



BLUE WATERS

Newsletter

On Marine Environment Protection

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From the Director General's Desk



India occupies a central and strategic location in the Indian Ocean area. The opportunities available with the country for exploring the natural resources of the ocean are immense. The fisheries resources not only provide livelihood to the fishers, but also gift nutrition value to the coastal populace for their daily meals. However, studies have shown that about 80% of ocean pollution is due to the land based activities. The pollutants discharged into the rivers and other water bodies are a major source of pollution of the ocean.

The Indian Coast Guard's ongoing campaign of 'Swachh Bharat Abhiyan' focuses on preventing pollution entering the rivers and other water bodies. The success of this nationwide campaign will yield dividends on at least two counts – firstly, the rivers and water bodies will be usable for day to day activities and support livelihood and secondly, the campaign will improve the water quality along the coast.

India is endowed with bountiful nature and its beaches have immense potential to attract, not only domestic but also international tourists. Improving the coastal marine environment will provide immense opportunity for the people to earn their livelihood, improve living conditions and earn revenue for the nation.

As regards other initiatives for environment protection, readers will be pleased to know that the Indian Coast Guard planted over 41,500 trees in 2017 in all the coastal states and union territories thereby neutralising all operational emissions in the year.

I would appeal to all the users of the ocean and the coastal communities to contribute their best by way of 'Swachhta Hi Seva' campaign. I would also urge everyone to be conscious of "mottainai", the wonderful Japanese concept of being mindful against wastefulness of resources.

I wish all the readers and stakeholders 'Happy Reading'.

Vayam Rakshamah. Jai Hind.

27 Apr 18
New Delhi

(Rajendra Singh)
Director General
Indian Coast Guard

Editorial

Over the period of time, India conforms closely to the International priorities for preserving the Ocean for sustainable resource base. The growing awareness world over for protection and preservation of marine environment from all forms of pollution has been the point of concern and discussion at various seminars and conferences. Maritime nations have adopted an active approach to sensitize their citizen towards the negative effects of marine pollution.

India has also initiated various measures with a common goal for protection of environment as a whole. India's commitment towards this can be seen in the policy initiatives both at Centre and State levels.

Accordingly, Indian Coast Guard, along with other maritime stakeholders have come together to work in unison, so that the marine environment can be improved and preserved for future generation. Every contribution in this direction, whether, small or big, is very vital for achieving the National goal.

This edition highlights bioremediation techniques and its relevance in oil pollution response and importance of oil spill contingency plan. Other articles emphasize on the 'Swachh Sagar Abhiyan'. Incident/ accident around the world and India are covered under World/ India Watch.

A warm thanks to all contributors to this edition of "Blue Waters". The valuable contribution in future are solicited from stakeholders towards this newsletter for marine environment protection.



(Bhim Singh Kothari)
Commandant
Director (FE)

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Website : www.indiancoastguard.gov.in

ARTICLES

BIOREMEDIATION TECHNIQUES AND ITS RELEVANCE IN OIL POLLUTION RESPONSE

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Introduction

Degradation of oil by micro-organisms is one of the most important long-term natural processes for removal of oil from the marine environment. Given enough time - at least several years, for example, for oil stranded on beaches - some micro-organisms are capable of at least partially cleaning environments polluted with oil, because bioremediation is a potentially significant method for mitigating the damage caused by marine oil spills. Among the other applications for which bioremediation is being considered or is currently in use are:-

- Treatment of non-toxic liquid and solid waste.
- Treatment of toxic or hazardous wastes.
- Treatment of contaminated groundwater.
- Grease decomposition.

The usefulness of bioremediation for marine oil spills is still being evaluated, and their ultimate importance relative to other oil spill response technologies remains uncertain.

Bioremediation

The use of micro-organisms, fungi or bacteria to decompose pollutants into simpler compounds is called bioremediation. Microbes break down different substances in water, carbon dioxide and other compounds. The prime goal of bioremediation is to

create an optimal environment for the microbes to degrade the pollutants. Bioremediation is a cost effective alternative, but is a very slow process. An advantage of bioremediation is that the microbes are able to completely destroy the toxic hydrocarbon

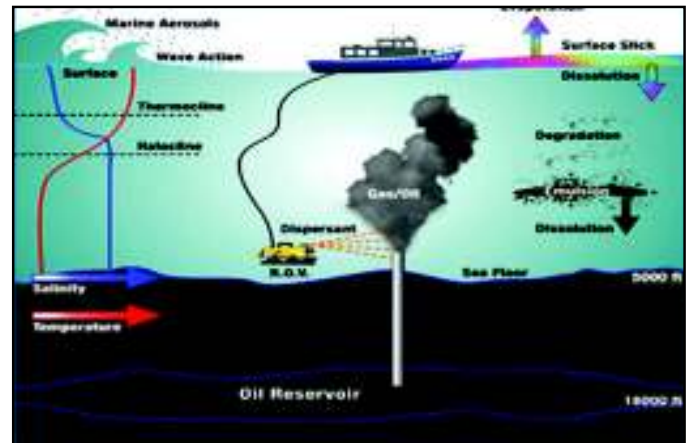


Fig 1. Stages of Degradation of oil

compounds and do not just transfer them to another area. Potential bioremediation approaches for marine oil spills fall into three major categories:-

- Stimulation of indigenous micro-organisms through addition of nutrients (Fertilization).
- Introduction of special assemblages of naturally occurring oil degrading micro-organisms (Seeding).
- Introduction of genetically engineered micro-organisms with special oil degrading properties.

The Fate of Oil in the Marine Environment

The fate of oil and petroleum products introduced to the marine environment are immediately subject to a variety of physical and chemical, as well as biological changes. Biological weathering processes include evaporation, dissolution, dispersion, and

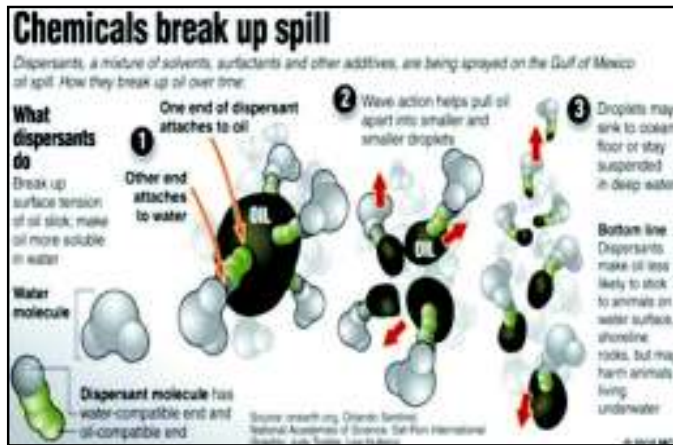


Fig 2. Chemical process of Dispersant on oil

photochemical oxidation, and water-in-oil emulsification, adsorption onto suspended particulate material, sinking, and sedimentation. Biological processes include ingestion by organisms as well as microbial degradation. These processes occur simultaneously and cause important changes in the chemical composition. The most important weathering process during the first 48 hours of a spill is usually evaporation, the process by which low-to-medium weight crude oil components with low boiling points evaporates into the atmosphere. Evaporation can be responsible for the loss of one to two-thirds of an oil spill's mass during this period, with the loss rate decreasing rapidly with time. None of the other a biological weathering processes accounts for as

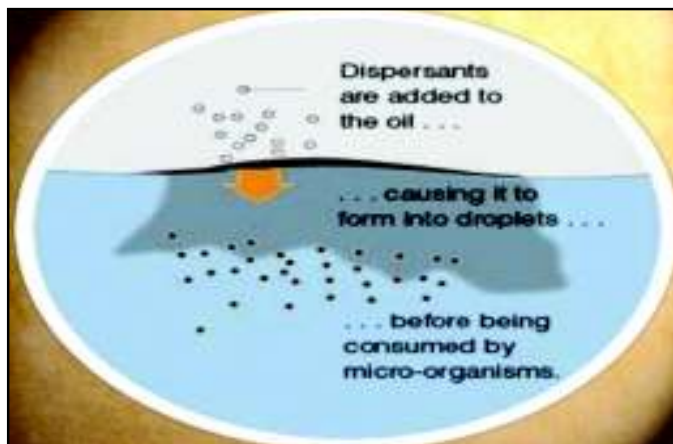


Fig 3. Effect of Dispersant

significant a proportion of the losses from a spill. For example, the dissolving, or dissolution, of oil in the water column is a much less important process than evaporation from the perspective of mass lost from a spill; dissolution of even a few percent of a spill's mass is unlikely. Dissolution is important, however, because some water soluble fractions of crude oil (e.g. the light aromatic compounds) are acutely toxic to various marine organisms (including micro-organisms that may be able to degrade other fractions of oil), and their impact on the marine environment is greater than mass balance considerations might imply.

Advantage and Disadvantage of Bioremediation

Bioremediation technologies have several attributes that, depending on the situation and type of site may support their use in responding to some oil spills. First, bioremediation usually involves minimal physical disruption of a site. This attribute is

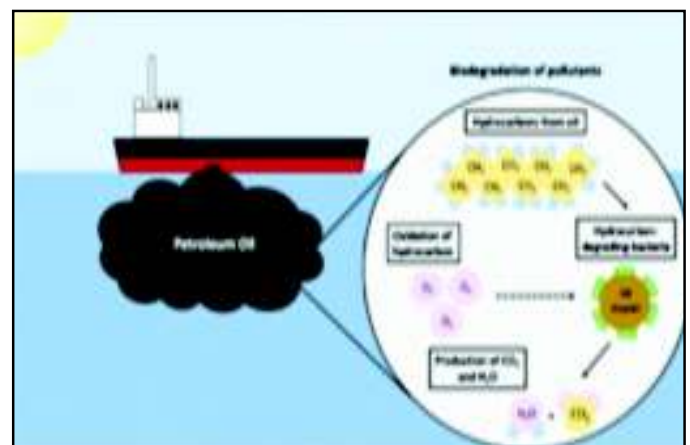


Fig 4. Degradation cycle

especially important on beaches where other available cleanup technologies (e.g. high and low pressure spraying, steam cleaning, manual scrubbing, and raking of congealed oil) may cause

additional damage to beach-dwelling biota. Application of oleophilic (i.e. oil seeking) fertilizers was done by shallow draughts boats located just off the beach. Second, bioremediation technologies appear to have no or only minor and short-lived adverse effects when used correctly. Although research on possible negative impacts is continuing, there is so far little evidence to suggest that potential problems would be significant. Third, bioremediation may be useful in helping remove some of the toxic components of petroleum (e.g. low molecular weight aromatic hydrocarbons) from a spill site more quickly than they might otherwise be removed by evaporation alone. Fourth, bioremediation of oil spills is accomplished on-site, and offers a simpler and more



Fig 5. Impact of oil spill on beach

thorough solution to polluted areas. In contrast, hot water spraying of an oiled beach, for example, flushes some surface oil back into the water, and this oil must then be recovered by skimmers. The recovered oil and water mixture must be separated, and the oil disposed of or recycled. Also, a significant amount of mechanical equipment and logistical capability is required to deal with a large spill.



Fig 6. Types of respond to Oil Spill

Principal Features of Alternative Bioremediation Approaches

- Nutrient Enrichment.** Intended to overcome the chief limitation on the rate of the natural biodegradation of oil. Most studies of the three approaches and currently seen as the most promising approach for most types of spills. No indication that fertilizer use causes algal blooms or other significant adverse impacts. In Alaska tests, fertilizer use appeared to increase biodegradation rate by at least a factor of two.
- Seeding.** Intended to take advantage of the properties of the most efficient species of oil degrading micro-organisms. Results of field tests of seeding have thus far been inconclusive. May not be necessary at most sites because there are few locales where oil-degrading microbes do not exist. Requirements for successful seeding more demanding than those for nutrient enrichment. In some cases, seeding may help biodegradation get started faster.
- Use of Genetically Engineered Micro-organisms.** Probably not needed in most cases, because of wide availability of naturally occurring microbes. Potential use for components of

petroleum not degradable by naturally occurring micro-organisms. Development and use could face major regulatory hurdles.

Environmental and Health Issues

To date, no significant environmental or health problems have been associated with the testing or application of bioremediation technologies to marine oil spills. Experience with bioremediation in marine settings is still limited, so it is premature to conclude that its use will always be safe or that possible risks will be acceptable in all of the circumstances in which bioremediation might be employed. The evidence to date, nevertheless, suggests that risks will be unimportant in most situations. Concerns have been raised about several potential adverse environmental effects. Among these are the possibility that the addition of fertilizers could cause eutrophication, leading to algal blooms and oxygen depletion; that components of some fertilizers could be toxic to sensitive marine species or harmful to human health; that the introduction of non-native micro-organisms could be pathogenic to some indigenous species; that the use of bioremediation technologies could upset ecological balances; and that some intermediate products of bioremediation could be harmful.

**REGIONAL LEVEL MARINE OIL
POLLUTION RESPONSE EXERCISE,
CLEAN SEA – 2017, OFF PORT BLAIR
28-29 NOV 17**

*Comdt P Pradeep Kumar
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The Regional Level Marine Oil Pollution Response Exercise titled 'Clean Sea-2017', was conducted at sea, off Port Blair on 29 Nov 17. The

exercise was preceded by a table top exercise on 28 Nov 17. The objective of the exercise was to ascertain preparedness of the Indian Coast Guard, resource agencies and other stakeholders in responding to a major oil spill in line with the provisions of National Oil Spill Disaster Contingency Plan (NOS-DCP).



Fig 7. PR exercise

The highlight of the exercise was participation of one ICG Pollution Control Vessel (PCV) and integration of Indian Coast Guard Dornier/Chetak aircraft into the Oil Spill Disaster Management System for aerial assessment/ delivery of Oil Spill Dispersant (OSD) for mitigation of the spilled oil. Representatives from various stakeholders also participated in the exercise as observers.

The preparedness of all agencies during the exercise was conducted under observation of Coast Guard Regional Commander A&N region and was overseen by the Chief Secretary (Andaman & Nicobar) embarked onboard Coast Guard Ship Vishwast. All out efforts are being made with the synergy of stakeholders through such exercises to extend GoI policy of "Swachh Bharat Abhiyan" to Maritime Zones of India through "Swachh Sagar Abhiyan" also, as 64% of world oil trade pass through the Andaman Sea.

IMPORTANCE OF OIL SPILL CONTINGENCY PLAN

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An oil spill is the release of a liquid petroleum hydrocarbon into the environment, especially the marine ecosystem, due to human activity, and is a form of pollution. The term is usually given to marine oil spills, where oil is released into the ocean or coastal waters, but spills may also occur on land. Oil spills may be due to release of crude oil from tankers, offshore platforms, drilling rigs and wells, as well as spills of refined petroleum products (such as gasoline, diesel) and their by-products, heavier fuels used by large ships such as bunker fuel, or the spill of any oily refuse or waste oil.

Community or Population type	Expected degree of initial impact	Expected recovery rate
Plankton	Light to moderate	Fast to moderate
Benthic communities		
Rocky intertidal	Light	Fast
Sandy or muddy intertidal	Moderate	Moderate
Subtidal, offshore	Heavy	Slow
Fish	Light to moderate	Fast to moderate
Birds	Heavy	Slow
Marine mammals	Light	Slow, if population seriously affected

Fig 8. Impact of oil and recovery rate

Effects of Marine Oil Spills

The extent of damage caused by an oil spill depends upon the quantity of oil spilled, type of oil involved in the spillage and the oceanographic and meteorological conditions prevailing in the location where the spill has occurred. When the oil spills in large quantity, it temporarily affects the air sea interaction, thus preventing the entry of oxygen from

the atmosphere. The first sets of organisms affected are the primary producers like phytoplankton which is the basis of the marine food chain. The other free swimming organisms such as fish larvae and fish eggs also get affected. Further, when the oil sinks during the course of time, it affects the benthic organisms such as clams and mussels. The other amenities that are affected include mangrove forests, coral reefs and several marine resources.

The last major oil spill occurred near Chennai, Tamil Nadu, India. The major drawback observed during this marine oil spill was crisis communication and contingency response. The initial response during an oil spill offshore is of much importance as a lot of environment damage can be reduced and spilled oil recovery can be easily done before it spreads. In offshore oil and gas installation where huge amount of oil is produced, treated and transported, the scale of oil spillage can be very high.

Oil will move at 100% of the current speed and approximately 3% of the wind speed.

Typical fractionation of crude oil

	boiling range(°C)	molecular size	volume (%)
Refinery gases	< 25	C ₁ - C ₄	2
Gasoline	40 - 150	C ₄ - C ₁₀	25
Naphtha	150 - 200	C ₁₀ - C ₁₂	6
Kerosene	200 - 250	C ₁₂ - C ₁₆	10
Gas oils	250 - 300	C ₁₆ - C ₂₀	15
Lubricant	300 - 400	C ₂₀ - C ₂₆	17
Residual oil	> 400	>C ₂₆	25

Fig 9. Data on crude oil

Birds and other wildlife: Mammals having direct physical contact with oil destroy the insulation value of fur and feathers, causing birds and fur bearing mammals to die of hypothermia. The oil penetrates into the structure of the plumage of birds, reducing its insulating ability, thus making the birds more vulnerable to temperature fluctuations. It also impairs or disables birds' flight abilities to forage and escape from predators.

'SWACHH SAGAR ABHIYAN' ICG INITIATIVE

Introduction

The oceans have been contributing towards the growth of mankind since existence of life on the Earth. Its contribution covers, the entire spectrum of human livelihood and development. However, the Marine Environment has been neglected over the years. The myth that oceans can engulf everything



Fig 10. Marine Pollution

has made them the dumping ground. Today, awareness is spreading in the world community for developing ways and means to improve the marine environment.

Marine Environment - ICG Charter

Indian Coast Guard is responsible to preserve and protect the marine environment and prevent and control marine pollution. Therefore, the responsibility to control marine pollution in Maritime Zones of India was transferred to Indian Coast Guard from DG Shipping on 07 Mar 86 and Indian Coast Guard was nominated as the Central Coordinating Authority for marine pollution control. Further in 2002, with amendment to Allocation of Business Rules, 1961



Fig 11. Deployment of boom

Indian Coast Guard was entrusted with the responsibility to combat oil spills in maritime zones of India and was nominated as Central Coordinating Agency for combating of oil pollution in the coastal and marine environment of various maritime zones.

Evolving Concept

Government of India had launched 'Swachh Bharat Abhiyan' on 02 Oct 14. The drive propounded, a number of measures to make India clean, objective was to ensure common areas are clean. 'Swachh Bharat Abhiyan' is mainly focused on land and internal waters. The message of Hon'ble Prime Minister Shri Narander Modi while addressing the Nation on 15 Aug 14 from Red Fort, was loud and



Fig 12. 'Swachh Bharat Abhiyan'

clear that the objective of 'Swachh Bharat Abhiyan' cannot be achieved by government alone and it needs contribution from citizens of India.



Fig 13. Addressing Nation on Independence Day

Taking this as a prelude, Indian Coast Guard established a goal based objective in Apr 2016 and formulated an action plan for improvement of the marine environment in maritime zones of India especially in coastal waters. The initial goal established was 'Cleaner Seas' – A Way towards 'Swachh Bharat Abhiyan'.

Director General Indian Coast Guard, Chairman NOS-DCP during his inaugural address on 21st NOS-DCP meeting held at New Delhi on 05 Aug 16 emphasized on the need to continue the

efforts of Coastal cleanup and spread awareness on the necessity to keep our pristine coasts and environment clean and thereby also contribute towards the 'Swachh Bharat Abhiyan'. The objective was to gradually extend the Government of India policy on 'Swachh Bharat Abhiyan' to the maritime zones of India.



Fig 14. DGICG addressing 21st NOS-DCP

Major boost to the vision was given when Hon'ble Home Minister Shri Rajnath Singh during commissioning ceremony of ICGS Sarathi on 09 Sep 16 emphasized that the Indian Coast Guard should undertake 'Swachh Sagar Abhiyan' in line with Govt policy of 'Swachh Bharat Abhiyan'. Since, then 'Swachh Sagar Abhiyan' term coined by



Fig 15. Hon'ble Home Minister stressing 'Swachh Sagar Abhiyan'

Hon'ble Home Minister Shri Rajnath Singh was used as a catalyst for the noble drive initiated by Indian Coast Guard for ensuring cleaner seas.

ICG conceptualised and evolved framework for undertaking future course of action through collective responsibility and synergy efforts towards the goal.

Way Forward

Indian Coast Guard charter facilitates interaction with various users of seas and therefore makes it the natural heir for shouldering responsibility to lead the drive. ICG is of the view that the drive can reach its logical conclusion with the support of all marine users. ICG envisages following to achieve the goal, they are:-

- Zero tolerance towards further pollution of water bodies, therefore strict enforcement of laws through regular monitoring by statutory authorities.
- Developing data base for present levels of marine pollution in Maritime Zones of India.
- Inform the respective Coastal State Pollution Control Boards keeping local Coast Guard authorities in loop, of sighting any form of pollution.
- Ensuring clean marine environment by marine users in their area of operation.
- Develop mechanism for ensuring no pollution by fishers while operating at sea.
- No raw sewage is discharge in ports, rivers and other water bodies. Coastal State Municipal Corporation to ensure city sewage is properly treated. Mandatory provisioning of sewage

treatment plants in all societies, Community living places and office premises.

- Mechanism for online monitoring discharges from factories. Factory owners are to ensure their contribution to this effect through self discipline and commitment towards the society.
- Placing of pictorial boards at water front's to educate masses.
- Generate awareness through FM radios, other local media, lectures, workshops or any other means considered best suitable for a place.
- Undertake regular cleanup in area of responsibility by all.
- Placing of bins at common places for disposing of waste and ensuring regular collection for final disposal as per environmental norms to prevent one form of pollution and doing other form of pollution.

Synergy towards Goal

Goal of 'Swachh Sagar Abhiyan' can only be achieved through collective responsibility of all users of Maritime domain. First, we need to work for achieving the goal of present Gol drive of 'Swachh Bharat Abhiyan' by Oct 2019 and then focus on 'Swachh Sagar Abhiyan' so as to achieve the same by 15 Aug 22, when we celebrate 75th anniversary of our freedom.

EVENT

INTERNATIONAL COASTAL CLEANUP DAY 2017

Towards ongoing efforts of the Government for the ‘Swachh Bharat Abhiyan’ and Hon’ble Prime Minister’s appeal for mass cleanliness and sanitation campaign through “Swachhta Hi Seva”; the Indian Coast Guard conducted International Coastal Cleanup day-2017 (ICC-2017) in all Coastal States/ Union Territories on 16 Sep 17. Coast Guard Headquarters, New Delhi along with volunteers undertook Yamuna Cleanup drive at Geeta Ghat, Delhi to commemorate “Swachhta Hi Seva” on 16 Sep 17.



Fig 16. Coastal Cleanup Programme across India

The International Coastal Cleanup day is conducted in various parts of the world in third week of September every year under the aegis of United Nations Environment Programme (UNEP) and South Asia Co-operative Environment Programme

(SACEP) in the South Asian Region. The Indian Coast Guard has been coordinating this activity in India since 2006.



Fig 17. Coastal Cleanup Programme in Coastal states and U/T

Maharashtra has witnessed the highest participation of 6,320 volunteers, followed by Karnataka which had 5000 volunteers. Nationwide, a total of 25,602 volunteers participated in the ICC-2017 campaign. Various Govt. and civil agencies including NCC cadets, NSS, school and college students formed the largest proportion of volunteers alongwith ICG personnel.

The nationwide campaign resulted in the collection of approx 81,335 Kgs of marine litter. Debris collection was highest at Tamil Nadu with

approx 15,400 kgs and at Maharashtra was approx 13,300 kgs.

Apart from participation of Indian Coast Guard, ICC-2017 received good support from various civil authorities, Central and State government organisations, Municipal Corporations, NGOs, fisheries associations, ports, oil agencies, Colleges/ School children, NCC cadets and other private enterprises. Chief Guests for ICC-2017 included Hon'ble Lieutenant Governor, Member of Parliament, Chairman Port Trust and Collector/ Dy Collector in smaller locations.

PROTECTION OF ENVIRONMENT

Protection of Environment

As part of 40th raising day Indian Coast Guard personnel planted 41,667 trees in 13 Coastal States and 03 Union Territories.



Fig 18. Tree Plantation at various CG units

IMO NEWS

FLAME-DEFYING MARITIME PILOTS WIN IMO BRAVERY AWARD

Two maritime pilots who defied fire to bring a burning ship to safety, averting a major maritime catastrophe, received the 2017 IMO Award for Exceptional Bravery at Sea during the 2017 IMO awards ceremony, held on 27 Nov 17.

Pilots Captain Michael G. McGee and Captain Michael C. Phillips, from Houston, United States, were recognized for their role in averting a major tragedy in Sep 2016. The ship they were piloting, the 247 meters-long tanker Aframax River, broke down in the Houston Ship Channel in the middle of the night and burst into flames after colliding with mooring dolphins.



Source: www.imo.org

Fig 19. Captain McGee and Captain Phillips

Captain McGee and Captain Phillips were surrounded by a towering wall of burning fuel as the raging fire quickly spread across the channel, threatening other tank ships and nearby waterfront facilities. Both pilots remained at their stations on the bridge of the ship during the fire. Captain McGee

managed to manoeuvre the stricken and blazing vessel away from surrounding ships and facilities. Captain Phillips coordinated communications and firefighting efforts with the United States Coast Guard and numerous local fireboats. Captain Phillips rushed to grab a fire extinguisher and put out a fire raging on the port bridge wing, IMO said in a release.



Source: www.imo.org

Fig 20. Fire onboard Oil Tanker Aframax River

As informed, the inferno was finally extinguished after 90 minutes, leaving both pilots exhausted and suffering minor burns. Captain McGee, using tugs, was then able to bring the damaged tanker safely to a mooring facility.

BALLAST WATER MANAGEMENT CONVENTION ENTERS INTO FORCE

The International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention) entered into force on 08 Sep 17.

Adopted by the International Maritime Organization (IMO) in 2004, the measure for environmental protection that aims to stop the spread of potentially invasive aquatic species in ships' ballast water requires vessels to manage their ballast water



Source: www.imo.org

Fig 21. MV discharging Ballast water in harbour

to remove, render harmless, or avoid the uptake or discharge of aquatic organisms and pathogens within ballast water and sediments.

Kitack Lim, IMO Secretary-General said *"This is a landmark step towards halting the spread of invasive aquatic species, which can cause havoc for local ecosystems, affect biodiversity and lead to substantial economic loss"*.

The requirements which enter into force on 08 Sep 17 mean that we are now addressing what has been recognized as one of the greatest threats to the ecological and the economic well-being of the planet. Invasive species are causing enormous damage to biodiversity and the valuable natural riches of the earth upon which we depend. Invasive species also cause direct and indirect health effects and the damage to the environment is often irreversible.

The entry into force of the Ballast Water Management Convention will not only minimize the risk of invasions by alien species via ballast water, it will also provide a global level playing field for international shipping, providing clear and robust standards for the management of ballast water on ships.

Under the rules of the convention, all ships engaged in international trade are required to manage their ballast water so as to avoid the introduction of alien species into coastal areas, including exchanging their ballast water or treating it using an approved ballast water management system. Initially, there will be two different standards, corresponding to these two options.

The D-1 standard requires ships to exchange their ballast water in open seas, away from coastal waters. Ideally, this means at least 200 nautical miles from land and in water at least 200 meters deep. By doing this, fewer organisms will survive and so ships will be less likely to introduce potentially harmful species when they release the ballast water.

D-2 is a performance standard which specifies the maximum amount of viable organisms allowed to be discharged, including specified indicator microbes harmful to human health.

New ships must meet the D-2 standard from September 8 while existing ships must initially meet the D-1 standard. An implementation timetable for the D-2 standard has been agreed, based on the date of the ship's International Oil Pollution Prevention Certificate (IOPPC) renewal survey, which must be undertaken at least every five years.

Eventually, all ships will have to conform to the D-2 standard. For most ships, this involves installing special equipment.

Shipboard ballast water management systems must be approved by national authorities, according to a process developed by IMO. Systems have to be tested in a land-based facility and on board ships to prove that they meet the performance standard set out in the treaty. These could, for example, include

systems which make use of filters and ultraviolet light or electrochlorination.

INTERNATIONAL MARITIME ORGANIZATION FORTHCOMING MEETINGS

Date	Meeting Title
22 - 26 Jan	Sub-Committee on Ship Design and Construction (SDC)
5 - 9 Feb	Sub-Committee on Pollution Prevention and Response (PPR)
19 - 23 Feb	Sub-Committee on Navigation, Communications and Search and Rescue (NCSR)
12 - 16 Mar	Sub-Committee on Ship Systems and Equipment (SSE)
9 - 13 Apr	Marine Environment Protection Committee (MEPC)
23 - 27 Apr	Legal Committee (LEG)
16 - 25 May	Maritime Safety Committee (MSC)
4 - 8 Jun	Facilitation Committee (FAL)
18 - 22 Jun	Technical Cooperation Committee (TC)

REPORTS

INDIA WATCH

**PRODUCT TANKER GENESSA
CAUGHT FIRE AT AN ANCHORAGE
OFF KANDLA PORT, GUJARAT**

On 18 Jan 18, the product tanker Genessa, Indian Flag, caught fire at anchorage off Kandla Port, Gujarat. All crew members were evacuated, but two were seriously injured in the fire.

Three Coast Guard vessels and nine tugs from operators KPT, Reliance, Essar, Adani and ICG



Fig 22. Fire Fighting operation by ICG PCV and stakeholders



Fig 23. Fire Fighting operation by ICG and stakeholders

Dornier responded to the incident.

MT Genessa was carrying approx 30,000 tonnes of diesel fuel. The India Coast Guard collected samples and monitored the area, no pollution was observed.

A casualty investigation has been undertaken by Directorate General of Shipping, being the Maritime Administrator.

WORLD WATCH

**TANKER WITH 2500 TONS OF FUEL
SANK OFF PIRAEUS, GREECE**

Product tanker AGIA ZONI II, flag Greece, reported water ingress, sinking, early on 10 Sep 17 at anchorage west of Piraeus, with some 2500 tons of fuel on board, and two crew. Tanker reportedly sank, and the two crew were rescued.



Source:<http://maritimebulletin.net/2017/09/10/tanker-with-2500-tons-of-fuel-sank-off-piraeus-under-unclear-circumstances/>

Fig 24. MT AGIA ZONI II

Greek officials have reported that the ship's cargo holds have been sealed but a large amount of oil was leaked, some of which has washed ashore along Salamina.



Source: <http://maritimebulletin.net/2017/09/10/tanker-with-2500-tons-of-fuel-sank-off-piraeus-under-unclear-circumstances/>

Fig 25. Contaminated coastline of Salamis island, Greek

By the third day, the oil spill had spread several miles to the Athens Riviera, home to some of Greece's most popular beaches. The Piraeus Port Authority had launched a preliminary investigation into the incident.



Source: <https://www.rt.com/news/403487-greek-coast-oil-spill/>

Fig 26. Beach cleanup operation

On 25 Nov17, a floating crane was installed at the location of the sunken oil tanker "Agia Zoni II", for removing the ship from the bottom of the sea. The vessel was successfully salvaged on 29 Nov 17.



Source: <https://maritime-executive.com/corporate/successful-completion-of-lifting-of-the-agia-zoni-ii#gs.9Pnzm8>

Fig 27. Salvage operation of sunken oil tanker Agia Zoni II

KEA TRADER BREAKS IN TWO OFF NEW CALEDONIA

The Maltese-flagged MV Kea Trader ran aground on Durand Reef in New Caledonia on 12 Jul 17. Several attempts to refloat the vessel have been unsuccessful. Finally, the vessel broke into two due to severe weather condition in the South Pacific. According to officials all salvage personnel had been evacuated from the ship in anticipation of the severe weather. The cause of grounding is still under investigation.



Source: http://gcaptain.com/photos-stricken-kea-trader-breaks-in-two-off-new-caledonia/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+Gcaptain+%28Gcaptain.com%29&goal=0_f50174ef03-33bd62134a-139903897&mc_cid=33bd62134a&mc_eid=432e1339aa

Fig 28. MV Kea Trader breaks into two near Durand Reef in New Caledonia

**'ZERO TOLERANCE' FOR
PLASTIC POLLUTION**

A plan for zero tolerance of plastic pollution of the oceans was agreed by nations at a UN environment summit held at Nairobi on 4-6 Dec17. A Ministerial declaration was also adopted 'Towards a pollution free planet'.



<http://web.unep.org/environmentassembly/documents/political-declaration-pollution/>

Fig 29. Ocean Plastic Pollution

**COUNTRIES AGREE AT UN TO
RECOMMEND ELEMENTS FOR
NEW TREATY ON MARINE
BIO-DIVERSITY OF AREAS BEYOND
NATIONAL JURISDICTION**

Countries agreed to recommend to the United Nations General Assembly elements to be considered in the development of a new treaty on marine biodiversity of areas beyond national jurisdiction. The Preparatory Committee, which was chaired by H.E. Mr. Carlos Sobral Duarte (Brazil), was tasked with advising the General Assembly on the elements of a draft text of an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of

marine biodiversity of areas beyond national jurisdiction.

There is growing pressure for a comprehensive global regime to better address the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction as the world has recognized the opportunities that sustainable ocean-based economies provide while also expressing



Source:<http://www.un.org/sustainabledevelopment/blog/2017/07/countries-agree-to-recommend-elements-for-new-treaty-on-marine-biodiversity-of-areas-beyond-national-jurisdiction/>

Fig 30. Environment in the Ocean

concern about the increasing deterioration of the ocean, and the resulting negative impacts on sustainable development. Pollution, the destruction of marine habitats, overfishing, and the impacts of climate change are among the major drivers of the ocean's decline.

The new legal instrument would fall under the 1982 United Nations Convention on the Law of the Sea, which has, since its entry into force in 1994, governed all matters related to the use of ocean space and resources, including limits of and jurisdiction over maritime spaces, navigational rights, exploration and exploitation of resources on the seabed beyond the limits of national jurisdiction, conservation and management of marine living

resources, protection and preservation of the marine environment, marine scientific research, development and transfer of marine technology and settlement of disputes between States.

TANKER SANCHI BURNS AFTER COLLISION WITH BULK CARRIER OFF CHINA

The Panama-registered Sanchi tanker caught fire after colliding with a Chinese bulk carrier MV CF Crystal, carrying 64,000 tonnes of grain, on 07 Jan 18. 32 crew of MT Sanchi were reported missing after the incident. Poor weather and thick clouds of dark smoke blowing out of MT Sanchi hampered the rescue efforts. MV CF Crystal's 21 crew members, all Chinese nationals, were rescued and the ship suffered "non-critical" damage.



Source: <https://www.businessinsider.in/photos-iranian-tanker-on-fire-after-crashing-into-chinese-ship-and-spilling-tonnes-of-oil-into-the-ocean/articleshw/62513023.cms>

Fig 31. Fire Onboard

The collision took place about 160 nautical miles off the coast near Shanghai and the mouth of the Yangtze River Delta on 07 Jan 18. MT Sanchi was carrying 1,36,000 tonnes of condensate, an ultra light crude.

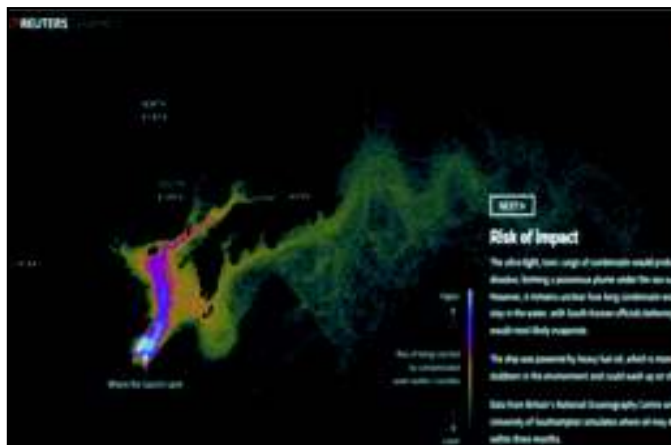
MT Sanchi had been adrift and ablaze after the incident, strong winds pushed it away from the



Source: <http://gcaptain.com/china-agrees-to-joint-tanker-collision-probe-with-panama-iran-hong-kong/>

Fig 32. Fire Fighting Operation

Chinese coast, into Japan's exclusive economic zone (EEZ) and the tanker sank on 14 Jan 18. Oil slick of 13 km long and 11 km wide was reported in Japan's EEZ. Salvage team recovered the Sanchi's voyage data recorder, which will be helpful in causality investigation for determining the reasons for the accident. There have been multiple appearances of oil slicks of different sizes and types at the sinking spot and nearby, the slicks exceeded 200 sq kms (77sq miles).



Source: <http://gcaptain.com/china-agrees-to-joint-tanker-collision-probe-with-panama-iran-hong-kong/>

Fig 33. Oil Spill Trajectory

China Agreed for Joint Tanker Collision Probe with Panama, Iran, Hong Kong as reported by the Reuters.

Indian Coast Guard

Annual Calendar of Pollution Response Training and Exercise: 2018

Date	Venue	Event	Coordinator
10 Jan	VOC Port, Tuticorin	Mock Drill	ICGS Tuticorin
05-09 Feb	PRT(West)	IMO Level-I Course	Pollution Response Team(West), Mumbai
06 Feb	Paradip	Mock Drill	Coast Guard Dist Headquarters-7
16 Feb	Vadinar	Communication Check Drill	ICGS Vadinar/PRT(NW)
19-23 Feb	Port Blair	IMO Level-I Course	Pollution Response Team(A&N), Port Blair
20-21 Feb	Chennai Port Trust	PR Seminar/Mock Drill	Coast Guard Dist Headquarters-5
22-23 Feb	Murud Janjira	Mock Drill	ICGS Murud Janjira/MMB/Dighi Port/JSW Salav
27 Feb	Kavaratti	Mock Drill	Coast Guard Dist Headquarters-12
05-06 Mar	Dahanu	Level-I Table Top Exercise	ICGS Dahanu
06-09 Mar	Vadinar	IMO Level-I Course	ICGS Vadinar
07-08 Mar	Vizag Port Trust	PR Seminar/Mock Drill	Coast Guard Dist Headquarters-6
08 Mar	Off Vadinar	Area Level PR Exercise	ICGS Vadinar/PRT(NW)
13-14 Mar	Off Kakinada	Regional Level PR Exercise	Headquarters CGC(ES)
14 Mar	Kavaratti	Level-I Work Shop followed by Exercise	Coast Guard Dist Headquarters-12
19-23 Mar	PRT(East)	IMO Level-I Course	Pollution Response Team(East), Chennai
21-22 Mar	Finolex Port	Marine Pollution Response Exercise	Tier-I Level ICGS Ratnagiri & Finolex Port
10 Apr	Karaikal Port	Mock Drill	ICGS Karaikal
17 Apr	Goa	Level-I Table Top Workshop followed by Exercise	Coast Guard Dist Headquarters-11
16-20 Apr	Port Blair	IMO Level-I Course	Pollution Response Team(A&N), Port Blair
03-04 May	Haldia/Kolkata	Area Level Exercise	Coast Guard Dist Headquarters-8
14 May	Vadinar	Communication Check Drill	ICGS Vadinar/PRT(NW)
16-20 Jul	PRT(East)	IMO Level-I Course	Pollution Response Team(East), Chennai
16-20 Jul	Port Blair	IMO Level-I Course	Pollution Response Team(A&N), Port Blair
25 Jul	Kakinada Port	PR Seminar/Mock Drill	ICGS Kakinada
06-10 Aug	PRT(West)	IMO Level-I Course	Pollution Response Team(West), Mumbai
20 Aug	Vadinar	Communication Check Drill	ICGS Vadinar/PRT(NW)
27-31 Aug	AMET University	IMO Level-II Course	Pollution Response Team(East), Chennai
05 Sep	Haldia	Mock Drill	Coast Guard Dist Headquarters-8
10-14 Sep	PRT(East)	IMO Level-I Course	Pollution Response Team(East), Chennai
17 Sep	Off Mumbai	Area Level Exercise	Coast Guard Dist Headquarters-2
20-21 Sep	Kochi	Level-II Workshop & Table Top Exercise	Coast Guard Dist Headquarters-4
24-28 Sep	Port Blair	IMO Level-I Course	Pollution Response Team(A&N), Port Blair
25 Sep	Krishnapatnam Port	PR Seminar/Mock Drill	ICGS Krishnapatnam
09-10 Oct	New Mangalore	Regional Level PR Exercise	Headquarters CGC(WS)
09-12 Oct	Vadinar	IMO Level-I Course	ICGS Vadinar
15 Nov	Off Vadinar	Area Level PR Exercise	ICGS Vadinar
15-16 Nov	JSW Port	Local Level Exercise	ICGS Ratnagiri & JSW Port
15 Nov	Kochi	Area Level Exercise	Coast Guard Dist Headquarters-4
28 Nov	Paradip	Mock Drill	Coast Guard Dist Headquarters-7
05-06 Dec	Port Blair	Regional Level PR Exercise	Coast Guard Regional Headquarters (A&N)

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