Hazardous oil spill in Mumbai Port and adjacent fishing areas

Containers spilled from accident vessel MSC Chitra

(Photo courtesy NDTV)

A catastrophic collision of two merchant ships occurred in Mumbai Port on 7th August 2010 which resulted in spilling of about 800 t bunker oil and tumbling of 293 cargo containers with hazardous chemicals in the sea. The oil and the spilled chemicals are hazardous to the inshore and nearshore fishing areas around Mumbai while the sunken and floating containers have threatened navigational safety of several mechanized and non-mechanized fishing boats operating in the harbour area.

The bunker oil with long hydrocarbon chains (alkanes, cycloalkanes and aromatics) and the spilled chemicals (Aluminum phosphide, Parathion and sodium hydroxide) are toxic to aquatic ecosystem and have tendency to accumulate in fish. These materials by nature of their composition will have short term and long term impacts on the coastal environment and fishery resources. The Maharashtra Pollution Control Board (MPCB) has analyzed seawater samples from open sea to the inshore creeks and the basin of the port. The oil spill and fish landed from the affected areas were inspected by the scientists of Mumbai Research Centre, which indicated that the oil spill and other chemicals spread over 3 coastal districts affecting 33 fishing villages. Owing to monsoon winds, tides and circulation a portion of the spilled oil entered the creeks and rivers adjoining the harbour and spread along the inshore areas and the mangrove swamps covering an estimated area of 56 km^2. The oil spill has occurred just when the mangrove seedlings are getting formed, which usually start germinating soon after the monsoon. Clean up operations for removal of oil from mangrove were initiated by the MPCB with the help of fishing community and zapping with microbes by Tata Energy Research Institute. As these mangrove swamps serve as nursery grounds for variety of fishes and prawns the long term effects on the fishery could be distressing. The clean up operations of mangroves, beaches and retrieval of containers were taken up by the coast guard and the Mumbai Port Trust under the supervision of DG Shipping.

Despite long lasting effects of oil spill on marine life, the effects on the fishery resources were relatively short and no mass mortality of fish was reported in the affected area. Most of the fin-fishes perhaps avoided the oil spill area and returned after the spill drifted. However, stranding of about 100-150 sting rays (*Himantura Uarnak*) and a dolphin was reported along the beaches at Uran and Mandva respectively. The inner portion of the port where the spill drifted is the productive fishing area for a large number of small scale fishers, operating traditional fishing gears and contrivances in creeks and inshore waters, especially during monsoon months when open sea fishing is suspended due to inclement weather conditions. The area is known for diversity of 73 species of fin fishes, crustaceans and molluscs. The prominent fish varieties in the fishing ground are penaeid and non-penaeid shrimps, Bombay duck, golden anchovy, pomfrets, perches, croakers, ribbonfishes, catfishes and lobsters. Preliminary analysis of fishery data for August 2010 showed decrease in fishing effort by mechanized vessels by 29% and decline in landings by 6% while the non-mechanized fishing recorded 49% decline in landings. The bag net fishing in the harbour suffered heavily as the landings in August 2010 declined by 73.4% despite increase in average catch rate from 151.9 kg/unit (2005-2009) to 172.9 kg/unit. The value of bag net catch in August 2010 recorded 77% decline as compared to the same month of last year.

The oil spill created panic among the fish eating public. Civic authority of Mumbai Municipal Corporation disallowed landing of contaminated fish at the landing centres and wharfs immediately after the spill. Owing to this the fish prices plummeted significantly by 25-50%. Consequently, the fishermen suffered and lost livelihood means from the day of oil spill as the fish catch was contaminated and navigation in the port area was dangerous because of floating and sunken cargo containers. The preventive orders and notifications from various Government Agencies and wide publicity by media to refrain from eating fish lead to poor consumer demand and subsequently fall in fish prices.

Although oil as such may not be highly toxic, the spill with other chemicals and pesticides is likely to produce synergistically far more hazardous long term impacts on the marine ecosystem. Further investigations are being carried out by the scientists of Mumbai Research Centre.

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