entitled to the benefits provided in the second paragraph of Section 20 hereof.

2. The transfer of functions which results in the abolition of the government unit that has exercised them shall include the appropriations, funds, records, equipment, facilities, & chooses in action, rights, other assets and personnel as may be necessary to the proper discharge of the transferred functions. The abolished units remaining appropriations and funds, if any, shall revert to the General Funds and its remaining assets, if any, shall be allocated to such appropriate units as the Minister shall determine or shall otherwise be disposed in accordance with the Government Auditing Code and other pertinent laws, rules and regulations. Its liabilities, if any, shall likewise be treated in accordance with the Government Auditing Code and other pertinent laws, rules and regulations. Its personnel shall, in a hold-over capacity, continue to perform their duties and responsibilities and receive the corresponding salaries and benefits unless in the meantime they are separated from the service pursuant to Executive Order No. 17 (1986) or Article III of the Freedom Constitution. Its personnel, whose positions are not included in the Ministry's new position structure and staffing pattern approved and prescribed by the Minister under Section 20 hereof or who are not re-appointed, shall be deemed separated from the service and shall be entitled to the benefits provided in the second paragraph of the same Section 20.

3. The transfer of functions which does not result in the abolition of the government unit that has exercised them shall include the appropriations, funds, records, equipment, facilities, chooses in action, rights, other assets and personnel as may be necessary to the proper discharge of the transferred functions. The liabilities, if any, that may have been incurred in connection with the discharge of the transferred functions, shall be treated in accordance with the Government Auditing Code and other pertinent laws, rules and regulations. Such personnel shall, in a hold-over capacity continue to perform their respective duties and responsibilities and received the corresponding salaries and benefits unless in the meantime they are separated from the service pursuant to the Executive Order No. 17 (1986) or Article III of the Freedom Constitution. Personnel, whose positions are not included in the Ministry's new position structure and staffing pattern approved and prescribe by the Minister under Section 20 hereof or who have not been re-appointed, shall be deemed separated from the service and shall be entitled to the benefits provided in the second paragraph of the same Section 20.

4. In case, of the abolition of a government unit which does not result in the transfer of its functions to another unit, the appropriations and funds of the abolished unit shall revert to the General Fund, while the records, equipment, facilities, chooses in action, rights, and other assets, thereof shall be allocated to such appropriate units as the Minister shall determine or shall otherwise be disposed in accordance with the Government Auditing Code and other pertinent laws, rules and regulations. The liabilities of the abolished units shall be treated in accordance with the Government Auditing Code

and other pertinent laws, rules and regulations, while the personnel thereof, whose positions are not included in the Ministry's new position structure and staffing pattern approved and prescribed by the Minister under Section 20 hereof or who have not been re-appointed, shall be deemed separated from the service and shall be entitled to the benefits provided in the second paragraph of the same Section 20.

5. In case of merger or consolidation of government units, the new or surviving unit shall exercise the functions (subject to the reorganization herein prescribe and the laws, rules and regulations pertinent to the exercise of such function) and shall acquire the appropriation, funds, records, equipment, facilities, chooses in action, rights, other assets, liabilities if any, and personnel, as may be necessary, of (1) the units that composed the merged unit or (2) the absorbed unit as the case mat be. Such personnel shall, in a hold over capacity, continue to perform their respective duties and responsibilities and receive the corresponding salaries and benefits unless in the meantime they are separated from the service pursuant to Executive Order No.17 (1986) or Article III of the Freedom Constitution. Any such personnel, whose position is not included in the Ministry's new position structure and staffing pattern approved and prescribed by the Minister under Section 20 hereof or who is not re-appointed, shall be deemed separated from the service and shall be entitled to the benefits provided in the second paragraph of the same Section 20.

6. In case of termination of a function which does not result in the abolition of the government unit which has performed such function, the appropriation and funds intended to finance and discharge of such functions shall revert to the General Fund, while the records, equipment, facilities, chooses in action, rights and other assets used in connection with the discharge of such functions shall be allocated to the appropriate units as the Minister shall determine or shall otherwise be disposed in accordance with the Government Auditing Code and other pertinent laws, rules and regulations. The liabilities, if any, that may have been incurred in connection with the discharge of such functions shall likewise be treated in accordance with the Government Auditing Code and other pertinent laws, rules and regulation. The personnel who have performed such function, whose positions are not included in the Ministry's new position structure and staffing pattern approved and prescribed by the Minister under Section 20 hereof or who have not been re-appointed, shall be deemed separated from the service and shall be entitled to the benefits provided in the second paragraph of the same Section 20.

SECTION 20. New Structure and Pattern. Upon approval of this Executive Order, the officers (the term "officer" as used in this Executive Order is intended to be within the meaning of the term "official" as used in the Freedom Constitution) and employees of the

Ministry shall, in a hold over capacity, continue to perform their respective duties and responsibilities receive the corresponding salaries and benefits unless in the meantime they are separated from the government service pursuant to Executive Order No.17 (1986) or Article III of the Freedom Constitution. The new position structure and staffing pattern of the Ministry shall be approved and prescribed by the Minister, for the Ministry, within one hundred twenty (120) days from the approval of this Executive Order and the authorized positions created there under shall be filled with regular appointments by him or by the President as the case may be. Those incumbents whose position are not included there in or who are not reappointed shall be deemed separated from the service. Those separated from the service shall receive the retirement benefits to which they may be entitled under existing laws, rules and regulations. Otherwise, they shall be paid the equivalent of one month basic salary for every year of service, or the equivalent nearest fraction thereof favorable to them on the basis of the highest salary received, but in no case shall such payment exceed the equivalent of 12 months' salary.

No court or administrative body shall issue any writ or preliminary injunction or restraining order to enjoin the separation/ replacement of any office or employee effected under this Executive Order.

SECTION 21. Prohibition Against Changes. No changes in the reorganization herein prescribe shall be valid except upon prior approval of the President for the purposes of promoting efficiency and effectiveness in the delivery of public services.

SECTION 22. Implementing Authority of Ministry. The Minister shall issue such orders, rules, regulations and other issuance's as may be necessary to ensure to the effective implementation of the provisions of this Executive Order.

SECTION 23. Notice or Consent Requirements. If any reorganization change herein authorized is of such substance or materiality as to prejudice third person with rights recognized by law or contract such that notice to or consent of creditors is required to be made or obtained pursuant to any agreement entered into with any of such creditors, such notice or consent requirements shall be complied with prior to the implementation or such reorganization change.

SECTION 24. Funding. Funds needed to carry out the provisions of this Executive Order shall be taken from funds available in the Ministry.

SECTION 25. Change of Nomenclature. In the event of adoption of a new Constitution, which provides for a presidential form of government, the Ministry shall be called Department of Transportation and Communication and the titles of Minister, Deputy

Minister, and Assistant Minister shall be changed to Secretary, Undersecretary and Assistant Secretary, respectively.

SECTION 26. Separability. Any portion or provision of this Executive Order that may be declared unconstitutional shall not have the effect of nullifying other portion or provisions hereof, as long as such remaining portions or provisions can still subsist and be given effect in their entirety.

## **5. Executive Order No. 125-A**

### **AMENDING EXECUTIVE ORDER NO. 125, ENTITLED "REORGANIZING THE MINISTRY OF TRANSPORTATION AND COMMUNICATIONS. DEFINING ITS POWERS AND FUNCTIONS, AND FOR OTHER PURPOSES."**

WHEREAS, considering the peculiar situation obtaining in the Department of Transportation and Communications (DOTC), there is a compelling need to clarify and/or modify structural and functional organization of the Department as provided under Executive Order No. 125 in order to ensure compliance with its mandate and the attainment of the corresponding objectives as specified in Section 4 of said Executive Order.

NOW, THEREFORE, I, CORAZON C. AQUINO, President of the Republic of the Philippines , by virtue of the powers vested in me by the Constitution, do hereby order:

Sec. 1. Sections 5, 8, 9, 10 and 11 of Executive Order No. 125, otherwise known as the Reorganization Act of the Ministry of Transportation and Communications, are hereby amended to read as follows:

"Sec. 5. Powers and Functions. To accomplish its mandate, the Department shall have the following powers and functions:

- a. Formulate and recommend national policies and guidelines for the preparation and implementation of integrated and comprehensive transportation and communications systems at the national, regional and local levels;
- b. Establish and administer comprehensive and integrated programs for transportation and communications, and for this purpose, may call on any agency, corporation, or organization, whether public or private, whose development programs include transportation and communications as an integral part thereof, to participate and assist in the preparation and implementation of such program;
- c. Assess, review and provide direction to transportation and communication research and development programs of the government in coordination with other institutions concerned;
- d. Administer and enforce all laws, rules and regulations in the field of transportation and communications;



- e. Coordinate with the Department of Public Works and Highways in the design, location, development, rehabilitation, improvement, construction, maintenance and repair of all infrastructure projects and facilities of the Department. However, government corporate entities attached to the Department shall be authorized to undertake specialized telecommunications, ports, airports and railways projects and facilities as directed by the President of the Philippines or as provided by law;
- f. Establish, operate and maintain a nationwide postal system that shall include mail processing, delivery services, and money order services and promote the art of philately;
- g. Issue certificates of public convenience for the operation of public land and rail transportation utilities and services;
- h. Accredite foreign aircraft manufacturers and/or international organizations for aircraft certification in accordance with established procedures and standards;
- i. Establish and prescribe rules and regulations for identification of routes, zones and/or areas of operations of particular operators of public land services;
- j. Establish and prescribe rules and regulations for the establishment, operation and maintenance of such telecommunications facilities in areas not adequately served by the private sector in order to render such domestic and overseas services that are necessary with due consideration for advances in technology;
- k. Establish and prescribe rules and regulations for the operation and maintenance of a nationwide postal system that shall include mail processing, delivery services, money order services and promotion of philately;
- l. Establish and prescribe rules and regulations for issuance of certificates of public convenience for public land transportation utilities, such as motor vehicles, trimobiles and railways;
- m. Establish and prescribe rules and regulations for the inspection and registration of air and land transportation facilities, such as motor vehicles, trimobiles, railways and aircrafts;
- n. Establish and prescribe rules and regulations for the issuance of licenses to qualified motor vehicle drivers, conductors, and airmen;

o. Establish and prescribe the corresponding rules and regulations for the enforcement of laws governing land transportation, air transportation and postal services, including the penalties for violations thereof, and for the deputation of appropriate law enforcement agencies in pursuance thereof;

p. Determine, fix and/or prescribe charges and/or rates pertinent to the operation of public air and land transportation utility facilities and services, except such rates and/or charges as may be prescribed by the Civil Aeronautics Board under its charter, and, in cases where charges or rates are established by international bodies or associations of which the Philippines is a participating member or by bodies or associations recognized by the Philippine government as the proper arbiter of such charges or rates;

q. Establish and prescribe the rules, regulations, procedures and standards for the accreditation of driving schools;

r. Administer and operate the Civil Aviation Training Center (CATC) and the National Telecommunications Training Institute (NTTI); and

s. Perform such other powers and functions as may be prescribed by law, or as may be necessary, incidental, or proper to its mandate or as may be assigned from time to time by the President of the Republic of the Philippines ."

"Sec. 8. Undersecretaries. The Secretary shall be assisted by four (4) Undersecretaries Appointed by the President upon the recommendation of the Secretary.

"Sec. 9. Assistant Secretaries and Service Chiefs. The Secretary shall also be assisted by eight (8) Assistant Secretaries appointed by the President upon the recommendation of the Secretary, each of whom shall respectively be responsible for the following four (4) staff offices composed of eight (8) services and four (4) line offices, and shall report to the respective Undersecretaries assigned by the Secretary, which Undersecretary shall have control and supervision over said respective services and offices:

a. Office of the Assistant Secretary for Administrative and Legal Affairs;

1. Administrative Service, and a. Legal Service

b. Office of the Assistant Secretary for Finance and Comptrollership;

1. Finance and Management Service, and 1. Comptrollership Service

c. Office of the Assistant Secretary for Planning and Project Development;

1. Planning Service, and 1. Project Development Service

d. Office of the Assistant Secretary for Management Information Service and Project Management;

1. Management Information Service, and
1. Project Management Service
- e. Office of the Assistant Secretary for Land Transportation;
- f. Office of the Assistant Secretary for Postal Services;
- g. Office of the Assistant Secretary for Telecommunications;
- h. Office of the Assistant Secretary for Air Transportation.

Each of the above-named services shall be headed by a service chief appointed by the President upon the recommendation of the Secretary."

Sec. 10. Structural Organization. The Department, aside from the Department proper which is comprised of the Offices of the Secretary, Undersecretary and Assistant Secretaries shall include the Department regional offices and the attached agencies and corporations referred to in Section 14 hereof. The Office of the Secretary shall have direct line supervision and control over the Department regional offices. The Department proper shall be responsible for developing and implementing policies, plans, programs and projects for the Department."

"Sec. 11. Department Regional Offices. The Department shall have three (3) Department Regional Offices in each of the administrative regions of the country: the Department Regional Office for land Transportation, Department Regional Office for Telecommunications and the Department Regional Office for Postal Services. The present Regional Offices of the Land Transportation Commission are hereby abolished and their functions are transferred to the respective Department Regional Offices for Land Transportation. The present Regional Offices of the Bureau of Telecommunications are hereby abolished and their functions are transferred to the respective Department Regional Offices for Telecommunications. The present Regional Offices of the Bureau of Posts are hereby abolished and their functions are transferred to the corresponding Department Regional Offices for Postal Services. Each Department Regional Office shall be headed by a Department Regional Director and assisted by a Department Assistant Regional Director. The present Airport Offices of the Bureau of Air Transportation are hereby abolished and their functions are transferred to the Department Airport Offices. The abolition of the herein Regional Offices and the transfer of their functions shall be governed by the provisions of Section 15 (b) hereof. The Department Regional Offices shall essentially be line in character and shall be responsible for the delivery of all front line services of the Department.

For such purposes, the Department Regional Offices shall have within their respective administrative regions, the following functions:

- a. Implement laws, and policies, plans, programs, projects, rules and regulations of the Department;
- b. Provide efficient, and effective service to the people;
- c. Coordinate with regional offices of other departments, offices and agencies;
- d. Coordinate with local government units;
- e. Perform such other functions as may be provided by law."

Sec. 2. Sections 12, 13, 15 and 16 of said Executive Order are hereby deleted.

Sec. 3. Section 14 of said Executive Order is hereby renumbered as Section 12 and amended to read as follows:

"Sec. 12. Maritime Industry Authority. The Maritime Industry Authority is hereby retained and shall have the following functions:

- a. Develop and formulate plans, policies, programs, projects, standards, specifications and guidelines geared toward the promotion and development of the maritime industry, the growth and effective regulation of shipping enterprises, and for the national security objectives of the country;
- b. Establish, prescribe and regulate routes, zones and/or areas of operation of particular operators of public water services;
- c. Issue Certificates of Public Convenience for the operation of domestic and overseas water carriers;
- d. Register vessels as well as issue certificates, licenses or documents necessary or incident thereto;
- e. Undertake the safety regulatory functions pertaining to vessel construction and operation including the determination of staffing levels and issuance of certificates of competency to seamen;
- f. Enforce laws, prescribe and enforce rules and regulations, including penalties for violations thereof, governing water transportation and the Philippine merchant marine,

and deputize the Philippine Coast Guard and other law enforcement agencies to effectively discharge these functions;

g. Undertake the issuance of licenses to qualified seamen and harbor, bay and river pilots;

h. Determine, fix and/or prescribe charges and/or rates pertinent to the operation of public water transport utilities, facilities and services except in cases where charges or rates are established by international bodies or associations of which the Philippines is a participating member or by bodies or associations recognized by the Philippine Government as the proper arbiter of such charges or rates.

i. Accredite marine surveyors and maritime enterprises engaged in shipbuilding, shiprepair, shipbreaking, domestic and overseas shipping ship management and agency;

j. Issue and register the continuous discharge book of Filipino seamen;

k. Establish and prescribe rules and regulations, standards and procedures for the efficient and effective discharge of the above functions;

l. Perform such other functions as may now or hereafter be provided by law."

Sec. 4. Section 17 of Executive Order No. 125 is hereby renumbered as Section 13 and amended to read as follows:

"Sec. 13. Abolition/Transfer/Consolidation:

a. The Land Transportation Commission is hereby abolished and its staff functions are transferred to the service offices of the Department Proper and its line functions are transferred to the Department Regional Offices for Land Transportation as provided in Section 11 herein. Such transfer of functions is subject to the provisions of Section 15 (b) hereof. The quasi-judicial powers and functions of the Commission are transferred to the Department. The corresponding position structure and staffing pattern shall be approved and prescribed by the Secretary pursuant to Section 16 hereof.

b. PNL Leasing, Inc. is hereby abolished and its functions are transferred to Philippine National Lines, Inc. subject to the provisions of Section 15 (b) hereof. The Secretary of Transportation and Communications or his designated representative shall be the Chairman of the Board.

c. The National Aero Manufacturing, Inc. and the Philippine Aero Systems, Inc. are hereby abolished in accordance with the provisions of Section 15 (a) hereof.

d. The Civil Aeronautics Board is hereby transferred from the Department of Tourism to the Department as an attached agency in accordance with the provision of Section 15 (a) hereof.

The Secretary of Transportation and Communications or his designated representative shall be the Chairman of the Board.

e. The Maritime Training Council's function of issuing certificates of competency to seamen under LOI 1404 is hereby transferred to the Maritime Industry Authority."

f. Sec. 5. Sections 18, 19, 20, 21, 22, 23, 24, 25 and 26 of said Executive Order are hereby renumbered as Sections 14, 15, 16, 17, 18, 19, 20, 21 and 22, respectively. Sec. 6. Section 27 of said Executive Order is hereby renumbered as Section 23 and amended as follows; "Sec. 23. Repealing Clause. Presidential Decree No. 890, Letter of Instruction Nos. 263 and 371 Executive Order No. 1011 dated March 20, 1985 are hereby repealed. All laws ordinances, rules, regulations, other issuances or parts thereof which are inconsistent with this Executive Order are hereby repealed or modified accordingly."

Sec. 7. Section 28 of said Executive Order is hereby renumbered as Section 24.

Sec. 8. This Executive Order shall take effect immediately upon its approval.

Done in the City of Manila, Philippines, this 13th day of April, in the year, of Our Lord, nineteen hundred and eighty-seven.

## **6. MARINA CIRCULAR FOR THE REGISTRATION OF SHIPS FOR DOMESTIC USE**

MC 2013-02 ([Revised Rules for the Registration, Documentation and Deletion of Ships Operating In Philippine Waters](#))

Pursuant to Presidential Decree No. 474, Executive Orders No. 125/ 125-A and Republic Act 9295 and to implement Item 115 of the DOTC Department Order No. 2012-01 dated 09 January 2012, the Categorization of the Navigational Areas/ Waters in the Philippines is hereby adopted:

### **I. OBJECTIVES:**

1. To categorize the navigational areas/ waters in. the Philippines where all domestic ships operate and navigate;
2. To rationalize the area of operation of vessels specially the wooden hull ships below 35 GT and motorbancas/ motorboat with outriggers viz aviz the categorized navigational areas; and
3. To serve as basis in the review/ amendment of existing Memorandum Circulars governing licensing, safe manning and life-saving appliances/ equipment.

### **II. COVERAGE:**

This Circular shall apply to all Philippine-registered ships of any size operating in Philippine waters engaged in commercial operations, except fishing vessels and government-owned ships not engaged in transporting goods and people.

### **III. DEFINITION OF TERMS:**

For purposes of this Circular, the following terms are defined:

1. "*MARINA*" refers to the Maritime Industry Authority.

2. *"Domestic Shipping"* refers to the transport of passengers or cargo, or both, by ships duly registered and licensed under Philippine law to engage in trade and commerce between Philippine ports and within Philippine territorial or internal waters, for hire or compensation, with general or limited clientele, whether permanent, occasional or incidental, with or without fixed routes, and done for contractual or commercial purposes.

3. *"Domestic Ship Operator" or "Domestic Ship Owner"* for purposes of this Circular, may be used interchangeably and shall mean a citizen of the Philippines, or a commercial partnership wholly owned by Filipinos, or a corporation at least sixty percent (60%) of the capital of which is owned by Filipinos, which is duly authorized by the Maritime Industry Authority to engage in the business or domestic shipping.

4. *"Certificate of Public Convenience"* refers to the license or authority issued by MARINA to a domestic ship operator to engage in domestic shipping.

5. *"Commercial Operation"* refers to the operation of ship that carries cargoes, passengers or *cargol* passenger regardless of its size or tonnage.

6. *"Protected Water"* refers to a body of water that covers navigable area within three (3) nautical miles from the nearest land. Covers navigable water categorized in item 1Y.1.A.

7. *"Coastal Water"* refers to a body of water that covers navigable area which is more than three (3) nautical miles from the nearest land. Covers navigable water categorized in item IV.1. B.

8. *"Open Sea"* refers to a body of water that is not classified as protected and coastal water but still within the areal jurisdiction of the Philippines.

#### **IV. GENERAL PROVISIONS:**

1. All Philippine registered ships shall conform with the following identified Parameters in categorizing the navigational areas/ waters in the country

##### **A. Protected Water**



a. Geographical Features

~ The water is totally enclosed by land (i.e. lake); or

~ The water is generally enclosed by land and the area directly facing the open sea is small (i.e. harbor or river) For bays, they should be surrounded by mountainous terrain and that the diameter of the bays should not be more than ten (10) nautical miles; or

~ The water is generally enclosed by land and the area facing the open sea is large but there's a mountainous island to protect the water from high waves, strong wind and strong current; or

~ Covers navigable areal water within three (3) nautical miles from the nearest land.

b. Weather and Hydrographic Conditions The average wind speed in the area is less than ten (10.00) knots and the average wave height is less than three and a half (3.5) feet.

B. Coastal Water

a. Geographical Features

Covers navigable *areal* water which is more than three (3.0) nautical miles from the nearest land.

b. Weather and Hydrographic Conditions

The average wind speed in the area is more than ten (10.00) knots and the average wave height is more than three and a half (3.5) feet.

C. Open Sea

Covers navigable *area!* water that is not classified as protected and coastal water but still within the *area!* jurisdiction of the Philippines.

2. A program to rationalize the operation of wooden hull ships below 35 GT and motorbancas! motorboats with outriggers shall be adopted to include, but not limited to the following:

2.1 Identification of other routes for safer operation

2.2 Provide alternative materials and design to replace wooden hull ships below 35 GT and motorbancas/ motorboats with and without outriggers

2.3 Affordable financing schemes for the construction! deployment of bigger ships specially in hazardous areas

2.4 Coordinate with the concerned government agencies on establishing cooperatives for small operators to acquire bigger ships suitable to coastwise operation

## **V. SPECIFIC PROVISIONS:**

With the adoption of the above-mentioned classification of navigational waters in the Philippines, all domestic shipping operators and other motor banca/motorboat operators are hereby required to comply with the following:

1. All wooden hull motorbancas/ motorboats with outriggers 35 GT and below specialty- those carrying passengers shall observe the safety requirements and the tides and currents in their navigational area which is also critical to the safe operation of the ships.

2. Motorboats/ motorbancas may still be allowed to operate after expiration of their CPCs, if there is no available port found in the area.

## **VI. TRANSITORY PROVISION:**

All motor banca motorboat operators shall continue to operate in their area of operation until such time that their CPC expired. However, when new, bigger or more modern ships are authorized to operate in their area of operation, such small existing ships shall cease operating as passenger ships until CPC expires, but may still be allowed to continue in operation for purposes of carrying cargoes only, subject to appropriate evaluation and qualification.

## **VII. REPEALING CLAUSE:**

Other existing MARINA Circulars, rules, regulations and other issuances inconsistent herewith are deemed amended or repealed accordingly.

## **MARINA CIRCULAR ON RULES ON CATEGORIZATION OF NAVIGATIONAL AREAS/WATERS IN THE PHILIPPINES**

MC 2015-03 (Rules on Categorization of Navigational Areas / Waters In The Philippines)

Pursuant to Presidential Decree No. 474, Executive Orders No. 125/ 125-A and Republic Act 9295 and to implement Item 115 of the DOTC Department Order No. 2012-01 dated 09 January 2012, the Categorization of the Navigational Areas/ Waters in the Philippines is hereby adopted:

### **I. OBJECTIVES:**

1. To categorize the navigational areas/ waters in. the Philippines where all domestic ships operate and navigate;
2. To rationalize the area of operation of vessels especially the wooden hull ships below 35 GT and motorbancas/ motorboat with outriggers viz aviz the categorized navigational areas; and
3. To serve as basis in the review/ amendment of existing Memorandum Circulars governing licensing, safe operating and life-saving appliances/equipment.

### **II. COVERAGE:**

This Circular shall apply to all Philippine-registered ships of any size operating in Philippine waters engaged in commercial operations, except fishing vessels and Government-owned ships not engaged in transporting goods and people.

### **III. DEFINITION OF TERMS:**

For purposes of this Circular, the following terms are defined:

1. "*MARINA*" refers to the Maritime Industry Authority.
2. "*Domestic Shipping*" refers to the transport of passengers or cargo, or both, by ships duly registered and licensed under Philippine law to engage in trade and commerce between Philippine ports and within Philippine territorial or

internal waters, for hire or compensation, with general or limited clientele, whether permanent, occasional or incidental, with or without fixed routes, and done for contractual or commercial purposes.

3. *"Domestic Ship Operator" or "Domestic Ship Owner"* for purposes of this Circular, may be used interchangeably and shall mean a citizen of the Philippines, or a commercial partnership wholly owned by Filipinos, or a corporation at least sixty percent (60%) of the capital of which is owned by Filipinos, which is duly authorized by the Maritime Industry Authority to engage in the business or domestic shipping.

4. *"Certificate of Public Convenience"* refers to the license or authority issued by MARINA to a domestic ship operator to engage in domestic shipping.

5. *"Commercial Operation"* refers to the operation of ship that carries cargoes, passengers or *cargo* passenger regardless of its size or tonnage.

6. *"Protected Water"* refers to a body of water that covers navigable area within three (3) nautical miles from the nearest land. Covers navigable water categorized in item 1Y.1.A.

7. *"Coastal Water"* refers to a body of water that covers navigable area which is more than three (3) nautical miles from the nearest land. Covers navigable water categorized in item IV.1. B.

8. *"Open Sea"* refers to a body of water that is not classified as protected and coastal water but still within the areal jurisdiction of the Philippines.

#### **IV. GENERAL PROVISIONS:**

1. All Philippine registered ships shall conform with the following identified parameters in categorizing the navigational areas/ waters in the country

##### **A. Protected Water**

##### **a. Geographical Features**

~ The water is totally enclosed by land (i.e. lake); or

~ The water is generally enclosed by land and the area directly facing the open sea is small (i.e. harbor or river) For bays, they should be surrounded by mountainous terrain and that the diameter of the bays should not be more than ten (10) nautical miles; or

~ The water is generally enclosed by land and the area facing the open sea is large but there's a mountainous island to protect the water from high waves, strong wind and strong current; or

~ Covers navigable areal water within three (3) nautical miles from the nearest land.

#### b. Weather and Hydrographic Conditions

The average wind speed in the area is less than ten (10.00) knots and the average wave height is less than three and a half (3.5) feet.

#### B. Coastal Water

##### a. Geographical Features

Covers navigable *areal* water which is more than three (3.0) nautical miles from the nearest land.

##### b. Weather and Hydrographic Conditions

The average wind speed in the area is more than ten (10.00) knots and the average wave height is more than three and a half (3.5) feet.

#### C. Open Sea

Covers navigable *area!* water that is not classified as protected and coastal water but still within the *area!* jurisdiction of the Philippines.

2. A program to rationalize the operation of wooden hull ships below 35 GT and motorbancas! motorboats with outriggers shall be adopted to include, but not limited to the following:

##### 2.1 Identification of other routes for safer operation

2.2 Provide alternative materials and design to replace wooden hull ships below 35 GT and motorbancas/ motorboats with and without outriggers

2.3 Affordable financing schemes for the construction! deployment of bigger ships specially in hazardous areas

2.4 Coordinate with the concerned government agencies on establishing cooperatives for small operators to acquire bigger ships suitable to coastwise operation

#### **V. SPECIFIC PROVISIONS:**

With the adoption of the above-mentioned classification of navigational waters in the Philippines, all domestic shipping operators and other motorbanca/ motorboat operators are hereby required to comply with the following:

1. All wooden hull motorbancas/ motorboats with outriggers 35 GT and below specialty- those carrying passengers shall observe the safety requirements and the tides and currents in their navigational area which is also critical to the safe operation of the ships.

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All motorbancal motorboat operators shall continue to operate in their area of operation until such time that their CPC expired. However, when new, bigger or more modern ships are authorized to operate in their area of operation, such small existing ships shall cease operating as passenger ships until CPC expires, but may still be allowed to continue in operation for purposes of carrying cargoes only, subject to appropriate evaluation and qualification.

#### **VII. REPEALING CLAUSE:**

Other existing MARINA Circulars, rules, regulations and other issuances inconsistent herewith are deemed amended or repealed accordingly.

**COMMENT AND INPUTS: AN ASSESSMENT OF CURRENT BIOFOULING MANAGEMENT AND BIOLOGICAL INVASION  
RISK FOR THE MARITIME INDUSTRY IN THE PHILIPPINES**

Phrase/ Paragraph/ Section Title	Comments	Justification
	<b>Suggested to change the title from</b> "An Assessment Of Current Biofouling Management And Biological Invasion Risk For The Maritime Industry In The Philippines" to <i>"An Assessment on Biofouling Management and its Potential Risk to the Maritime Industry in the Philippines."</i>	There is lack of scientific study and information regarding marine biological invasion in the Philippines thus, there are previous studies of IAS but only focuses in the Manila bay but not in the whole Philippines. The Title should remove the word "current".
<b>A glossary of marine biological invasion with respect to biofouling and ballast water management</b>	<p><b>Add:</b></p> <p><b>Marine Protected Areas-</b> Marine Protected Areas (MPAs) involve the protective management of natural areas according to pre-defined management objectives. MPAs can be conserved for a number of reasons including economic resources, biodiversity conservation, and species protection.</p> <p><b>Port State Control Authorities-</b> Public Officers performing Port State Control Functions. PCG is authorized under RA 9993 as the Port State Control Authority of the Philippines and performs inspection aboard foreign flagged ships/ vessels.</p> <p><b>Ballast Water Treatment System-</b> is a system designed to remove and destroy/inactive biological organisms</p>	PCG's port state control and coastal state functions are under RA 9993.

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	(zooplankton, algae, bacteria) from ballast water.	
	<p><b>Ballast Water Exchange Area</b> – a designated marine area by the PCG wherein ships are allowed to conduct discharge, replace and pump-in clean water prior entering the port.</p> <p><b>Ballast Water Treater/Collector/Transporter</b> – an entity certified by DENR-EMB and the PCG to conduct Treatment, Collection and Transport Ballast Water from Ships.</p> <p>Replace ICD with UICD (University of the Immaculate Conception-Davao)</p>	
<b>Introduction</b>	To introduce the purpose of the research briefly, stating its problem and brief conclusion.	
<b>Chapter 1 Pathways of Marine Invasive Alien Species in the Philippines</b>	<p><b>Add:</b></p> <p>Include specific pathways for Philippine registered fishing vessel operating in international fishing ground like Papua New Guinea (PNG), Marshall Island and other international fishing area. Philippine registered fishing vessels particularly fishing vessels categorized as Carrier or Mother Boat are staying long period (months) in international fishing grounds. Shipyards which provide services to foreign vessels. This is common to foreign fishing industries.</p>	

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	<p>Location of docks/ports with high cases of IAS present should be noted together with the routes of vessels which come from international waters. This will enable us to have insights in regards to the course of IAS.</p> <p>Specific pathways for Oil tankers, since most of the refinery is located at Luzon, and possibly de-ballasting operation will occur in Luzon (refinery, depot) when conducting loading operations. Therefore, loading ports are in high risk of translocating local IAS/MNIS, in addition most of the International Ports in the Philippines are near/adjacent to domestic ports.</p> <p>Includes the latest data/study or survey that will support facts regarding pathway of Marine Invasive Alien Species in the Philippines;</p> <p>Site examples/ evidences and studies that will prove marine invasion other than Manila bay.</p>	
<p align="center"><b>Chapter 2</b> <b>Socioeconomic activities at risk for ship biofouling and ballast water release</b></p>	<p><b>Add:</b></p> <p>Invasive alien species could affect the interaction and population in an ecosystem. It could attract new species or allow other species to prosper because of predation.</p>	<p>The bloom caused by <i>P. bahamense</i> in the Manila bay led to the increase of <i>N. scintillans</i> because <i>N. scintillans</i> graze on <i>P. bahamense</i>.</p>

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<p><b>II PUBLIC HEALTH SECTOR</b></p>	<p>Expound the effects of biofouling in the maritime industry.</p> <p>Mention that IAS is not only vector of pathogens but also can carry various types of disease and pathogens from its origin.</p> <p>Also include that IAS could carry pathogens that is not only harmful to humans but also to the species currently living in the marine environment making our indigenous species vulnerable.</p> <p>Aside from the effects in aquaculture and fisheries, the overall effects to the ecosystem should also be assessed.</p>	
<p align="center"><b>Chapter 3</b> <b>A Review of Biofouling and Ballast water regulations of the Philippines with reference to marine invasive alien species (IAS)</b></p> <p><b>On Sulphur limit under MARPOL Annex VI</b></p>	<p>For additional knowledge, please include specific limits of Sulphur content for ships fuel oil operating outside Emission Control Areas (ECA) which is 0.50% and 0.10% for ECA's. Reference is Resolution MEPC. 320 (74) or 2019 Guidelines for consistent implementation of the 0.50%</p>	<p>MARPOL Annex VI.</p>



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<p><b>III. NATIONAL and REGIONAL LEGISLATION</b></p>	<p>Sulphur limit under MARPOL Annex VI.</p> <p>Review if the national and regional legislations has penalties in violation of ballast water discharge or introduction of invasive species. Check if the penalty is enough and look for penalties of other SEA countries on the improper discharge of ballast water and harmful anti-fouling system to have a basis on how much the Philippines should penalize violators.</p>	<p>Penalties of SEA countries to violators of the Marine Environment: Discharging pollutants at sea (Singapore) – SGD 20,000 (PHP 721,625) Environmental Quality Act (Malaysia) - not more than RM 500,000 (PHP 5,766,070)</p> <p>Articles that recommend that the BWMC can be used for levying penalties.</p> <p>USCG approves BWM as violation of the National Invasive Species Act, with penalty of maximum of USD 38,175</p> <p>Allegedly discharging dirty ballast water in Ukrainian ports, fines of between US\$ 40,000 to US\$ 60,000.</p> <p>Environmental Protection Agency of Alaska penalized Exxon Corp., British Petroleum and Alyeska Pipeline Service a total of \$20,000 for</p>
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<p><b>Conclusions and Recommendations</b></p>	<p>Include a graph representation stating the growth of Marine Invasive Species in the Philippines to provide clearer vision on the risk of Invasive Aquatic Species to our marine environment.</p> <p>Establish local mandatory policy that directly addresses the Anti-fouling System and Ballast Water Management.</p> <p>Seek comments and recommendations from other concerned government agencies such as DOST, BFAR and DENR to come up with a comprehensive approach and provide more supporting details on the aforementioned subject.</p> <p>SWOT analysis may also use to assess the proposed Biofouling Management Policy.</p> <p>Include that the DENR-BMB, DENR-BMB, BFAR should have a scientific study on how to mitigate the growing number of <i>Mytella sp.</i> In the waters of Manila.</p>	<p>discharging dirty ballast into a treatment plant.</p> <p>The increase in <i>Mytella sp.</i> And decrease in <i>P. veridis</i> affects the fisheries sector that the BFAR has mandates to control.</p>
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	<b>For Clarification:</b>  If in the future a legislation on IAS will be in placed, who will be the lead implementing unit of PCG? As of now, the authorized unit for foreign vessel inspection is the Port State Control Center	
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## 7. MARINA CIRCULARS RELEVANT TO IMO CONVENTIONS

- MC SR-2020-06 ([Rules and Regulations on the Mandatory Use of 0.50% MM Sulphur Limit on Fuel Oil for All Philippine Registered Ships in Compliance to Annex VI of MARPOL 73/78, as amended](#))
- MC SR-2020-05 ([Rules and Regulations for the Control and Management of Ships' Ballast Water and Sediments in Compliance to Ballast Water Management Convention](#))
- MC SR-2020-04 ([Rules and Regulations on the Application of Anti-Fouling Paints and Systems in Ships in compliance to the International Convention on the Control of Harmful Anti-Fouling Systems in Ships \(AFS Convention\)](#))
- MC SR-2020-02 ([Rules and Regulations on the Construction of Tank and Installation of Equipment to Collect, Store and Treat Sewage from Ships in Compliance to Annex IV of MARPOL 73/78, as amended](#))







