BLUE WATERS

Newsletter

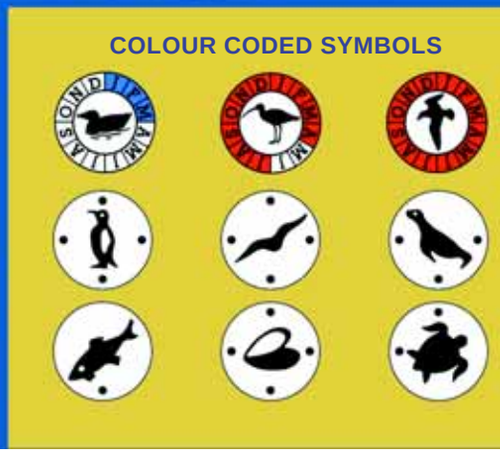
On Marine Environment Protection

Biannual | Jul 2013 | Vol XIV Issue 2

A Publication of the Indian Coast Guard

m.v. SHRIJOY-II

18th NOSDCP MEETING



COLOUR CODED SYMBOLS

From the Director General's Desk

Having assumed the reigns of the Indian Coast Guard on 28 Feb 13, it was a pleasure to chair the 18th National Oil Spill Disaster Contingency Plan (NOSDCP) and Preparedness meeting at Dehradun on 31 May 13. The active participation of various Government departments, ports and oil companies was illustrative of their continuing commitment to the success of the National Plan.

Shale gas is expected to change energy trade patterns and thereby the risk of oil spills in the coming future. Nevertheless, our annual consumption of 220 million metric tonnes of oil necessitates that we maintain the highest level of preparedness for responding to oil spills in our waters notwithstanding the fact that there have been no spills over the preceding six months. In this regard I would urge the ports and oil handling agencies to maintain the requisite inventory and trained manpower to respond to spills within jurisdiction with alacrity. It may be appreciated that apart from facility contingency plans, the Indian Coast Guard has remained focussed on local contingency plans for shoreline response through sustained liaison with all coastal State Governments. Meanwhile, stakeholders have also been working towards acquiring of technological capabilities for detection and nailing of polluters.

I assure that the Indian Coast Guard, being the Central Coordinating Agency for combating oil pollution at sea in Indian waters, will always strive to enhance the pollution response preparedness at all levels through info sharing, consolidation of assets, training and simulated drills. I am also confident that all the Government agencies and other stakeholders will continue to work together as a team to achieve the common goal of making our seas pollution free.

Jai Hind.

(Anurag G Thapliyal)
Vice Admiral
Director General
Indian Coast Guard

11 Jul 13
New Delhi

Editorial

Risk assessment forms the backbone of contingency planning for oil spills. While most operational facilities do hold a facility contingency plan, experience on vetting of these plans suggests that redressing the impact of oil spills on ecological resources merits greater consideration. As a guide to standardized development of risk assessment and contingency plans, the Coast Guard has published a Chairman NOSDCP Circular in Aug 2012. Taking the process further, this issue of Blue Waters chooses to focus on the subject of "sensitivity mapping" for facility oil spill contingency plans and includes guidelines and perspectives on sensitivity mapping along with rich examples of maps from developed countries such as the U.S., U.K., Norway, and France and even countries such as Ghana, Kenya, and Cape Verde from whom we could possibly take a cue.

As touched upon in the editorial of the previous issue, ships stranded on the coasts of India continued to engage the attention of the maritime administration. Proactive intervention of the Hon'ble Bombay High Court led to early resolution of the cases of m.v. Pratibha Tapi and m.v. Pratibha Indrayani off Mumbai. However, other ships continued to be stranded at Goa, Chennai and Visakhapatnam ports and pose a threat to the marine environment. These stranded ships have put the spotlight on the urgent need for designation of places of refuge in India.

The breaking-up of the Panamanian flagged m.v. MOL Comfort into two, roughly 450 nautical miles off Goa, with about 2200 tons of heavy fuel oil, 230 tons of lubricants onboard and 3,355 tons of hazardous cargo followed by eventual sinking of the aft section and fire in containers in the forward section while under tow to Oman reminded us of the imperative to maintain up to date contingency plans to respond to incidents at the limits of our jurisdiction, and even beyond.

(AA Hebbar)
DIG
Director (FE)

CONTENTS

Website : www.indiancoastguard.nic.in

ARTICLES

SENSITIVITY MAPPING FOR OIL SPILL RESPONSE[1]

Introduction

The mapping of the sensitivity of the environment to accidental oil pollution is an essential step in oil pollution preparedness, response and cooperation efforts. 'Sensitivity' relates to the effects of accidental marine pollution involving hydrocarbons. Sensitivity mapping provides a basis for the definition of priorities for protection and clean-up to the on-scene commander, on-site responders and information to plan the best-suited response strategy to decision makers. Sensitivity mapping is used to support the development of a response strategy for oil spill contingency plans. Elements considered sensitive to oil spills include protected areas, important areas for biodiversity (not legally protected), sensitive ecosystems, critical habitats, endangered species and key natural resources.

Sensitivity maps cover the area of coast at risk of spillage originating from the facilities and provide information about the various types of environment that may be affected by a spill (sand beaches, rocky coast, marshes, etc.) for which the clean-up equipment should be suited. Sensitivity maps also include the mapping of coastal, sub-tidal habitats and provide information on the potential impact of dispersed oil in the water column so as to support the decision on the use of oil spill dispersant. Baseline information for the maps includes coastline and bathymetric depth contours, towns and villages, administrative limits, place names, and roads, railway lines, and main infrastructure.

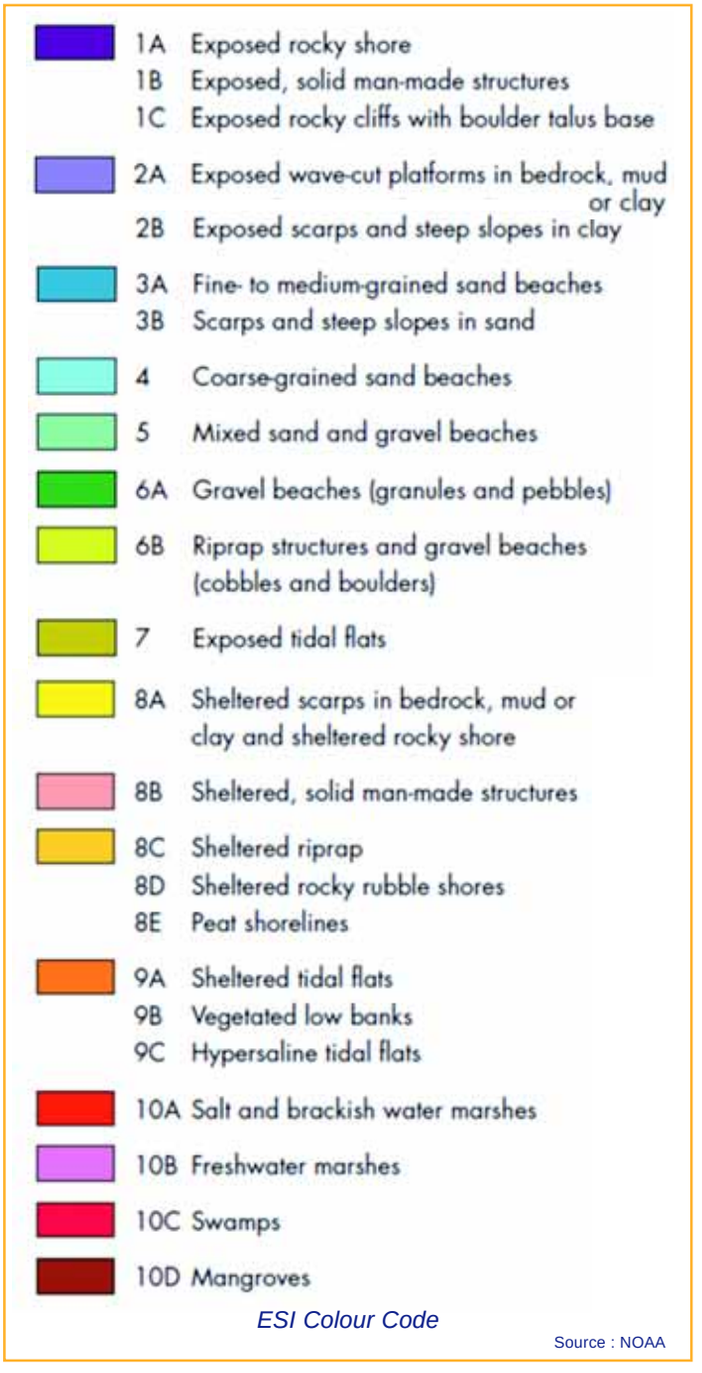
Sensitivity Mapping Scales

Sensitivity maps are produced on three different scales viz., *operational maps* on large scale at 1:25,000–1:10,000, *tactical maps* on medium scale at 1:100,000–1:25,000, and *strategic maps* on small scale at 1:1,000,000–1:200,000. Strategic sensitivity maps synthesize all information at smaller geographic scale. Tactical sensitivity maps are developed on medium scale and form an essential component of a facility oil spill contingency plan. These maps contain all the environmental, socio-economic, logistical and operational information. They may include additional information such as clean-up technical guidelines, environment protection and restoration recommendations, etc. Tactical maps also take into account the operational constraints such as limited access, hazardous areas, etc. that the planner requires for developing the response strategy. Operational sensitivity maps with detailed site specific information are additionally required to be developed for sensitive areas.

Mapping of Shoreline Sensitivity

A ten-scale Environmental Sensitivity Index developed by NOAA is widely used to classify the general environmental sensitivity of the shoreline. The coding from 1 to 10 uses a palette of cool to warm colours, providing quick and easy visual determination of the type of shore and its increasing level of sensitivity.

[1] *This article is primarily based on good practice guidance on Sensitivity Mapping for Oil Spill Response published by the IMO and IPIECA (the global oil and gas industry association for environmental and social issues) together with the International Association of Oil & Gas Producers (OGP) in 2002, the first edition of which was published under the Global Initiative of the IMO and IPIECA in 1993. The guidance represents a consensus of industry and government viewpoints, peer reviewed by experts from around the world, through the IMO Marine Environment Protection Committee, the IPIECA Oil Spill Working Group, and the OGP Environment Committee.* (Source: http://www.ipieca.org/publication/sensitivity-mapping-oil-spill-response-0 accessed 20 Jun 2013)



ESI Colour Code

Source : NOAA

Symbols - Sensitive Biological Resources

Source: http://www.ipieca.org/publication/sensitivity-mapping-oil-spill-response-0

Mapping of Biodiversity-sensitive Elements

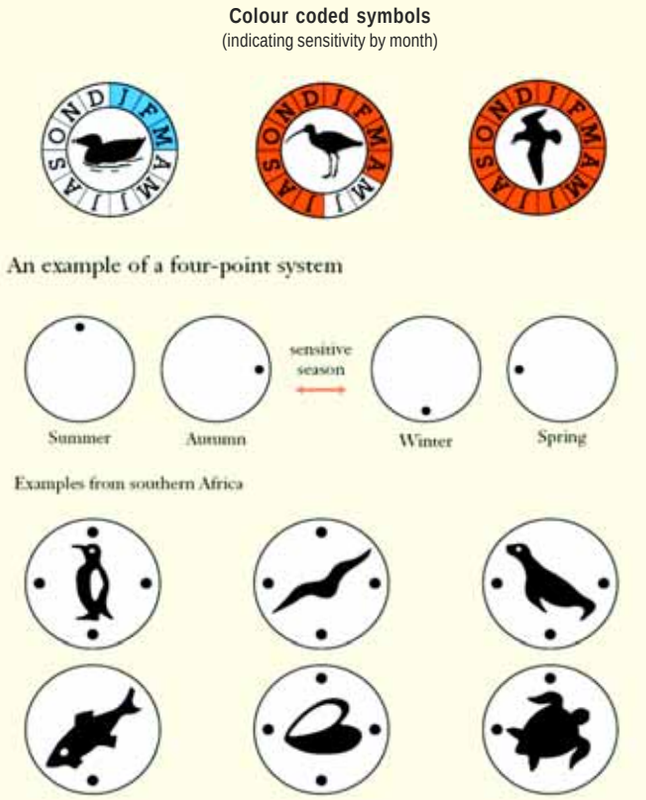
Mapping of biodiversity-sensitive elements that could be affected by accidental oil pollution includes protected areas and important areas of biodiversity[2]; different types of coastal habitats/ecosystems; and endangered species[3]. It is important to understand and map the location of internationally recognized sites and nationally designated sites to identify sensitive ecosystems, critical habitats and endangered species specified in Wildlife Protection Act 1982, Marine Protected Areas (Category I, II, III-A, III-B), different types of coastal wetlands, etc.

A standardized set of biological symbols is available and may be added to as needed to meet the needs of the region being mapped. Polygons and lines are used to map the spatial extent of species, and points are often used to show nesting and/or localized populations.[4]

[2] These can be identified using the UNEP-WCMC Integrated Biodiversity Assessment Tool (IBAT)

[3] These can be identified using the IUCN Red List

[4] This can be complemented by the IBAT tool and the UNEP-WCMC World Database of Protected Areas (WDPA).



Symbols- Seasonal Sensitivity

Source: http://www.ipieca.org/publication/sensitivity-mapping-oil-spill-response-0

The mapping of biological resources takes into account the seasonality and life stages present i.e., breeding, spawning, hatching, migration, etc. Depending on the detail of information available, the species concentration information can be simple (presence/absence) or more detailed (1: no information, 2: rare, 3: common, 4: abundant and 5: highly abundant). Presenting this information by month is the preference. The use of the four seasons, spring, summer, autumn and winter, should be avoided to prevent confusion between northern and southern hemispheres.

Sub-tidal habitats such as coral reefs, sea grass beds and kelp beds are essential for the coastal marine biodiversity. As for the sensitive species, they are not taken into account by the shoreline ESI and must be localized and mapped.

Mapping of Sensitive Socio-economic Features

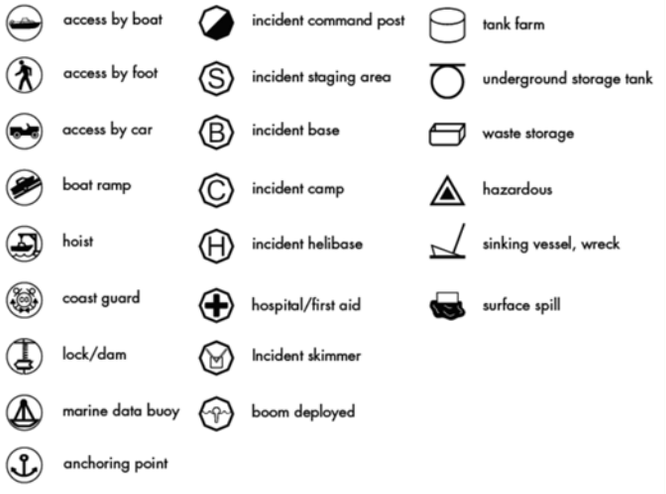
Categories of sensitive socio-economic features to be mapped include subsistence, artisanal and commercial fishing, and fishing villages; aquaculture; water intakes (salt marsh plant, desalinization plant, aquaculture and salt production, industrial use); tourism and recreation areas (hotels, restaurants, marinas, beaches, recreational fishing, diving, etc.); port (including the activities and infrastructures); industrial activities (relying on maritime transport); infrastructures related to oil exploration, production and transport activities; and cultural sites (archaeological, historical, religious, etc.). The relative importance of these features and the need to protect them in the event of a spill needs to be confirmed with local or regional policy makers. Their high seasonal variation should be mapped and/or added as additional information accompanying the maps. A standard set of socio-economic symbols developed by NOAA may be used to denote the locations of sensitive socio-economic resources and activities.

Symbols-Sensitive Human-use and Activities

Source : NOAA

Mapping of Operational and Logistics Features

A range of symbols has been developed by NOAA for mapping logistics and operational resources and may be added to as required.



Symbols- Logistics and Operational

Source : NOAA

Mapping of Potential Sources for Accidental Pollution

The high risk areas and potential sources of accidental pollution to be mapped include offshore oil activities like oil fields, and exploration and production installations including platforms, pipelines, floating production, storage and offloading vessels (FPSOs), single point mooring buoys (SPMs), etc., onshore oil activities including exploration, production, storage, refining and transport installations, etc., maritime transport activities like traffic lanes, and port infrastructures including loading/offloading, bunkering, passenger traffic, etc., and other potential sources of oil pollution like sunken vessels, etc.

Environmental Atlas

The compilation of maps of all of the oil-sensitive resources in an area constitutes an environmental atlas.

An *analog ESI atlas* is composed of hardcopy maps, data tables, a foldout legend, introductory pages, and a title page showing the location of all maps in the atlas. Introductory pages contain a description of the ESI components, including shoreline habitat classification methods; biological and human-use types, locations, temporal characteristics, and response actions; acknowledgment of data providers and experts; a species list by element, sub-element, common name, and scientific name; ESI habitat photographs with accompanying descriptions; predicted oil behavior; and response considerations.

> The United States has been developing ESI atlases for over 30 years now. As of October 1998, 61 ESI atlases (2,756 map sheets) had been prepared for the United States' coastline, including Alaska and the Great Lakes.

A *digital ESI atlas* is composed of digital versions of the above-mentioned components, seasonality data tables, ARC/INFO@ export files of all structured GIS data, ARC/INFO@ map compositions, and metadata.

Although sensitivity maps can be developed by drawing directly onto paper maps, or using general graphic/drawing software, specific spatial data and mapping software, i.e. Geographic Information Systems (GIS) is the norm.

EXAMPLES OF SENSITIVITY MAPPING

India-Goa State

A study by National Institute of Oceanography (NIO) integrated remote sensing and GIS and concluded that sensitivity of the Goa coast may be considered as medium to high. Beaches which attract tourists from all over the world and estuarine eco system having mangroves rich in biodiversity were estimated to be at high risk if an oil spill coincided with the high tide.

Legend

ESI 10 Mangroves, along the course of Mandovi and Zuari River, along entire stretch of Cumbarjua canal connecting Mandovi and Zuari rivers; swampy lands East of Panjim rich in mangrove vegetation

ESI 9 Tidal flats, along the course of Mandovi and Zuari rivers; likely to harm to organisms taking shelter

ESI 8 Sheltered rocky shore, only minute presence

ESI 7 Exposed tidal flats, along major rivers flowing in the area, mainly along the Mandovi and Zuari river

ESI 6 Gravel beaches, not found

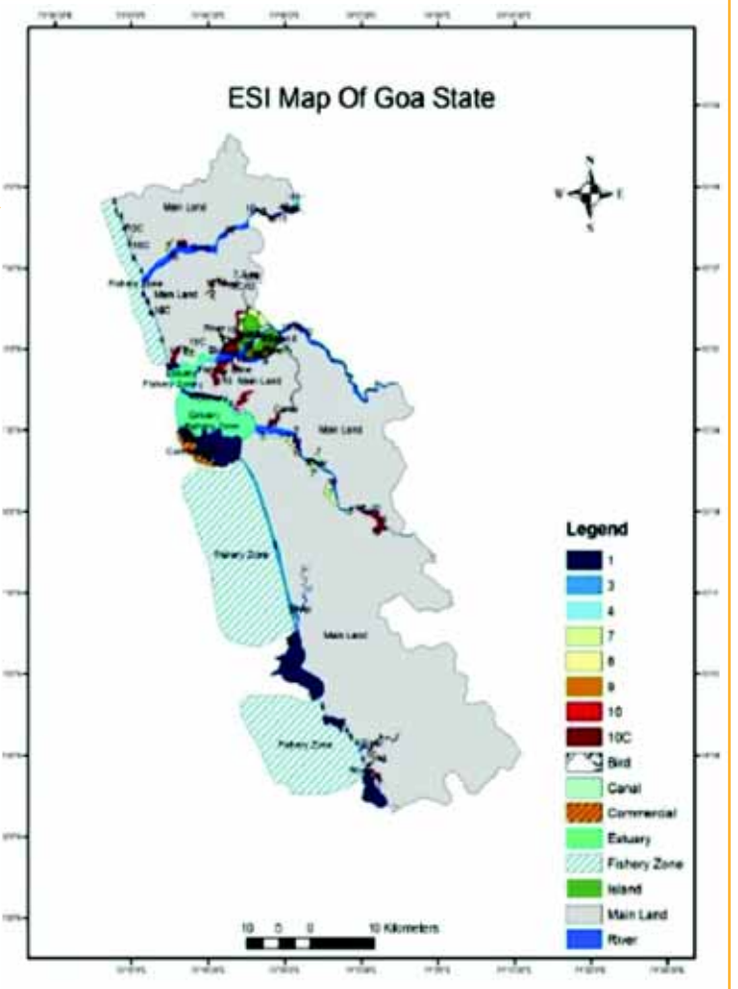
ESI 5 Coarse sand to gravel beaches, not found

ESI 4 Medium to coarse grained sandy beaches in south Goa, viz., Bambolim, Bogmalo, Betul, Aguada, Polem

ESI 3 Medium to fine grained sandy beaches in south Goa viz., Colva, Majorda, Banaulim, Mobor, Verca, and Cansaulim

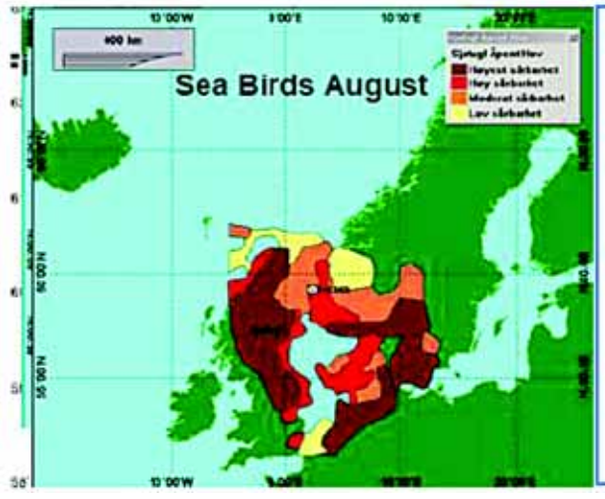
ESI 2 Wave cut platform which are generally exposed, rare

ESI 1 Rocky shore, cliffs, solid manmade structures, south Goa head land at Vasco, Cape De Rama and some other small headlands



Source: http://drs.nio.org/drs/bitstream/2264/3760/1/Int_Conf_Arabian_Coast_2010_ManiMurali.pdf

Norway-Balder/Jotun Oil Field



Spawning periods:

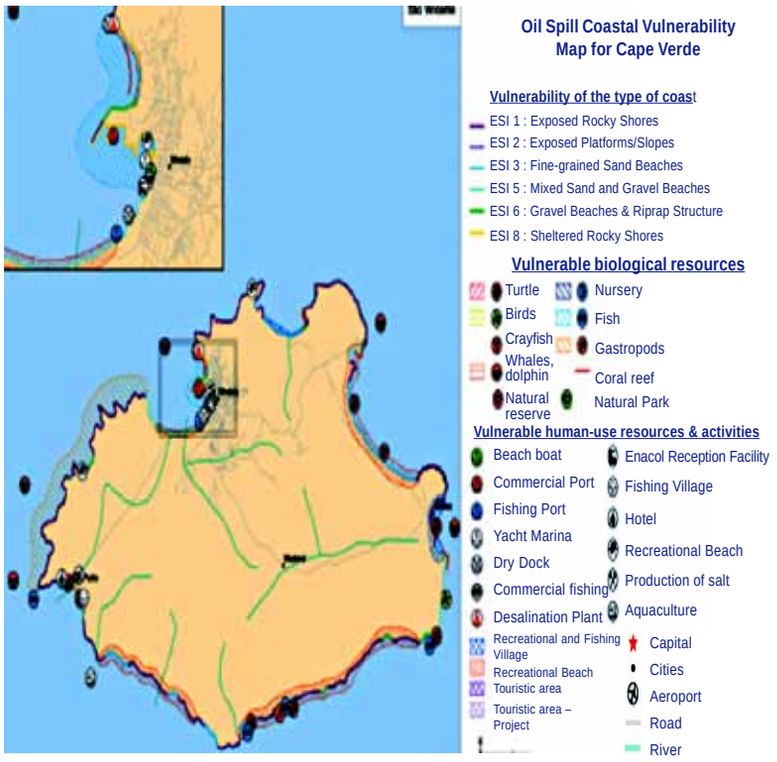
Species	Month 1	2	3	4	5	6	7	8	9	10	11	12
Saithe												
Haddock												
Mackerel												

Sea bird life cycle periods:

Activity	Month 1	2	3	4	5	6	7	8	9	10	11	12
Swimming migration												
Moulting												

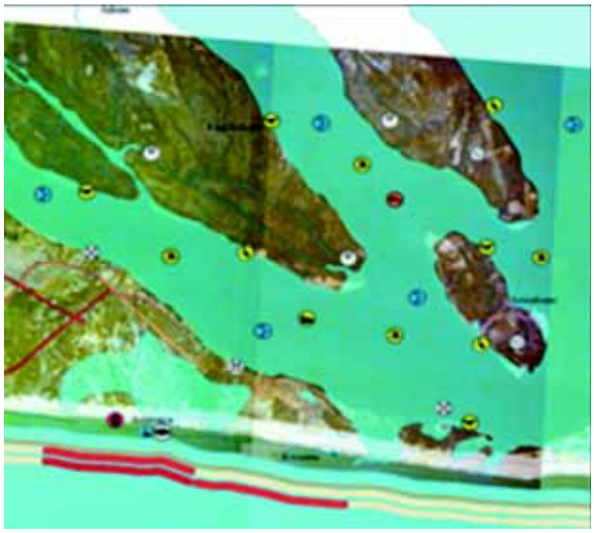
Source: http://meeting.helcom.fi/c/document_library/get_file?folderId=74721&name=DLFE-30026.pdf

Cape Verde: Tactical Sensitivity Map



Source:http://www.ipieca.org/publication/sensitivity-mapping-oil-spill-response-0

Ghana: Mapping of sensitive biological resources



Physical Environment

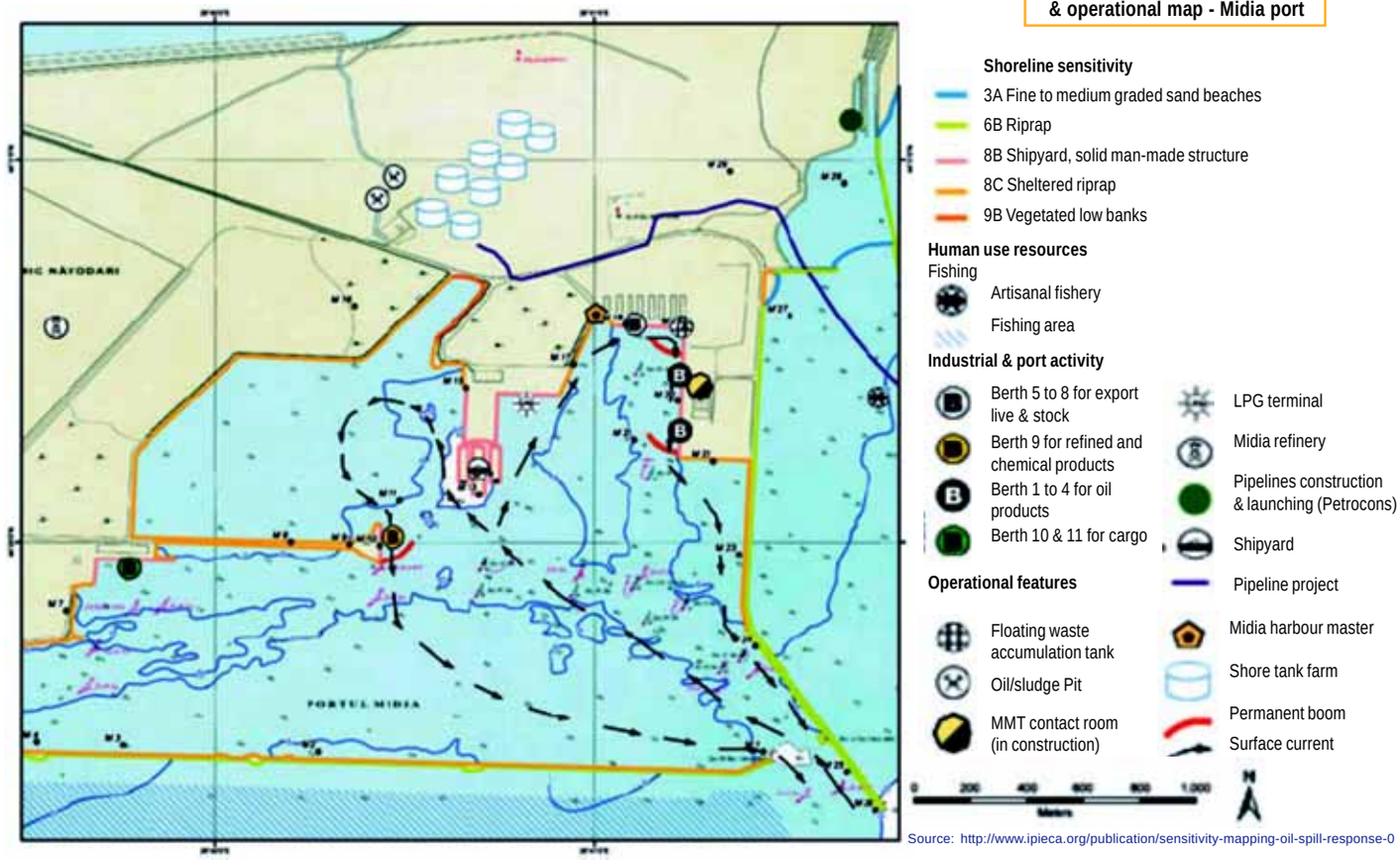
Ecological Environment

Human Activity

Fishery

Source:EPA Ghana

Romania-Port of Midia: Operational Sensitivity Map

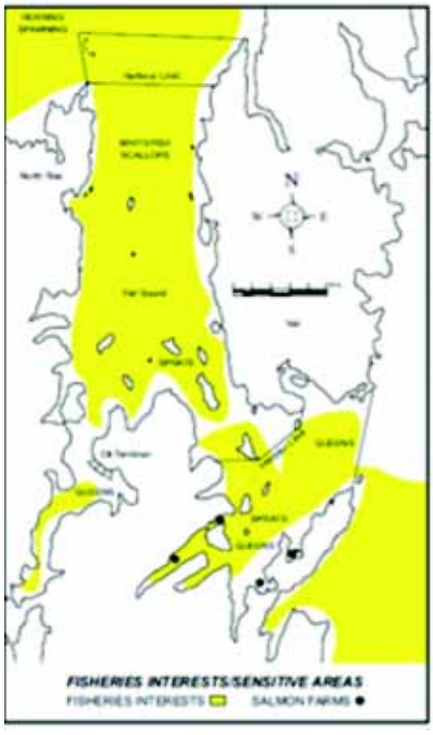


Source: http://www.ipieca.org/publication/sensitivity-mapping-oil-spill-response-0

United Kingdom-Sullom Voe Harbour

Oil Spill Response and Fisheries Information

COLOUR CODING OF COAST LINE	COASTAL FEATURES AND BIOLOGICAL AREA	COMMENTS	PROTECTIVE MEASURES	CLEANUP METHODS			PROTECTION AND CLEANUP OPTIONS
				PREPARED	POSSIBLE	AVOID USE OF	
RED	Salt Marshes Mud Flats Houbs.	Sensitive areas. Avoid oil entry. Leave alone where possible. Gross containment to be removed by hand tools. Generally of high biological interest. Physical disturbance or dispersant application may be damaging. Oil should be prevented from entering these areas. Recovery rate is slow.	1,2	1,6	7,8,9,12	4,10,11,13	1. Containment and recovery using booms 2. Direct to less sensitive shore to avoid wide-spread contamination 3. Construct sand/shingle barriers. 4. Chemical dispersants. 5. Skimmers/vacuum pumping. 6. Natural cleansing. 7. Manual beach cleaning 8. Sorption methods. 9. Low pressure sea water flushing. 10. High pressure flushing. 11. Hot water/steam hosing. 12. Removal of oiled vegetation. 13. Substrate removal manual mechanical.
YELLOW	Exposed Coastline Cliffs.	Largely self cleaning due to high energy wave exposure. Access generally difficult. Safety consideration are essential. Recovery rate is moderate to fast.	1	1,6,9	4,5,10	11	
BLUE	Accessible Shoreline. Low Lying Shore Rock Cobble Shingle Gravel	Requires manual cleaning. Limiting factors will be weather, tides and available light. Manpower management and safety considerations are important. Operations should disturb shore structure as little as possible. Transportation and light mechanical cleaning equipment to have low pressure tyres. Recovery rate is moderate.	1,2,3	1,5,6,7	4,9,12,13	10,11	
GREEN	Amenity Beaches. Spur Boom Containment Areas	Potential impact sites. Beaches can be cleaned with heavier mechanical plan if required. Recovery rate at spur boom sites is moderate. Sand beaches are low in ecological diversity	1,2,3	1,5,7,9	4,8,12,13	6,10,11	
PURPLE	Man-Made Structures. Jetties, Piers, Slipways and Gabions	Amenity structures. To be cleaned as a priority and as circumstances dictates.	1	1,4,5,10, 11	12		



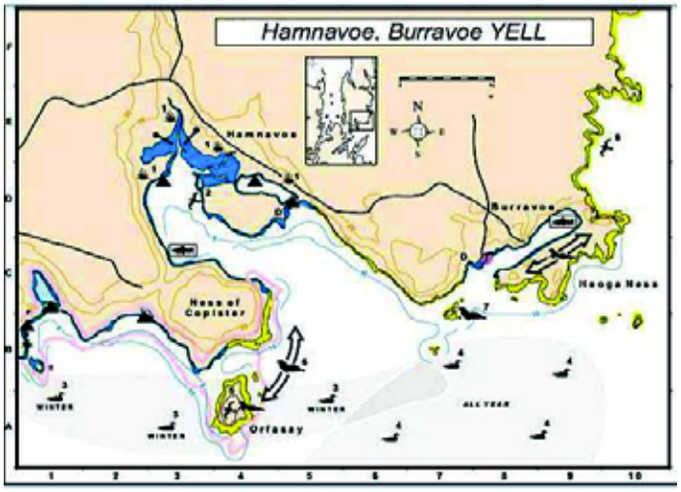
Key to Map Symbols

- Distribution of Seabirds / Seafowl
- Discrete Flocks of Seabirds/ Seafowl
- Waders
- Seabird Colony
- Extent of Bird Distribution
- Common and / or Grey Seals
- Otter (main activity area)
- Extent of Wildlife Distribution
- Salt Marsh / Rare Plants
- Salmon Farm
- Shellfish Farm
- RSPB Reserve
- Site of Special Scientific Interest
- Proposed SSSI
- Yell Sound Coast SSS and special area of Conservation
- M.H.W.S M.L.W.S
- Land Contour 10 Metres intervals
- Submarine Contours 5 and 10 Metre Intervals
- Road
- Track
- Land Colour
- Loch
- Ayre
- Beach
- Proposed Temporary Dumping Site
- Site of Historical Importance
- Reference Numbers to Written Text (1-15)
- Northings (A-J) / Eastings (1-10) — GRID POINTS
- Period of Wildlife presence — MONTHS/ SEASONS
- Spur Boom Nos 1-8
- Ferry Terminal

COASTLINE COLOURS

- Sea Protection and clean up options

Refer to separate key sheet entitled: "Oil Spill Response and Fisheries Information"



LEGEND: MAP 5 HAMNAVOE BURRAVOE

Yellow gravel on rocky shores occur along most of this coastline with shallow water areas and extensive gravel pans in Hamnavoe. Much of the coastline is accessible from the land either directly from roads/tracks or with an ATV. Access from the sea would be relatively easy except on east Orforsay, the east side of 1leoga Ness (Burravoe) or inner Hamnavoe (due to the extreme shoaling of the voe). Strong tides occur especially around Copister, Orfasay, Burravoe and the skerries of Neapaback. The waters within much of Hamnavoe are extremely shallow.

HOLM OF COPISTER TO HEOGA NESS

1 All Year. Some 3700m 2 of saltmarsh occurs in intermittent fringes in the bay west and north of Saltness and in fringes along both shores of the narrows marked Vadill.

2 May-Aug. Breeding colony of Arctic Terns estimated at 300 pairs in 1980 at Northwest corner of Ness of Galtigarth.

ISLANDS AND SEA AREA

3 Nov-Mar. Large concentrations of feeding Shags, Tysties and Seaduck in the tide race off south Yell.

4 Apr-Aug. Large concentrations of feeding Auks south of Yell.**Mid Aug- Mid-Oct.** Largest moult flock of Tysties in Shetland occurs to the south of Yell. A maximum of 538 birds recorded.**Nov-Mar.** Large flock of wintering Eider to the south of Yell usually between 100 and 150 individuals present, but up to 300 recorded.

5 May- Aug. Colony of breeding Arctic Terns on Orfasay. Most recent estimate of 200 apparently occupied territories in 1986.

6 All Year. Common seals haulout on both Ness of Copister and Orfasay, up to 14 adults recorded.

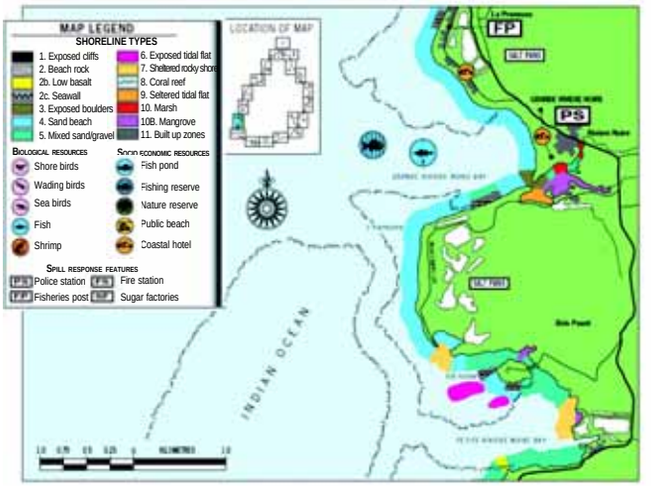
7 All Year. Common and Grey seals haulout on Green Holm. Up to 35 Common and 11 Grey recorded.

8 Apr-Aug. A large seabird colony is situated just north of the spill control area. This comprised Fulmar c. 1200 apparently occupied sites, Shag 50 apparently occupied nests, Kittiwake 103 apparently occupied nests and c. 50 Guillemots in 1986. Some Fulmars will remain throughout the winter months. Many of the birds from this colony feed in the tidal waters of Yell Sound. Additionally, water borne oil passing around Heoga Ness could impact this colony significantly.

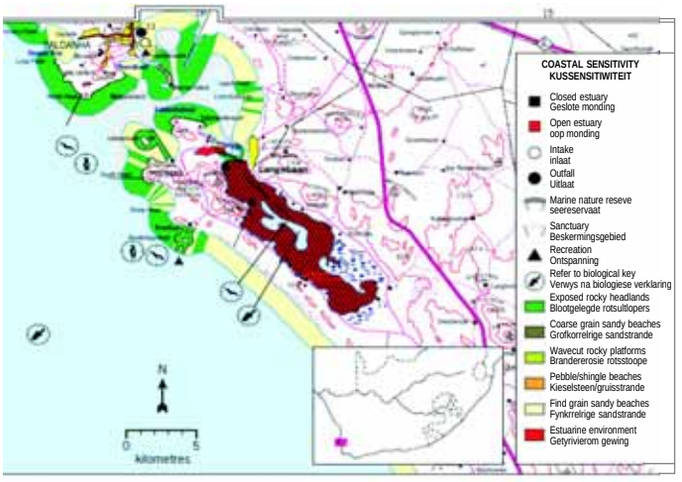
Source: http://www.shetland.gov.uk/ports/contingencyplans/sullomvoeoil.asp

Map Extract from Coastal Sensitivity Atlas

Mauritius

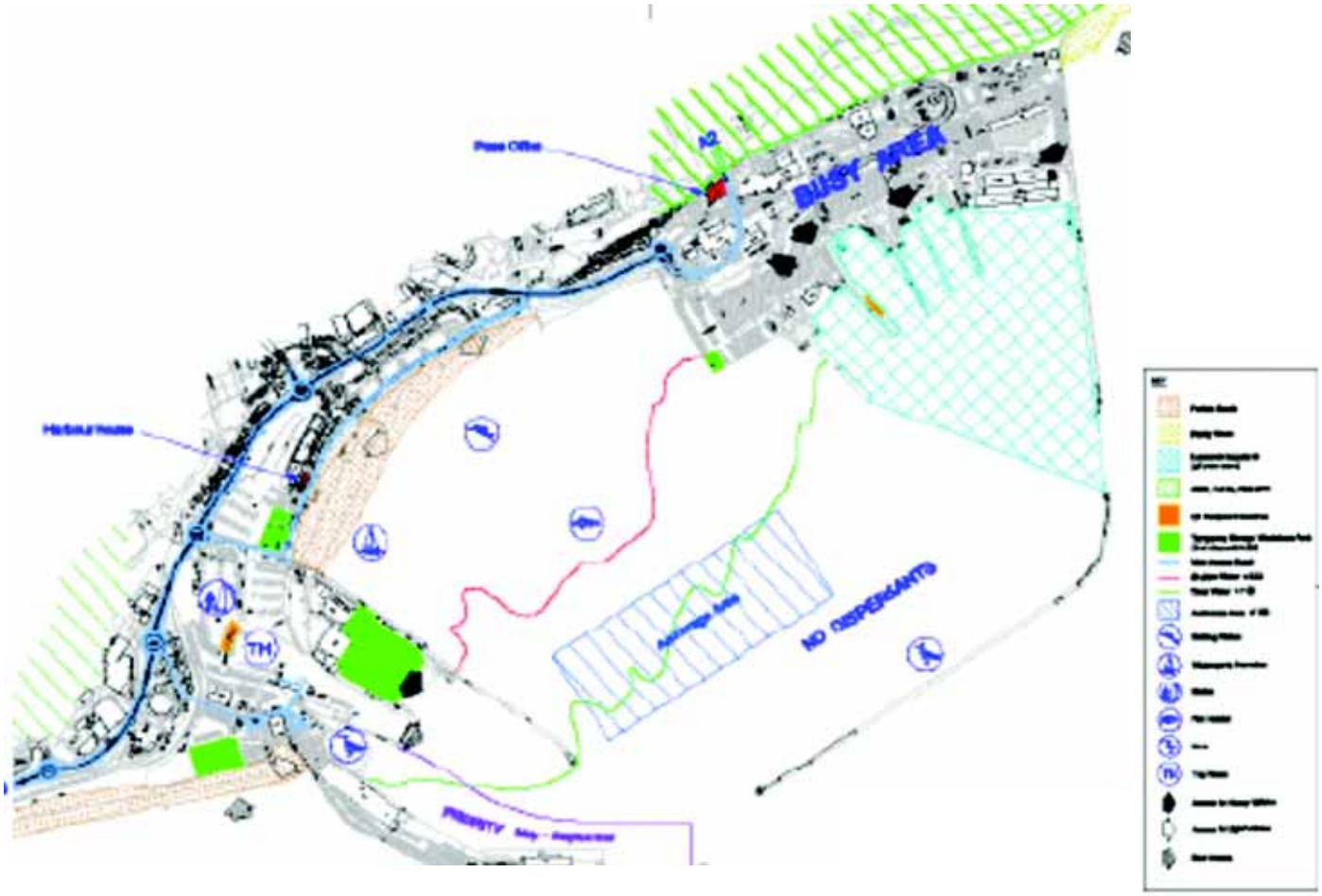


South Africa



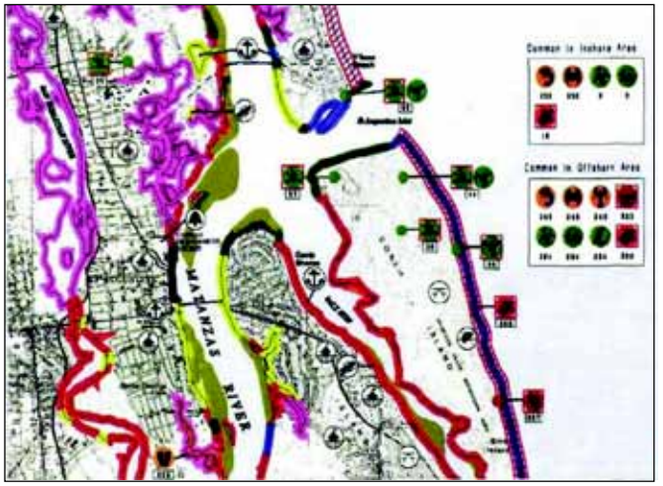
Source: IPIECA/IMO. (1994). Sensitivity Mapping for Oil Spill Response. Joint IPIECA/IMO oil spill response. Joint IPIECA/IMO oil spill report series, Vol 1.

United Kingdom : Dover Port



Source: http://www.doverport.co.uk

United States: St Augustine, Florida- ESI and Biological Resources-at-risk



SHORELINE HABITAT RANKINGS

- 1b. Exposed solid man made structures
- 2a. Exposed wave-cut platforms in bedrock, mud, or clay
- 3a. Fine to medium grained sand beaches
- 4. Coarse grained sand beaches
- 5. Mixed sand and gravel beaches
- 6b. Riprap
- 7. Exposed tidal flats
- 8b. Sheltered solid man made structures
- 9a. Sheltered tidal flats
- 10a. Salt and brackish water marshes : exposed
- 10a. Salt and brackish water marshes; sheltered

BIOLOGICAL RESOURCES

- Diving birds
- Gulls and terns
- Shorebirds
- Wading birds
- Waterfowl
- Whales
- Small mammals
- Turtles
- Bivalves
- Crabs
- Lobsters
- Shrimp

HUMAN USE RESOURCES

- Archaeological/ historical site
- Boat ramp
- marina
- National Park
- State park
- Recreational beaches

BIRD:

RAR#	Species	S/F	T/E	Concen	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Laying	Hatching
2	Brown pelican			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	—	—	—
	Bufflehead			LOW	X	X										X	—	—	—
	Common loon			LOW	X	X	X	X							X	X	—	—	—
	Double-crested cormorant			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	—	—	—
	Lesser scaup			MED	X	X	X	X						X	X	X	—	—	—
	Red-breasted merganser			LOW	X	X	X	X						X	X	X	—	—	—
	Redhead			LOW	X	X	X								X	X	—	—	—
39	Least tern	S	T				X	X	X	X	X	X	X				APR–AUG	—	—
82	Least tern	S	T	148			X	X	X	X	X	X	X				APR–AUG	—	—
	Wilson's plover			9	X	X	X	X	X	X	X	X	X	X	X	X	APR–JUL	—	—
83	Least tern	S	T	50			X	X	X	X	X	X	X				APR–AUG	—	—
85	Piping plover	S/F	T/T	1	X	X	X	X	X			X	X	X	X	X	—	—	—
224	Brown pelican			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	—	—	—
	Bufflehead			LOW	X	X										X	—	—	—
	Common loon			LOW	X	X	X	X							X	X	—	—	—
	Double-crested cormorant			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	—	—	—
	Lesser scaup			MED	X	X	X	X						X	X	X	—	—	—
	Northern gannet			LOW	X	X	X	X								X	—	—	—
	Red-breasted merganser			LOW	X	X	X	X						X	X	X	—	—	—
	Redhead			LOW	X	X	X								X	X	—	—	—

M_MAMMAL:

RAR#	Species	S/F	T/E	Concen	J	F	M	A	M	J	J	A	S	O	N	D	Mating	Calving	Pupping
233	Humpback whale	S/F	E/E	HIGH	X	X	X								X	X	—	—	—
	Northern right whale	S/F	E/E	HIGH	X	X	X								X	X	—	NOV–MAR	—

REPTILE:

RAR#	Species	S/F	T/E	Concen	J	F	M	A	M	J	J	A	S	O	N	D	Nesting	Hatching	Inter-nesting
19	Green sea turtle	S/F	E/E		X	X	X	X	X	X	X	X	X	X	X	X	—	—	—
	Loggerhead sea turtle	S/F	T/T		X	X	X	X	X	X	X	X	X	X	X	X	—	—	—
230	Leatherback sea turtle	S/F	E/E	HIGH	X	X	X										—	—	—
252	Green sea turtle	S/F	E/E	LOW				X	X	X	X	X	X	X	X	X	APR–OCT	MAY–NOV	MAR–OCT
	Leatherback sea turtle	S/F	E/E	LOW	X	X	X	X	X	X	X	X	X				FEB–AUG	MAR–SEP	JAN–AUG
	Loggerhead sea turtle	S/F	T/T	LOW			X	X	X	X	X	X	X	X	X		APR–OCT	MAY–NOV	MAR–OCT

SHELLFISH:

RAR#	Species	S/F	T/E	Concen	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Larvae/Juv	Mating
232	Blue crab			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	—	JAN–DEC	MAR–DEC
	Brown shrimp			MED	X	X	X	X	X	X	X	X	X	X	X	X	—	JAN–DEC	—
	Pink shrimp			LOW	X	X	X	X	X	X	X	X	X	X	X	X	—	JAN–DEC	—
	Stone crab			LOW	X	X	X	X	X	X	X	X	X	X	X	X	—	JAN–DEC	SEP–NOV
	White shrimp			MED	X	X	X	X	X	X	X	X	X	X	X	X	APR–OCT	JAN–DEC	—
248	Blue crab			LOW	X	X	X	X	X	X	X	X	X	X	X	X	JAN–DEC	JAN–DEC	—
	Brown shrimp			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	JAN–DEC	—	—
	Pink shrimp			LOW	X	X	X	X	X	X	X	X	X	X	X	X	MAR–NOV	—	—
	Spiny lobster			LOW	X	X	X	X	X	X	X	X	X	X	X	X	—	—	—
	Stone crab			LOW	X	X	X	X	X	X	X	X	X	X	X	X	MAR–OCT	JAN–DEC	—
	White shrimp			HIGH	X	X	X	X	X	X	X	X	X	X	X	X	APR–OCT	—	—
258	American oyster (eastern)			MED	X	X	X	X	X	X	X	X	X	X	X	X	APR–NOV	—	—

T_MAMMAL:

RAR#	Species	S/F	T/E	Concen	J	F	M	A	M	J	J	A	S	O	N	D	Spawning	Larvae/Juv	Mating
237	Anastasia Island beach mouse	S/F	E/E		X	X	X	X	X	X	X	X	X	X	X	X			

Source: http://www.asprs.org

PERSPECTIVES ON OIL SPILL SENSITIVITY MAPPING

Introduction

The primary objective of oil spill planning and response is to reduce the environmental consequences of the spill and cleanup efforts. This objective is best achieved if the location of sensitive resources is identified in advance, so that protection priorities can be established and cleanup strategies selected. With only a few hours to respond, there is no time for responders to contact all of the different resource managers for information on what areas are the most important to protect. For sensitive area mapping to be effective, it must be an integral component of an overall planning activity.

Environmental Vulnerability

Vulnerability is a measure of the extent to which a community, structure, service or geographical area is likely to be damaged or disrupted, on account of its nature or location, by the impact of a particular disaster hazard. Environmental vulnerability is an estimate of the inability of an ecosystem to tolerate stressors over time. Environmental sensitivity to oil pollution is a ranking of the environments' ability to tolerate and recover from an oil pollution incident.

Tool for Protection of Vulnerable Environment

Oil Spill Risk Analysis is used a tool for protection of vulnerable environment against oil pollution. The risk analysis is either standalone or a part of Environmental and Socioeconomic Impact Assessments. The Oil Spill Risk Analysis must use high resolution environmental sensitivity data, give input to Oil Spill Response Plans on risk ranking and prioritization of environmental resources at risk, both spatial and temporal, and likeliness and amount of oil pollution in prioritized environmental sensitive areas. It has to be followed up with identification of sufficient risk reducing measures.

Sensitivity Mapping Detail

The number of sensitivity maps required in the plan and their scale will depend upon the size of the area

ENVIRONMENTAL VULNERABILITY FACTORS

ECOLOGICAL

Individual sensitivity to oil pollution

- Likeliness to be exposed
  - ❑ Behavioral pattern
  - ❑ Presence
- Impact mechanisms
  - ❑ Loss of insulation due to clogging of fur and feathers
  - ❑ Toxic due to ingestion or inhalation
  - ❑ Reduction of mobility due to effects on limbs or feeding mechanisms

Populations sensitivity to individual mortality

- The recovery ability of populations
- The general development trend of populations
  - ❑ Red list species
- The reproduction strategy and ability of species
- External factors affecting the population development
  - ❑ Food limitation
  - ❑ Predation
  - ❑ Space limitation

COASTAL SUBSTRATE

Natural degradation and recovery

- Permeability – oil holding capacity
- Wave exposure – washing effect
- Biologic complexity and biomass

Man made oil spill recovery and clean-up

- Ability of mechanical and chemical clean up

Potential impact

- Biologic complexity and biomass

SOCIOECONOMIC

Economic activity related to the sea and coast

- Fishery
- Aquaculture
- Tourism

Importance for economy

- Local
- Regional
- National

covered by the contingency plan and the complexity of the features to be illustrated. Maps in national plans will usually give only a broad indication of the main features of the coastal region, the resources at risk, and potential sources of spills. Maps in local plans will provide more detailed information, such as the probable movement of surface slicks, agreed response strategies, shore access points and temporary storage and disposal sites. For clarity, it may be appropriate to divide information between two or more maps. Reference may also be given to additional sketches or photographs illustrating elements of the response arrangements in more details. GIS offers a more convenient means of combining all the information.

Baseline Studies

The Environmental Plan must describe the existing environment, detail the impacts and risks for the activity, and evaluate the impacts and risks, including those arising from potential emergency conditions. If there are gaps in knowledge regarding the condition of the existing environment, then baseline studies should be completed during the planning phase.

Baseline environmental studies should provide sufficient and accurate environmental data to allow the operator to measure environmental impacts attributed to an oil spill and separate these from naturally occurring temporal and spatial environmental variability. Baseline studies should be planned and conducted prior to the spill occurring to ensure there are relevant data available to make post-impact comparisons and measure any impacts.

Resources at Risk

The consequence identification should be based on an evaluation of the resources at risk and result in a list of environmental, cultural and commercial resources that are prioritised based on their sensitivity to oil impact and their ability to recover following impact by oil. Sensitivities such as bird rookeries, turtle nesting beaches, some fisheries, cetaceans and tourism may have a temporal importance and may require a higher level of protection at certain times of the year and a lower level throughout the intervening periods.

EMPHASIS IN BP OIL SPILL CONTINGENCY PLAN

Fish and Wildlife Habitats

- Large numbers of animals are concentrated in small areas, such as bays where waterfowl concentrate during migration or over wintering
- Animals come ashore for birthing, resting, or molting, such as marine mammal haul outs and puppying areas
- Early life stages are present in somewhat restricted areas or in shallow water, such as anadromous fish streams and turtle nesting beaches
- Habitats are very important to specific life stages or migration patterns such as foraging or over wintering
- Specific areas are known to be vital sources for seed or propagation
- The species are on Federal or state threatened or endangered lists
- A significant percentage of the population is likely to be exposed to oil

Human-use Resources

- Archaeological and cultural sites are located in the intertidal zones
- Oiling can result in significant commercial losses through fouling, tainting, or avoidance because of public perception of a problem
- The resource is unique, such as a historical site
- Oiling can result in human health concerns, such as tainting of water intakes and/or subsistence fisheries.

Priorities for Protection

It is unlikely that all the resources at risk can be defended successfully. Setting priorities is, therefore, probably the most important part of the planning process. In order to set these priorities, the vulnerable resources should be ranked according to their importance to the community. Whilst parties affected by a spill would normally be consulted, only governmental authorities will be in position to take the necessary decisions. It is essential to take into account not only the desire to protect a resource but also the extent to which the defense and protection of the

resource is practicable. Provision should be made for response priorities to be altered, for example, if oil has reached these resources before the plan can be implemented.

Seasonal variation can greatly after protection priorities. For example, priority given to an amenity beach during the approach to and during the summer season may not apply in winter. Similarly, certain biologically sensitive areas may be given high priority during breeding or spawning seasons or when migratory species are known to be present. Maps denoting sensitive areas and priorities for protection should be clearly annotated with any known seasonal variances.

In virtually every situation, it will only be possible to protect a relatively small area of foreshore. It is therefore absolutely necessary to clearly establish protection priorities, in accordance with the relative environmental sensitivities and resource values of the threatened coastal environments and resources. Individual facility contingency plans should designate environmental sensitivities for coastal and marine areas, and foreshore protection operations should give priority to protecting the most valuable/ sensitive coastal environments and resources.

ORDER OF PROTECTION PRIORITIES IN PACPLAN

1. Biological habitat
2. Rare and endangered species
3. Commercial resources
4. Cultural resources
5. Non-commercial property and amenity

Notes

Pacific Islands Regional Marine Spill Contingency Plan (PACPLAN) provides the framework for cooperative responses to major marine spills in the pacific islands region, including broad aims and objectives, underlying spill response philosophies and priorities, roles and responsibilities of relevant organisations, regional and supra-regional linkages and mechanisms for accessing regional and supra-regional assistance.

The general order of protection priorities will be used, consistent with section 1.5 of PACPLAN In the event that detailed environmental sensitivity grading and protection priorities are not available in the NATPLANS.

Source: PACPLAN – Final Draft for Approval by 1 October 1 9 9 9 SPREP June 99 pp. 21-22

Coastal Environmental Sensitivity Mapping in Europe

Baltic Sea	Sub-regional risk of oil spill and harmful substances in the Baltic Sea (Environmental Vulnerability Index as part of BRISK) January 2012
Black Sea	Ukrainian Centre of Ecology of Sea (UkrSCES)
Denmark	Risk analysis for oil and chemical pollution in Danish waters (COWI 2007)
Ireland and Wales	Risk assessment and collaborative emergency response in the Irish Sea
Norway	Marine Resource Data Base (MRDB) and sensitivity index for the whole coastline and high sea
Spain	Gibraltar Strait ESI
UK	United Kingdom Digital Marine Atlas (UKDMAP)

NATURA 2000

Natura 2000 Covers Directive 2009/147/EC of 30 November 2009, the Birds Directive (codified version of Directive 79/409/EEC) and Council Directive 92/43/EEC of 21 May 1992 The Habitats Directive. Regulators and response planners feel that there is a need for a common Environmnetal Sensitivity Index Database for Europe and Natura 2000 is being touted as bearing the ability to serve such a purpose.

Environmental Databases
ESAS - European seabirds at sea database
BirdLife International
WDPA - World Database on Protected Areas
Ramsar database - Wetlands of International Importance
Conservation International - biodiversity hotspots
AIS - Danish Areal Information System
UKDMAP - An atlas of the seas around the British Isles
MarLIN - The Marine Life Information Network for Britain and Ireland (on-going)
MAREANO - Marine AREA database for *NOrwegian* waters - marine resource and topography mapping in Norway (on-going)
SeaPop - Seabird populations in Norway (on-going)
Marine Turtle Nesting Database
Atlas of cetacean distribution in north-west European waters
UNEP-World Conservation Monitoring Centre – Metadatabase
Natura 2000

Conclusion

There is a need for a nationwide electronic Environmental Sensitivity Index Atlas. It calls for a district/ state-wise ranking of environmental sensitivity to oil pollution. The Atlas should cover both spatial and temporal variation in sensitivity and include the seabed, water column and sea surface, coastal and high sea. The ESI Atlas should be integrated with an oil spill response management tool for better planning as well as faster and more correct decisions during an oil spill response operation.

References :

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OECD. (2001). OECD *Environmental Indicators Towards Sustainable Development*, Paris: Author

DNV.(9 July 2012). *Vulnerable Environments; Sensitivity Mapping and Protection* assessed June 2013, http://www.europarl.europa.eu/document/activities/cont/201207/20120710ATT48624/20120710ATT48624EN.pdf

PACPLAN – *Final Draft for Approval by 1 October 1999 SPREP June 99,* pp. 21-22 assessed June 2013, http://archive.iwlearn.net/www.sprep.org/att/publication/000170_PACPLAN.pdf

RESCUE OF ENTANGLED TURTLES

A sharp look out at sea together with love and affection for the marine life motivated Indian Coast Guard ship Varuna to rescue three turtles at sea entangled in fishing nets off the Kerala coast, India.

At about noon time on 21 Apr 13, *Varuna* was on patrol off Kerala coast when the alert lookout sighted a floating net with some entangled objects. When the ship altered course and closed in for identification, three live turtles were found entangled in adrift fishing nets.

Sea turtles are known to mistake plastic bags for jellyfish, and are particularly vulnerable to plastic marine litter of different colours and sizes. Abandoned nets continue to trap fish and other sea creatures (ghost fishing) and attract sea turtles and other fishes. When seabirds, sea mammals or fishes ingest plastic particles, or get entangled in net, the blocking of the gut is likely to harm or even kill the organism.

Hands to boat stations were thus promptly piped onboard Indian Coast Guard ship Varuna and in no time a rescue team set off in sea boats with cutting tools. The turtles were alive but badly entangled. The team gathered the net and a delicate rescue operation commenced. It took nearly half an intense hour for the team to cut the nets carefully without harming the turtles. The moment they were set free, the turtles quickly swam away to a renewed freedom.

EVENTS

18TH NATIONAL OIL SPILL DISASTER CONTINGENCY PLAN AND PREPAREDNESS MEETING

The Eighteenth National Oil Spill Disaster Contingency Plan (NOSDCP) and Preparedness meeting was held at Dehradun on 31 May 2013. Vice Admiral Anurag G Thapliyal, AVSM, Director General Indian Coast Guard, chaired the meeting. The meeting witnessed active participation from various government departments, ports and oil companies. A total of 69 representatives from 38 organizations attended the meeting.

In his inaugural address, the Chairman welcomed the delegates from various Ministries, Departments of the Central and State government, Regional Commanders of Coast Guard, members from major ports and oil handling agencies and media persons. He emphasized the fact that since last the NOSDCP meeting there had not been any major oil spill incident. Further, he appreciated the swift and coordinated response by all the stakeholders in the three incidents involving oiled mangroves at Sikka and Sarmat in the ecologically sensitive marine national park and marine sanctuary, gas leakage from G-1-9 well and fire

onboard mv Amsterdam Bridge. He requested the stakeholders to forward regular updates of the response inventory and contact points to the Coast Guard so as to update the National Inventory and Contact Directory. He reiterated the need for all agencies to be prepared to deal with oil spills for the impeding monsoons.

A presentation on an overview of NOSDCP activities was delivered by Deputy Commandant Bhanu Gupta, Asst Director (FE), who brought out the specific details of oil spill incidents that had occurred since the last NOSDCP meeting. The AD(FE) also highlighted the actions taken with regard to oil spill response, conduct of oil spill response training, joint audit of ports and oil handling agencies.

Two presentations were made during the 18th NOSDCP meeting - "G-1-9 Well Capping" by Shri ML Jain, ED Chief HSE, ONGC and "Review of Contributions to the IOPC Fund" by DIG AA Hebbar, TM, Director (FE), Indian Coast Guard.

Important issues discussed and deliberated upon during the 18th NOSDCP meeting include tier-1 facilities at MbPT and JNPT, status of preparation of local

contingency plan, notification of no-OSD use areas, surveillance system by ports against illegal discharge, area of responsibility for oil spill response, standardization of inventory for tier-1 and tier-2 capabilities, optimum response time for responding to oil spills by offshore installation operators, requirement of identifying private OSROs, and protective booming of tankers at alongside berths and SPMs.

In his concluding address, the Chairman appreciated the ongoing efforts by all agencies and requested further necessary action on points deliberated during the 18th NOSDCP meeting in a timely manner. He also emphasized that agencies and stakeholders can meet periodically for sharing of best practices on pollution preparedness. The Chairman reiterated that cooperation and coordination amongst all stakeholders is vital to make the seas pollution free.

IMO NEWS

RESTRUCTURING OF IMO SUB-COMMITTEES

The IMO Council, at its 109th session, endorsed, in principle, a restructuring of IMO's Sub-Committees, in order to better address the technical and operational issues covered by IMO regulations.

IMO's main technical Committees, the Maritime Safety Committee (MSC) and the Marine Environment Protection Committee (MEPC) were invited to consider the proposals, which could see the number of Sub-Committees reduced from nine to seven, potentially saving four meeting weeks per biennium. The proposals are outlined below :

The Sub-Committee on Bulk Liquids and Gases (BLG) would be renamed the Sub-Committee on the Environment, and would be tasked with dealing exclusively with environment-related matters, to allow the MEPC to delegate preliminary technical/scientific discussions to a Sub-Committee.

The Sub-Committee on Dangerous Goods, Solid Cargoes and Containers (DSC) would be renamed as the Sub-Committee on Cargoes (to include both wet and dry cargoes), in order to address all cargo issues in one Sub-Committee.

The Sub-Committee on Radiocommunications, Search and Rescue (COMSAR) and the Sub-Committee on Navigation (NAV) would be amalgamated, into a combined single Sub-Committee, reflecting the fact that there is increasing commonality in much of the work of COMSAR and NAV, relating to the operation of IT-based equipment, its use and its integration, including e-navigation. There would need to be further discussion on how search and rescue issues would be dealt with, and the Council requested further information on how this would impact on the work of the Joint IMO/International Civil Aviation Organization

(ICAO) Working Group on SAR which, among other things, reviews and develops draft amendments to the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual.

The Ship Design and Equipment, Fire Protection, and Stability, Load Lines and Fishing Vessel Safety Sub-Committees would be amalgamated into two new technical sub-committees: One Sub-Committee to address ship design, stability and related codes, whilst the other Sub-Committee would address equipment issues related to fire safety and life-saving.

The Sub-Committee on Flag State Implementation (FSI) would be renamed the Sub-Committee on Implementation, to reflect the fact that its work has been increasingly addressing issues related to the implementation of IMO instruments – not only for flag States but also for port and coastal States. For the time being, the Sub-Committee on Standards of Training and Watchkeeping is unaffected by the proposals.

The last review of the sub-committee structure was in the 1996-1997 biennium when the number of Sub-Committees was reduced from 11 to 9 (BLG, COMSAR, DE, DSC, FP, FSI, NAV, SLF and STW).

PROCEEDINGS OF MEPC 65 13-17 MAY 2013

GHG Emissions Estimate

MEPC 65 approved the terms of reference and agreed to initiate a study for an updated greenhouse gas (GHG) emissions' estimate for international shipping, following discussion in an expert workshop, which met earlier this year, on the methodology and assumptions to be used. The new study will focus on updating key figures in the current (second) IMO GHG Study (2009), which estimated that international shipping emitted 870 million tonnes, or about 2.7%, of the global man-made emissions of carbon dioxide (CO_2) in 2007.

Energy-efficiency Measures for Ships

The new chapter 4 of MARPOL Annex VI, which includes requirements mandating the Energy Efficiency Design Index (EEDI), for new ships, and the Ship Energy Efficiency Management Plan (SEEMP), for all ships entered into force on 1 January 13.

MEPC 65 approved draft amendments to MARPOL Annex VI, with a view to adoption at MEPC 66, to extend the application of EEDI to ro-ro cargo ships (vehicle carrier), LNG carriers, cruise passenger ships having non-conventional propulsion, ro-ro cargo ships and ro-ro passenger ships; and to exempt ships not propelled by mechanical means, and platforms including FPSOs and FSUs and drilling rigs, regardless of their propulsion; as well as cargo ships having ice-breaking capability.

MEPC 65 adopted amendments to update resolution MEPC.215(63) Guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI), including the addition of ro-ro cargo ships (vehicle carrier), ro-ro cargo ships and ro-ro passenger ships, and LNG Carriers.

MEPC 65 approved amendments to unified interpretation MEPC.1/Circ.795, to update the circular with regards to requirements for SEEMP, to exclude platforms (including FPSOs and FSUs), drilling rigs, regardless of their propulsion, and any other ship without means of propulsion.

MEPC 65 adopted the 2013 Interim Guidelines for determining minimum propulsion power to maintain the manoeuvrability of ships in adverse conditions, which are intended to assist Administrations and recognized organizations in verifying that ships, complying with the EEDI requirements set out in regulation 21.5 of MARPOL Annex VI, have sufficient installed propulsion power to maintain the manoeuvrability in adverse conditions.

MEPC 65 approved the 2013 Guidance on treatment of innovative energy efficiency technologies for calculation and verification of the attained EEDI, which are intended to assist manufacturers, shipbuilders, shipowners, verifiers and other interested parties related to the EEDI of ships to treat innovative energy efficiency technologies for calculation and verification of the attained EEDI, addressing systems such as air lubrication, wind propulsion systems; high temperature waste heat recovery systems; and photovoltaic power generation system.

MEPC 65 adopted the 2013 Guidelines for calculation of reference lines for use with the Energy Efficiency Design Index (EEDI) for cruise passenger ships having non conventional propulsion.

MEPC 65 adopted amendments to resolution MEPC.214(63) 2012 Guidelines on survey and certification of the energy efficiency design index (EEDI), to add references to measuring sea conditions in accordance with ITTC Recommended Procedure 7.5-04-01-01.1 Speed and Power Trials Part 1; 2012 revision 1 or ISO 15016:2002.

Ballast Water Management

MEPC 65 approved a draft IMO Assembly resolution on the application of regulation B-3 of the BWM Convention to ease and facilitate the smooth implementation of the Convention, for submission to the 28th session of the IMO Assembly (25 November to 4 December 13). The draft resolution recommends that ships constructed before the entry into force of the Convention will not be required to comply with regulation D-2 until their first renewal survey following the date of entry into force of the Convention. The aim of the draft resolution is to clarify uncertainty in relation to the application of regulation B-3, through the application of a realistic timeline for enforcement of regulation D-1 (ballast water exchange standard) and regulation D-2 (ballast water performance standard), upon entry into force of the Convention.

Source : http://www.nio.org/index/option/com_newsdisplay/task/view/nid/267/tid/4/sid/24

MEPC 65 also approved BWM-related guidance, including Guidance concerning ballast water sampling and analysis for trial use and a BWM Circular on clarification of “major conversion” as defined in regulation A-1.5 of the BWM Convention.

MEPC 65 also adopted a revised MEPC resolution regarding information reporting on type-approved ballast water management systems.

Guidelines for implementation of MARPOL Annex VI regulation 13 agreed

MEPC 65 adopted guidelines, as required by regulation 13.2.2 of MARPOL Annex VI, in respect of non-identical replacement engines not required to meet the Tier III limit; and a unified interpretation on the “time of the replacement or addition” of an engine for the applicable NOx Tier standard for the supplement to the IAPP Certificate.

RO Code

The MEPC adopted amendments to MARPOL Annexes I and II to make mandatory the Code for Recognized Organizations (ROs). The Code will provide a consolidated text containing criteria against which ROs (which may be authorized by flag States to carry out surveys and issue certificates on their behalf) are assessed and authorized/recognized, and give guidance for subsequent monitoring of ROs by Administrations.

Source:http://www.nauticexpo.com/prod/flensburger-schiffbau/cargo-ships-ro-ro-ships-shipyards-31014-193686.html

The MEPC also adopted amendments to Form A and Form B of Supplements to the IOPP Certificate; and amendments to the Condition Assessment Scheme, to make reference to the International Code on the enhanced programme of inspections during surveys of bulk carriers and oil tankers, 2011 (2011 ESP Code).

Garbage Management

MEPC 65 adopted amendments to the 2012 Guidelines for the implementation of MARPOL Annex V, to add references to E-waste generated on board such as electronic cards, gadgets, equipment, computers, printer cartridges, etc.

MEPC 65 also approved draft amendments to the form of Garbage Record Book under MARPOL Annex V, to update the Record of Garbage Discharges, for circulation, with a view to adoption at MEPC 66.

MEPC 65 also approved an MEPC circular on adequate port reception facilities for cargoes declared as harmful to the marine environment (HME) under MARPOL Annex V, which agrees that, until 31 December 2015, cargo hold washwater from holds previously containing solid bulk cargoes classified as HME, may be discharged outside special areas under specific conditions. The circular also urges Parties to MARPOL Annex V to ensure the provision of adequate facilities at ports and terminals for the reception of solid bulk cargo residues, including those contained in wash water.

REPORTS

WORLD WATCH

FIRE ONBOARD SMI 572

On 12 Mar 13, tug UTV Shanon E. Settoon when pushing oil barge SMI 572 reportedly went aground in Bayou Perot off Lafittle, Los Angeles resulting in fire onboard. The barge and tug contained 352.14 kl crude oil and 3.815 kl of diesel fuel respectively. National Oceanic and Atmospheric Administration (NOAA) oceanographers projected the path of potential oil spill using GNU Network Object Model Environment (GNOME) forecasting software program. The US Coast Guard allowed residual gas to burn off and deployed containment booms and skimmers around the vessels.


Source: http://response.restoration.noaa.gov

GAS LEAK IN ULA FIELD

Ula field, a major North sea platform in Norway experienced a substantial gas leak followed by oil spill. The cause for the spillage and gas leak was found to be fracturing of the bolts holding together a valve in a separator outlet. An estimated 125 barrels of oil flowed out of the leak alongwith 1,600 kg of gas. Production was suspended for 67 days. Although no one was injured, the incident had the potential to become a major accident, with the risk that a number of lives might have been lost and substantial material damage caused.

The Ula Field

MAYFLOWER OIL SPILL

The ExxonMobil pipeline carrying Canadian Wabasca heavy crude from the Athabasca oil sands ruptured in Mayflower, Arkansas on 29 Mar 13 reportedly spilling 5000-7000 barrels of crude. The oil flowed into storm drains leading to a nearby fishing lake, Conway. First responders, including fire fighters, city employees, county road crews and police built dikes to block culverts and stop the crude from fouling the lake. A 3,600 feet containment boom was deployed around the lake. The spillage was controlled by 30 Mar 13.

INDIA WATCH

GROUNDING OF m.v. TAYDO STAR

On 03 Jun 13, at 0400 h, barely 15 minutes after having weighed anchor from inner anchorage, Kakinada and got underway mv Taydo Star ran aground inside inner anchorage. Owing to the potential threat of spill, the owner was advised for debunkering, defueling and early salvage. The District Collector, East Godavari district and Andhra Pradesh State Pollution Control Board were requested for assume preparedness to meet any eventuality in case of oil spill while Indian Coast Guard units maintained surveillance for any oil spills from the grounded vessel. As on 11 Jul 13, the vessel remained aground and the owners finalized a contract with M/s SMIT Offshore Maintenance(s) Pte Ltd, Singapore for the salvage of the vessel.

m.v. Taydo Star

m.v. Shrijoy-II

GROUNDING OF m.v. SHRIJOY-II

A newly constructed barge Shrijoy-II ran aground off Mirya Head, Ratnagiri at 2050 h on 09 Jun 13. Owing to the potential threat of spill of the 30 tons of diesel in the barge, which was on her maiden voyage from Mumbai to Kolkata, a notice was issued under section 356 of the MS Act, 1958. Indian Coast Guard Ship Vaibhav facilitated rescue of the 10 crew onboard by the local fishermen and maintained surveillance for oil spills. As on 11 Jul 13, the vessel remained grounded and the owner of the vessel signed a contract with M/s United Ship Repairs and Marine Company, Mumbai for salvage operation. The operation got

delayed view persisting inclement weather in the area.

SINKING OF m.v. ASIAN EXPRESS

At 0527 h on 13 Jun 13, m.v. Asian Express on passage to Male from Md Bin Qasim, Pakistan sank 52 nautical miles north of Minicoy Lt due to uncontrolled ingress of water from a crack in the ship's hull below waterline. Indian Coast Guard Ship Varuna which responded to the distress from the vessel rescued the entire crew of 22 members. Though no oil spill was observed immediately after the sinking, aerial surveillance was maintained by the Indian Coast Guard owing to the potential threat to marine environment posed by any leakage of the 50 tons of Furnace Fuel Oil, three tons marine grade oil, 2400ℓ lub oil, 280ℓ cylinder oil, 1000ℓ hydraulic oil and 700ℓ gear oil from the sunken vessel.

BREAKING-UP OF m.v. MOL COMFORT

On 17 Jun 13, Indian Coast Guard Maritime Rescue Coordination Centre, Mumbai coordinated the rescue of 26 crew of mv MOL Comfort, 900 nautical miles west of New Mangalore (inside Yemen Search and Rescue Region), after the Panama flagged container vessel enroute to Jeddah from Singapore sustained uncontrolled flooding due to a crack in her hull.

Subsequently, at about 1930 on 17 Jun 13, the vessel broke into two parts, both of which floated upright and were instantly headed for Indian coast. While the ship-owners engaged salvage tugs, aerial surveillance was maintained by India through satellite and long range maritime patrol aircraft. Indian Coast Guard ship Vaibhav and Indian Naval ship Tarkash were deployed for surveillance of the derelicts.

The derelict aft portion of the vessel sank ten days after the incident on 27 Jun 13. Coast Guard ships and aircraft were deployed for monitoring the area and reported nil oil spill in the area.

A fire broke out in the forward section under tow of SCI Urja to Oman at about 0600 hrs on 06 Jul 13. ICGS Samudra Prahari engaged in firefighting assistance despite extreme weather and precautious condition. The forward portion eventually sank on 11 Jul 13.

The vessel carried an estimated 2567.40 metric tons of bunker fuel at the time of incident and roughly 3,355 metric tons of hazardous cargo and marine pollutants.

TEN QUESTIONS FOR ASSESSING YOUR FACILITY CONTINGENCY PLAN

1. Has there been a realistic assessment of the nature and size of the possible threat, and of the resources most at risk, bearing in mind the probable movement of any oil spill?

2. Have priorities for protection been agreed, taking into account the viability of the various protection and clean-up options?

3. Has the strategy for protecting and cleaning the various areas been agreed and clearly explained?

4. Has the necessary organization been outlined and the responsibilities of all those involved been clearly stated – will all who have a task to perform be aware of what is expected of them?

5. Are the levels of equipment, materials and manpower sufficient to deal with the anticipated size of spill? If not, have back-up resources been identified and, where necessary, have mechanisms for obtaining their release and entry to the country been established?

6. Have temporary storage sites and final disposal routes for collected oil and debris been identified?

7. Are the alerting and initial evaluation procedures fully explained as well as arrangement for continual review of the progress and effectiveness of the clean-up operation?

8. Have the arrangements for ensuring effective communication between shore, sea and air been described?

9. Have all aspects of plan been tested and nothing significant found lacking?

10. Is the plan compatible with plans for adjacent areas and other activities?

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