Oil spill clean up & Survey and Monitoring of Beaches

Maryam Rasouli,	Ehsan Esmaili,	Roya Emam
MSc of Marine Chemistry	International Maritime Conventions Expert	MSc of Marine Biology
rasouli.maryam@gmail.com	ehsanes1982@yahoo.com	royamarine@gmail.com

Preface

Oil spilled on water is seldom completely contained and recovered and some of it eventually reaches the shoreline the fate and behavior of oil on shorelines is influenced by many factors, some of which relate to the oil is deposited on the shoreline, such as weather and waves. These factors include the type and amount of oil, the degree of weathering of the oil, both before it reaches the shoreline and while on the shoreline, the temperature, the state of the tide when the oil washes on shore, the type of beach substrate, i.e., it's material composition, the type and sensitivity of biota on the beach, and the steepness of the shorelines, the extent that an oil penetrates and spreads, its adhesiveness, and how much the oil mixes with the type of material on the shoreline and all important factors in terms of clean up. There are many types of shorelines, all of which are classified in terms of sensitivity of oil spills and ease of clean up. The types discussed here one: bedrocks, man-made solid structures, boulder beaches, pebble- cobble, mixed sand-gravel beaches, sand beaches, sand tidal flats, mud tidal flats, marshes, peat and low-lying tundra, and mangrove .The primary objective of clean up operation is to minimize the effects of the stranded oil and accelerate the natural recovery of affected areas.Obviously, a clean up technique should be safe and effective and not be so intusive as to cause more damage than the oil itself (Fingas,2000)

Conducting a reconnaissance survey and assessment of an oil spill

Conducting a reconnaissance survey and an assessment of an oil spill are crucial when responding to accidental oil spills. A survey is the only way to assess the extent of the spill in addition to deciding which areas should be given priority for clean-up. In addition, it helps authorities to decide which techniques and resources are most suitable. When an oil spill reaches the coastline, reports on how much of the coastline has been polluted and how heavily the coastal sites are affected are very often so inadequate as to be of little use to decision makers. A coastal survey method likely to produce a useable, short and yet complete report that can be used as a basis for filling in an operational coastal report form. Surveys usually require either a spotter aircraft or a helicopter which provide an overall idea of the full extent of the spill. However, a field visit will be needed in order to produce a satisfactory appraisal of the situation and that is what this guide sets out to describe.

For response to be rapid and effective, there has to be a fair assessment of the size of the spill and precise indications regarding the physical, ecological and economic details for each polluted site. Ideally, coastal features could usefully be included and mapped in a coastal atlas which should be part of the contingency plan. If so, aerial observation will simply serve to confirm the facts or not, as the case may be. Imaging assets such as cameras and digital cameras will afford real time data capture which can then be relayed to the competent authorities where officials will be in a better position to realise how serious the spill is on the ground. Such data will prove useful and serve as an additional item as part of a qualitative spill assessment but cannot possibly replace the quantitative approach described in this guide (Jacques, 1996)

Application of reconnaissance surveys

- to confirm alerts or sightings and provide more detailed information if necessary, to single out mistaken cases of pollution, to assess the extent and size of a spill, to appraise the extent of the most visible damage caused by an oil spill depending on how sensitive a site is, to help officials define their response priorities, to assess response options, resources and techniques
 to monitor developments and the spill (repeated surveys).
- Oiled shoreline Assessment