BLUE WATERS

Newsletter

On Marine Environment Protection

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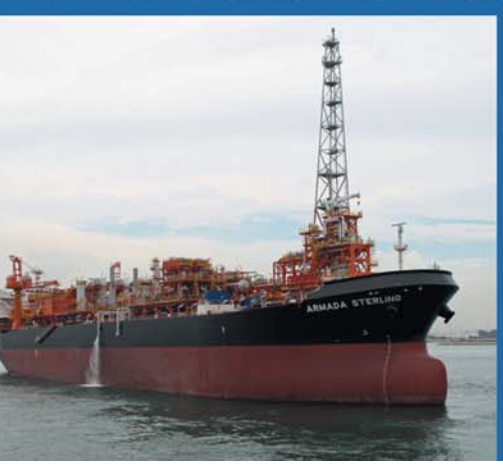
A Publication of the Indian Coast Guard



From the Director General's Desk

The recent oil spill in Bangladesh is a grim reminder of the fragility of the mangroves in the Sunderbans Delta. The innovative approach of M/s Padma Oil, owners of the spilled cargo of furnace oil, in offering monetary remuneration for every litre of oil or oily mixture turned in, is noteworthy. The enduring images of children scouring the swamps for the released oil, however, underscores the importance of planning for response to such contingencies.

The ICG's efforts to institutionalize contingency planning in India has yielded two significant milestones in as many months. In May 2012, it was brought to the notice of the Coast Guard, that harbour craft operating in Special Economic Zone (SEZ) ports are prohibited by SEZ Rules 2006 from leaving the SEZ. This inhibited their response to oil pollution contingencies in such ports. The Coast Guard vigorously pursued the case with the Ministry of Commerce and Industry. As a result, the harbour craft are now exempt from application of the SEZ Rules, whenever they are required to respond to oil spill emergencies or to such exercises under the directions of the Coast Guard, which are in accordance with the National Oil Spill Disaster Contingency Plan (NOS-DCP).

Yet another significant milestone was achieved, when the guidelines on standardization of Environmental Sensitivity Index (ESI) mapping, compiled by the Coast Guard, were incorporated in the NOS-DCP. Further, the National Centre for Sustainable Coastal Zone Management has agreed to include the ESI mapping data in the Geological survey maps of the entire coastal zone of India.

A circular from Chairman NOS-DCP, streamlining measures for oil spill preparedness from Floating Production Storage and Offloading units and providing detailed guidance for owners/ operators has additionally been issued in the recent past.

The Coast Guard has infused more vigour and thrust into its annual conservation efforts for the protection of the endangered Olive Ridley turtles nesting off the coast of Odisha. This has resulted in the apprehension of seven trawlers and sixty crew, in the last breeding season.

In consonance with the *Swachh Bharat Abhiyaan*, the ICG coordinated the annual International Coastal Cleanup day on 20 Sep 2014, under the aegis of the South Asia Cooperative Program of the United Nations Environment Program. The event was a huge success, as nearly 20,000 people from all walks of society participated across the country. Nearly 72,000 kgs of debris were collected during the programme, from our shores.

Finally, I would like to thank all readers for their continued patronage of the newsletter and once again remind all planners and executors, that it is incumbent upon them to stay alert and be prepared to respond to any incidents of oil spill swiftly and effectively.

I wish all the readers and stakeholders safe and clean seas in the year ahead.

(HCS Bisht)
Vice Admiral
Director General
Indian Coast Guard

04 Feb 15
New Delhi

Editorial

This issue of Blue Waters discusses the role of bioremediation as a response to oil spills and unravels the complexities of the maritime law of wrecks with particular reference to the *m.v. Maria* which lies off Kochi fairway.

The fisheries dimension of oil spills rightly deserves greater attention in the national oil spill contingency planning process, and this issue includes an article on the imperatives for sensory testing of seafood following an oil spill, in a scientific and legally defensible manner.

The pictorial essay on the Southern Star 7 oil spill in the Bangladeshi Sunderbans takes the reader through the entire sequence of images over 20 days beginning with the collision on 10 Dec 2014, salvage, oiled birds and vegetation, children collecting oily residues with bare hands, locals extracting oil by heating biomass, and the media briefing by the UN-Bangladesh Mission on 31 Dec 2014.

The quick recovery of fuel oil from the wrecked *m.v. Luno* in adverse weather covered in World Watch is worthy of being taken note of by all concerned.

The highlight of the IMO News is the Third IMO Greenhouse Gas Study 2014 which records a 0.6% decrease in carbon dioxide emissions from international shipping over six years preceding 2012.

Happy reading.

(AA Hebbar)
DIG
Director (FE)

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ARTICLES

BIO-REMEDIATION AS RESPONSE TO OIL SPILLS

Introduction

Bioremediation came to be known in the late 1980s as a technology for clean-up of shorelines contaminated with spilled oil. It is important to define bioremediation within the context of biodegradation, a naturally occurring process. Biodegradation is a large component of oil weathering and is a natural process whereby bacteria or other microorganisms alter and break down organic molecules into other substances, eventually producing fatty acids and carbon dioxide.

Bioremediation is the acceleration of this process through the addition of exogenous microbial populations, through the stimulation of indigenous populations or through manipulation of the contaminated media using techniques such as aeration or temperature control. Many microorganisms possess the enzymatic capability to degrade petroleum hydrocarbons. Some microorganisms degrade alkanes, others aromatics, and others both paraffinic and aromatic hydrocarbons. Often the normal alkanes in the range C_{10} to C_{26} are viewed as the most readily degraded, but low-molecular-weight aromatics, such as benzene, toluene and xylene, which are among the toxic compounds found in petroleum, are also very readily biodegraded by many marine microorganisms. More complex structures are more resistant to biodegradation, meaning that fewer microorganisms can degrade those structures and the rates of biodegradation are lower than biodegradation rates of the simpler hydrocarbon structures found in petroleum.

Fig 1. Application of Bio-Remediation in MSC Chitra oil spill off Mumbai in August 2010

Bioremediation techniques

One approach for the bioremediation of petroleum pollutants after an oil spill is the addition of microorganisms (seeding) that are able to degrade hydrocarbons. The seed are obtained by enrichment cultures from previously contaminated sites. However, because hydrocarbon-degrading bacteria and fungi are widely distributed in marine, habitats, adding seed cultures has proven less promising for treating oil spills than adding fertilizers and ensuring adequate aeration. Most tests have indicated that seed cultures are likely to be of little benefit over the naturally occurring microorganisms at a contaminated site for the biodegradation of the bulk of petroleum contaminants.

Hydrocarbon biodegradation in marine environments is often limited by biotic environmental factors such as molecular oxygen, phosphate and nitrogen concentrations. Rates of petroleum biodegradation are negligible in anaerobic sediments because molecular oxygen is required by most microorganisms for the initial step in hydrocarbon

metabolism. Oxygen, however, is not limiting in well aerated (high energy) marine environments. Usually, marine waters have very low concentrations of nitrogen, phosphorus and various mineral nutrients that are needed for the incorporation into cellular biomass, and the availability of these within the area of hydrocarbon degradation is critical.

Environmental influences

Environmental variables can greatly influence the rate and extent of biodegradation. While variables, such as salinity, are not usually controllable others such as oxygen and nutrient availability can often be manipulated at spill sites to enhance natural biodegradation (i.e., using bioremediation). The great extent to which a given environment can influence biodegradation accounts for some of the difficulty in accurately predicting the success of bioremediation efforts. Lack of sufficient knowledge about the effect of various environmental factors on the rate and extent of biodegradation is another source of uncertainty.

Micro organisms employ oxygen-incorporating enzymes to initiate attack on hydrocarbons. Oxygen is usually not a factor limiting the rate of biodegradation on or near the surface of the ocean where it is plentiful and where oil can spread out to provide a large, exposed surface area. Oxygen is also generally plentiful on and just below the surface of beaches where wave and tide action constantly assist aeration. However, the rates of biodegradation decrease when oxygen is less available. Thus, oil that has sunk to the sea floor and been covered by sediment takes much longer to degrade.

Fig 2. Application of Bio-Remediation in Deepwater Horizon oil spill

Nutrients such as nitrogen, phosphorus, and iron play a much more critical role than oxygen in limiting the rate of biodegradation in marine waters. An inadequate supply of nutrients may result in a slow rate of biodegradation.

The temperature of seawater in Indian EEZ is about 23^0C. The rate of biodegradation is much faster in temperature and tropical waters as compared to cold climates. In temperate regions, seasonal changes in water temperature affect the rate of biodegradation, but the process continues year-round.

Pressure, salinity and pH may also have important effects on biodegradation rates. Oil reaching great ocean depths degrades very slowly and is likely to persist for a long time. Micro organisms are typically well adapted to cope with the range of salinities common in the world's oceans. Estuaries may present a special case because salinity values, as well as oxygen and nutrient levels, are quite different from those in evidence to suggest that micro organisms are adversely affected by other than hyper saline environments. Extremes in pH affect a microbe's ability to degrade hydrocarbons. However, like salinity, pH does not fluctuate much in the oceans and does not appear to have an important effect on bio degradation rates in most marine environments. In salt marshes, however, the pH may be as low as 5.0, and thus may slow the rate of biodegradation in these habitats.

General advantages

Bioremediation usually involves minimal physical disruption of a site. This attribute is 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.

Bioremediation technologies appear to have no or only minor and short-lived adverse effects when used correctly. So far, there is, little evidence to suggest that potential problems would be significant.

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.

Bioremediation of oil spills is accomplished on-site, and offers a simpler and more 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. Because bioremediation equipment and logistics are usually simpler and less labour intensive, costs may be lower than for other techniques. At the same time, the total cost of cleanup is of more important concern, and where bioremediation is used as an adjunct or secondary technology, total costs-as well as total benefits-could be greater. The costs of monitoring bioremediation must also be considered.

General disadvantages

Although bioremediation may work potentially much faster than natural bio-degradation, it cannot produce significant short term results. For instance, bio remediation is probably not appropriate as an initial defensive measure, if beaches are threatened by a large offshore spill. In this circumstance, it would usually be more appropriate to get the oil out of the water as quickly as possible or, failing this, to disperse or burn it before it drifts onto beaches. Bioremediation takes too much time to work as a primary response measure for such a threat.

The bioremediation approach must be specifically tailored to each polluted site. Bioremediation technologies are not, and are unlikely soon to become, off-the-shelf technologies that can be used with equal effectiveness in every locale. Although other oil spill response technologies are subject to this same constraint, the advance knowledge needed for bioremediation technologies is greater. Advance knowledge of, for example, the efficiency of the bacteria indigenous to an area in degrading oil, the availability of rate-limiting nutrients, and the susceptibility of the particular spilled crude oil or refined product to microbial attack is required, so pre spill planning will be important.

The public is still unfamiliar with bioremediation technologies. Although public attitudes toward “natural” solutions to environmental problems are generally favourable, the lack of knowledge about micro organisms and their natural role in the environment could affect the acceptability of their use. Before bioremediation technologies are likely to be widely used, their efficacy and safety will have to be convincingly demonstrated and communicated to the public.

Asst Comdt P Vijayakumar

MARITIME LAW OF WRECKS

Wreck may be termed as what remains of a ship that has wrecked. The causes of shipwreck typically include poor design of ships, construction material, improperly stowed cargo, fire, bad weather, error in navigation, and other human errors leading to collisions and groundings. Over a period of time this definition has been improved but remains complex yet. In legal terms the wrecks may be of two types- *wreccum maris* (material washed ashore after a shipwreck) and *adventurae maris* (material still at sea)[1]. A reading of the Indian Merchant Shipping Act, 1958 reveals that the term 'vessel', under the Act includes any ship, boat, sailing vessel or other description of vessel used in navigation [Part I, Sec.3 (55)] and the definition of wreck under the Act [Part I, Sec.3 (58)] includes a vessel abandoned without hope or intention of recovery. Thus, the two definitions put together makes abandonment as a prerequisite for a vessel to be treated as a wreck. There seems to be a situation here, of interpretation; as to whether a vessel that is measures to assist the vessel in danger are not yet started or have already being taken can be termed as a wreck under the Indian law. Similarly use of terms such as 'sea', 'tidal waters', 'coast', shores' to denote the territorial limits wherein a wreck can be situated seems to add an altogether different dimension. Usage of different terminologies may create confusion while adjudicating cases and may afford enough latitude to the parties involved for maneuvering the case in their witnessed in the incident leading to the capsizing of the vessel m.v. Maria along the southern coast of India near port of Cochin close to the international shipping channel.

[1] *For example, under English law wreccum maris were dealt with under rules relating to things found on land and adventurae maris were dealt with under Admiralty jurisdiction.*

The law of wrecks is inherently intertwined with the law of salvage. The origin of salvage and its fundamental principles dates back to the beginning of the 19th century. Brussels Convention for the unification of Certain Rules of Law Relating to Assistance and Salvage at Sea 1910, under the aegis of the IMO, tried to unify the principles on the law of salvage and was later amended by the Brussels Convention on Salvage of Aircraft 1938. By 28 April 1989, the new Salvage Convention 1989 was conducted due to the initiatives of the Committee Maritime International and came into force internationally on 14 July 1996. The three main elements enshrined in the salvage regime are 'danger', 'voluntary act', and 'success for there to be a salvage award.

The international maritime law of salvage appears to be fragmented. In some legal systems wrecks are often considered separate from their cargo. The Convention on the Removal of Wrecks, 2007 provides a detailed framework both in terms of necessary statutes and administrative requirements in order to deal with the problems posed by wrecks. The Convention defines various terms in a very emphatic and unambiguous manner leaving almost negligible scope for confusion. The Articles in the Convention cover,

Fig 3. Wreck of m.v. Maria off Kochi fairway

among other things, administrative functions such as reporting casualties to the nearest coastal State, action by the coastal State to locate the ship or wreck, warnings to mariners, criteria for determining the hazard posed by wrecks, environmental issues including likely damage from the release into the marine environment of cargo or oil, measures to facilitate the removal of wrecks, including rights and obligations to remove hazardous ships and wrecks, ship owner's responsibilities for removing the wreck, parameters regarding State intervention, requirement to maintain compulsory insurance or other financial security to cover liability under the convention, and settlement of disputes. More so, it provides States with a right of direct action against insures. It is, therefore, opined that the Convention operates as a cohesive instrument. The Convention is expected to fill the legal vaccum in international maritime law with respect to wrecks and their removal. As shipping is international, the solutions we seek today inherently need to be international in scope. It is, therefore, pertinent that uniformity, unification, and harmonization of international legal systems be achieved. The Convention provides one such opportunity in the cases of wreck removal and even more importantly the protection of fragile natural environment.

India is a party to the Wreck Removal Convention 2007and which required rules have been framed under the Indian Merchant Shipping Act, 1958 to give effect to the convention.

Comdt Rajesh Mittal

This article was earlier published in Ship and Ocean Foundation, Japan website available at : www.wmu.sof.or.jp/PDF/fw_Mittal_01.pdf

SENSORY TESTING OF SEAFOOD FOLLOWING AN OIL SPILL

When an oil spill occurs, local seafood resources may be exposed to petrochemicals that affect their sensory qualities of taste, smell, and appearance. Even when seafood samples from the spill area pass the standard chemical-analytical tests, flavor or odour still may be affected. Taint in seafood renders it adulterated and unfit for human consumption. An oil spill may, therefore, necessitate sensory testing of seafood that may have been exposed in a scientific and legally defensible manner.

The key considerations for sensory tests are sampling kit, sampling procedure, expert and trained assessors, evaluation facility, and evaluation protocol.

A suggested sampling kit for collection of sensory samples is appended at table 1. Samples can be presented either as 20-g blended, individual fish samples from multiple pooled organisms, or 20-g dorsal-muscle single-organism samples. The total weight of the final sample and the estimated number of samples needed will be determined by the expected recovery of fish or shellfish flesh.

Table 1. Suggested sampling kit

Quantity for sample size n=21 organisms	Items
1 roll	Heavy-duty aluminum foil
25	Vacuum-packaging bags
1	Vacuum sealer
50	Zip-lock bags with straws
6	Cutting boards
6	Knives*
4	Scissors*
4	Permanent marking pens
25	Adhesive labels
2	Coolers*
6 sheets	Styrofoam or packing material
1 roll	Newsprint (unprinted)
2	Shipping cartons*
weight of samples	Dry ice or ice packs
2 rolls	Packing tape and/or masking tape

*separate for control and exposed samples

Table 2. Expected recovery of fish

Type of seafood	Expected % recovery of edible flesh
Finfish	38–40
Flatfish	30–33
Lobsters	14-18
Shrimp	28–30
Clams	16–20
Oysters	25–30
Scallops	20–25
Mussels	15-20

Objective sensory measurements are obtained from assessors screened and selected for sensory tasks (usually 25), assessors selected and highly trained to participate on a panel for specific sensory tasks (usually 10 to 15), or expert assessors, e.g., product specialists, seafood inspectors (usually 1 to 5). Very large panels, of 100 or more assessors, are required for subjective (consumer) testing because their responses are personally biased and there is wide variability within and among the resulting data sets. Two types of assessor panels are required for seafood taint assessment. A panel of 3 to 5 expert assessors or fish inspectors, employed by a regulatory agency will have to be selected and trained to detect petroleum taint in seafood and tasked to assess fish for its suitability for sale for human consumption. A panel of 10 to 15 selected and trained assessors may be convened specifically for the task of assessing taint from a particular oil spill to ensure that conclusions can be drawn with confidence.

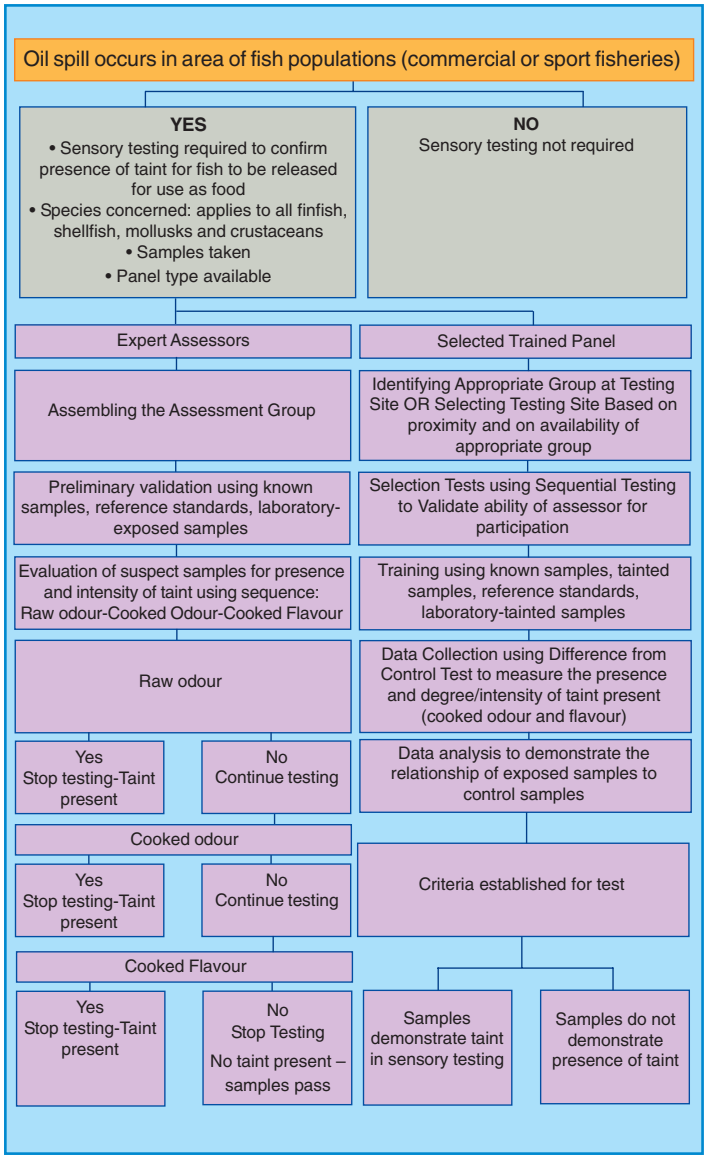
Sensory testing requires a controlled neutral environment in which samples can be evaluated for their intrinsic attributes, and the possible presence and intensity of taint from exposure to petrochemicals. The testing environment must not interfere with or influence the sensory test. Both American Society for Testing and Materials and International Organisation for Standardization provide excellent guidelines for facility design. Components of the neutral environment include lighting of appropriate quality and intensity for the assessments, ventilation that is appropriate and adequate to remove odours given off by the samples during testing, and freedom from distractions. It is also important to consider ease of sanitation and use of products that do not add odours of their own into the test area, such as odour-free soaps.

Fig 4. NOAA's Seafood Inspector conducts sensory analysis - a smell test - of a sample of fish following the Deepwater Horizon oil spill

Detailed sensory evaluation protocols are required to identify presence of petroleum taint in seafood. The protocol would comprise general sensory testing procedures, specific instructions covering before and during testing session, and evaluation criteria for expert and trained assessors. Procedures common to all of the sensory test methods include those to be followed before entering the evaluation room, during testing sessions, for rinsing between samples, overcoming susceptibility to fatigue, adaptation to petroleum odours and flavours, and avoiding carry-over of odour and flavours from the previous sample. A typical 3-tiered evaluation criterion for expert assessors involves test for raw odour, cooked odour, and cooked flavour. Trained assessors would not make decisions on samples but rather, evaluate samples for the degree of difference from the control sample. The data are then

statistically analyzed to determine whether there is a significant difference. Discrimination tests may be conducted with a panel of trained assessors. The "difference-from-control" test is effective in seafood tainting situations. Ballots used by expert assessor's record quantitative and qualitative information on a category scale together with descriptors. Ballots used by trained assessors are specific to the chosen discrimination test.

Table 3. Decision tree for sensory testing methodology



Anish Hebbar

Reference:

NOAA.(2001), Guidance on Sensory Testing and Monitoring of Seafood for Presence of Petroleum Taint Following an Oil Spill, NOAA Technical Memorandum NOS OR&R 9, Washington: NOAA

EVENTS

INTERNATIONAL COASTAL CLEANUP DAY - 2014

International Coastal Cleanup (ICC) day was organised across all coastal states by the Coast Guard on 20 Sep 2014. The International Coastal Cleanup day is conducted in various parts of the world in September every year under the aegis of United Nations Environment Programme (UNEP) and under the aegis of South Asia Co-operative Environment Programme (SACEP) in the South Asian Region. The Coast Guard has been involved in this activity since 2006.

Mumbai had the highest participation of 2500 volunteers. Karwar in Karnataka had the second highest participation of 2200 volunteers and Chennai, third at 1800 volunteers. Nationwide, a total of 19,600 volunteers participated in the ICC 2014 campaign conducted by the Coast Guard. Various Govt. and civil agencies including NCC cadets, NSS, school and college students formed the largest proportion of volunteers. Debris collection was highest at Mumbai approx 7,500 kg and Mandapam in Tamil Nadu at

Fig 5. ICC-2014: Visakhapatnam

approx 7,000 kgs. 6,000 kgs and 5,830 kgs each was collected at Kochi and New Mangalore.

Apart from other armed forces, ICC 2014 received good support from the civil authorities, central and state government organisations, municipal corporations, NGOs, ports, oil agencies and other private enterprises. Chief Guests for ICC 2014 included a Hon'ble Chief Minister, Ministers, District Collectors and Sub-Divisional Officer in smaller locations.

Table 4. State-wise participation and debris collection in ICC 2014

State/UT	No. of participants	Debris collected (kg)
Gujarat	2926	8560
Daman & Diu	700	5000
Maharashtra	3809	13700
Goa	543	1292
Karnataka	3411	8320
Kerala	600	11000
L & M Islands	602	1945
Puducherry	1500	4700
Tamil Nadu	3190	12030
Andhra Pradesh	625	2600
Odisha	250	104
A & N Islands	1444	2380
Total	**19600**	**71631**

Overall, the participation was in proportion to the local population, except Puducherry which saw overwhelming participation. The Coast Guard received adequate support from all quarters for conduct of the international coastal cleanup day. The event was well covered by the local print and electronic media.

IMO NEWS

PROCEEDINGS OF MEPC 67
13-17 OCTOBER 2014

Third IMO GHG Study 2014

MEPC 67 approved the *Third IMO GHG Study, 2014* providing updated estimates for greenhouse gas emissions from ships. The Study estimates that international shipping emitted 796 million tonnes of carbon dioxide in 2012, against 885 million tonnes in 2007 and represented 2.2 per cent of the global emissions of CO_2 in 2012, against 2.8 per cent in 2007. However, "business as usual" scenarios continue to indicate that those emissions are likely to grow by between 50 per cent and 250 per cent in the period to 2050, depending on future economic and energy developments.

Energy-efficiency measures for ships

In 2011, the IMO had adopted mandatory measures to address the energy efficiency of international shipping. These Regulations on energy efficiency for ships, which entered into force on 01 Jan 2013 under Chapter 4 of MARPOL Annex VI. make mandatory the

Energy Efficiency Design Index (EEDI), for new ships, and the Ship Energy Efficiency Management Plan (SEEMP) for all ships.

MEPC 67 adopted the *2014 Guidelines on survey and certification of the Energy Efficiency Design Index (EEDI)*, updating the previous version to include, for example, identification of the primary fuel for the calculation of the attained EEDI for ships fitted with dual-fuel engines using LNG and liquid fuel oil.

MEPC 67 also adopted amendments to the 2013 *Interim Guidelines for determining minimum propulsion power to maintain the maneuverability of ships in adverse conditions*, to make the guidelines applicable to phase 1 of the EEDI requirements starting 01 Jan 15.

MEPC 67 also established a correspondence group to review the status of technological developments relevant to implementing phase 2 of the EEDI regulatory framework as required by Regulation 21.6 of MARPOL Annex VI. The EEDI reference line parameters for relevant ship types and reduction rates set out in the regulation will be amended if proven necessary.

Data collection of ships' fuel consumption

MEPC 67 agreed, in principle, to develop a data collection system of ships and, having agreed on the general description of the system agreed to the re-establishment of an intersessional correspondence group to develop full language that can be readily used for voluntary or mandatory application of the system. The core elements of the data collection system include: data collection by ships, flag State functions in relation to data collection and establishment of a centralized database by the IMO.

Sulphur review methodology

MEPC 67 reviewed a progress report from the correspondence group which containing a preliminary draft methodology to examine whether sufficient fuel meeting the requirements set out in regulation 14 (Sulphur Oxides (SOx) and Particulate Matter) of MARPOL Annex VI is likely to be available by the effective date of those requirements, taking into account the global market supply and demand for fuel oil, trends in fuel oil markets, and any other relevant issues. The group will continue its work and submit a final report to MEPC 68.

Fuel oil quality

Following discussion on fuel oil quality, a correspondence group was established to develop draft guidance on quality-assurance for fuel oil delivered for use on board ships and to consider the adequacy of the current legal framework in MARPOL Annex VI in relation to fuel oil quality. The group will report to MEPC 68.

Amendments to MARPOL

MEPC 67 adopted amendments to :-

- MARPOL Annex I regulation 43 concerning special requirements for the use or carriage of oils in the Antarctic area, to prohibit ships from carrying heavy grade oil on board as ballast;
- MARPOL Annex III, concerning the appendix on criteria for the identification of harmful substances in packaged form; and
- MARPOL Annex VI, concerning regulation 2 (Definitions), regulation 13 (Nitrogen Oxides (NOx) and the Supplement to the International Air Pollution Prevention Certificate, in order to include reference to gas as fuel and to gas-fuelled engines.

REPORTS

INDIA WATCH

PLATINUM EXPLORER OIL SPILL

On 22 Aug 2014, at about 2000 hrs, drill ship Platinum Explorer of Vantage Drilling reported oil spillage in position 19 Deg 38.5N 088 Deg 10.5E (112° Paradip Lt 103 NM). It was ascertained from the General Manager (Drilling), ONGC, Mumbai that the spillage had occurred inadvertently during internal transfer of fluids. Approximately 3.88kl of synthetic oil based mud (SOBM) in a ratio of 73:27 oil and water was spilled.

ICGS Sarojini Naidu and one CG Dornier aircraft were deployed to assess the extent of spill and carried out search upto 50 NM around the datum. It was ascertained that the residual oil had disintegrated by natural weathering process and there was no trace of oil in the vicinity of the drill ship.

Fig 6. The m.v. Platinum Explorer

The incident, albeit minor, highlighted the importance of maintenance of contingency plans by drill ships as obliged by the Production Sharing Contract to mitigate the ever present threat of oil spills.

WORLD WATCH

LUNO OIL SPILL

Spanish flagged bulk carrier Luno when en route from Bilbao, Spain to Bayonne, France, in ballast, suffered a total power failure and hit the Cavaliers breakwater on am 05 Feb 2014 when 110 km/h winds from storm Petra and 6 to 7-metre waves caused the ship to break in two. A leak of marine diesel from the cracked bunker tanks was reported and the first level of the French Polmar Land Contingency Plan was activated. An expert from *Cedre*, conducted surveys on the nearby beaches of Cavaliers and La Barre, on 06 Feb 2014. The stern section of the *Luno* broke off in two parts due to adverse weather on am 06 Feb 2014, releasing the fuel contained in the rear bunkers.

Fig 7. m.v. Luno, grounded at the end of Cavaliers breakwater

On 07 Feb 2014, the Dutch firm, Smit Salvage, was unsuccessful in its initial attempt to pump the fuel out of the bow section. Thereafter, the tank was pierced and 60 tonnes of fuel was recovered on 08 Feb 2014. Meanwhile, around 20 tonnes, located in the stern section of the wreck, were released at sea but naturally dispersed without resulting in environmental impact or oiling of any shoreline.

SOUTHERN STAR 7 OIL SPILL, SELA RIVER, BANGLADESH, 10 DECEMBER 2014 : A PHOTO ESSAY

Anish Hebbar & Ramesh Kumar Sivan

Anchored oil tanker Southern Star 7 sinks due collision by an empty tanker Total in Sela River at 0500h on 10 Dec 2014

Initial reports indicated a spill of 350 tonnes of oil and spreading a rate of 10 nautical miles every day

By 12 Dec 2014 oil spilled from the tanker spread over 80 kilometers in the Bangladeshi Sunderbans

The damaged tanker was salvaged and towed ashore 55 hours after the incident

A dead Irrawaddy dolphin floats on the Harintana-Tembulbunia channel of the Sela River on 13 Dec 2014. Subsequent reports deny its attributability to the oil spill.

Two swans apparently soaked in oil at Joymunirgol on the bank of River Pasur on 16 Dec 2014

An oiled snake

A bird covered in oil lies on the banks of Sela River in Mongla on 14 Dec 2014

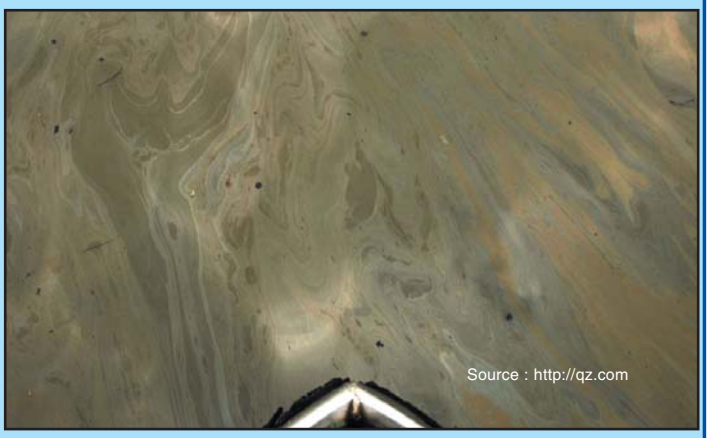
A Great Egret with stains of oil on its white feathers trying to fly on the bank of the Sela river

Oiled trees about 40km from the site of the spill

Locals were using their bare hands to collect the oil residue

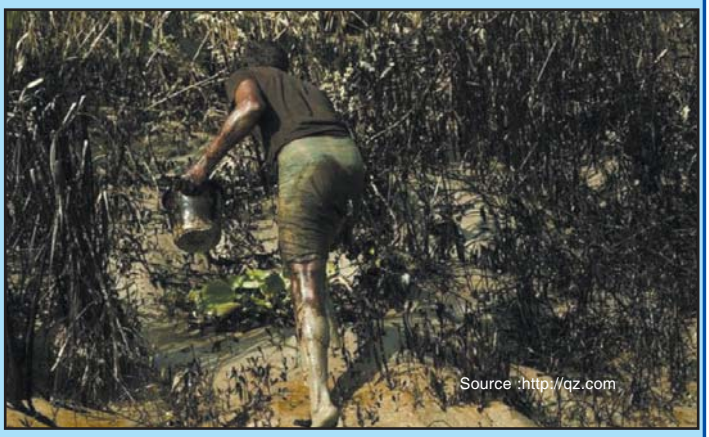
Locals tried to take off as much as they could, with mud. Then they would go home and clean themselves with kerosene.

Even children between 10 and 16 years were working to recover the oil. This is perhaps the most enduring image of the Sothern Star 7 oil spill



The heavy fuel oil washed up on the shore, while the extensive lighter slicks floated up and down the river with the tide

Oil stained Nypa Palm leaves



As mud flats turned black with oil, fishermen were urged to help clean up

Local fishermen and their families from the villages near the spill site worked in the muck without any protective gear

Landing collected oil. Padma Oil, the cargo owners offered 30Takka per litre of oily mixture

Oil-coated plants were heated to extract the oil, which was then sold back to locals

Villagers of all walks were asked to help the government clear the spill

Fish containers were widely used to collect floating oil from the water by the local people. The containers, afterward, were unusable for any good, therefore abandoned carelessly by the owners

Response team searching for the signs of spilled oil in the forest floor

Aquatic samples collected from the oil spill site were dissected to trace furnace oil in their internal organs and respiratory system

On its return to Dhaka after a six-day visit to the Sundabans, the UN-Bangladesh Mission shared its findings with the Ministry of Environment and Forests and the media, on 31 Dec 2014

Anish Hebbar & Ramesh Kumar Sivan

COAST GUARD POLLUTION RESPONSE TRAINING AND EXERCISES

ANNUAL CALENDAR 2015

WESTERN REGION

IMO LEVEL COURSE

DATE	VENUE	TYPE OF COURSE	COORDINATOR
06-10 Apr 15	Mumbai	IMO Level - I	PRT(West)
05-09 Oct 15	Mumbai	IMO Level - I	PRT(West)

EXERCISE & TRAINING

DATE	VENUE	TYPE OF TRAINING	COORDINATOR
19 Mar 15	Kochi	Level - I	CG DHQ-4
01 Oct 15	New Mangalore	Level - I	CG DHQ-3
15-16 Oct 15	Mumbai	Level - II	CG DHQ-2
04 Nov 15	Goa	Level - I	CG DHQ-11

EASTERN REGION

IMO LEVEL COURSE

DATE	VENUE	TYPE OF COURSE	COORDINATOR
16-20 Feb 15	Chennai	IMO Level - II	AMET University/ PRT(East)
23-27 Mar 15	Chennai	IMO Level - I	PRT(East)
06-10 Jul 15	Chennai	IMO Level - I	PRT(East)
24-28 Aug 15	Chennai	IMO Level - II	AMET University/ PRT(East)

EXERCISE & TRAINING

DATE	VENUE	TYPE OF TRAINING	COORDINATOR
21 Jan 15	Tuticorin	Seminar/Training	ICGS Tuticorin
22 Jan 15	Tuticorin	Mock Drill	ICGS Tuticorin
10 Feb 15	Chennai	Seminar/Training	CG DHQ-5
11 Feb 15	Chennai	Level - II Exercise	CG DHQ-5
22 Apr 15	Vizag	Seminar/Training	CG DHQ-6
23 Apr 15	Vizag	Level - I Exercise	CG DHQ-6

EXERCISE & TRAINING			
DATE	**VENUE**	**TYPE OF TRAINING**	**COORDINATOR**
20 May 15	Karaikal	Seminar/Training	ICGS Karaikal
21 May 15	Karaikal	Mock Drill	ICGS Karaikal
22 Jul 15	Kakinada	Seminar/Training	ICGS Kakinada
23 Jul 15	Kakinada	Mock Drill	ICGS Kakinada
09 Sep 15	Krishnapatnam	Seminar/Training	ICGS Krishnapatnam
10 Sep 15	Krishnapatnam	Level - I Exercise	ICGS Krishnapatnam

NORTH-EAST REGION

EXERCISE & TRAINING			
DATE	**VENUE**	**TYPE OF COURSE**	**COORDINATOR**
06-07 May 15	Haldia	Training /Mock Drill	CG DHQ-8
18-19 Nov 15	Paradip	Training/ Mock Drill	CG DHQ-7

ANDAMAN & NICOBAR REGION

IMO LEVEL COURSE			
DATE	**VENUE**	**TYPE OF COURSE**	**COORDINATOR**
23-27 Feb 15	Port Blair	IMO Level - I	PRT(A&N)
17-21 Aug 15	Port Blair	IMO Level - I	PRT(A&N)

EXERCISE & TRAINING			
DATE	**VENUE**	**EXERCISE/TRAINING**	**COORDINATOR**
Nov/Dec 15	Port Blair	PR Demonstration	PRT(A&N)

NORTH-WEST REGION

IMO LEVEL COURSE			
DATE	**VENUE**	**TYPE OF COURSE**	**COORDINATOR**
21-24 Apr 15	Vadinar	IMO Level - I	ICGS Vadinar
06-09 Oct 15	Vadinar	IMO Level - I	ICGS Vadinar

EXERCISE & TRAINING			
DATE	**VENUE**	**TYPE OF TRAINING**	**COORDINATOR**
23 Apr 15	Off Vadinar	District level PR Mock Drill Exercise	ICGS Vadinar
08 Oct 15	Off Vadinar	District level PR Mock Drill Exercise	ICGS Vadinar

Did you see an oil spill in Indian Waters ?

Please notify the Indian Coast Guard

OIL SPILL REPORTING FORM

i	Particulars of Person/ Organisation Reporting Incident :	
ii.	Title	:
iii.	Company	:
iv.	Telephone/Telex Number	:
v.	Date/Time	:
vi.	Spill Location	:
vii.	Type and Quantity of Oil Spilled	:
viii.	Cause of spill	:
ix.	Response to Spill, if any	:
x.	Any other information	:

If the format frightens you, just pick up the phone and call the Indian Coast Guard...

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