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1021 Impact of diesel spill on *Acanthus ilicifolius* at Mangalavanam

Very large and increasing quantities of petroleum and petroleum-like products are being released into the marine ecosystem. Mangalavanam is an enclosed mangrove (Lat, 10 11' 08' N and Long. 76 30' 8"E) ecosystem with an area of 8.44 hectare adjoining CMFRI, Bharat Petroleum Corporation Ltd. Mangalavanam qualifies the criteria for declaring as

Mangalavanam before diesel leak

International Bird Area (IBA) due to the presence of more than 1500 cormorant and 1000 black crowned night heron. Mangalavanam has been declared as a bird sanctuary in the name of famous ornithologist, late Dr. Salim Ali. Mangrove flora of Mangalavanam consists

Impact of diesel leak

of aged, tall trees of *Avicennia marina, Rhizophora mucronata* and shrubs of *Acanthus ilicifolius*. *Acanthus* occur along the periphery of the mudflat.

On September 10th 2002, nearly 3000 L of diesel leaked from Hindustan Petroleum Corporation Ltd. (HPCL) subterain pipeline near the ecologically sensitive Mangalavanam (The New Indian Express, 11-9-2002). Thick film of diesel could be seen above the water mass of Mangalavanam, the feeder canal and also some parts of Vembanad Lake near Bolghaty Island. The leaked diesel was removed in tanker lorries on the same day and oil dispenser was used to neutralize the remaining diesel by the fire fighting forces from HPCL and Cochin Port Trust. The local people also could

Diesel leak : close view of dried *Acanthus* plants

collect some quantity of leaked fuel from the water on the next day.

Levels of total hydrocarbon

Samples of water and sediment collected from the feeder canal opposite to the Bolghatty Palace and the Mangalavanam area on the second, third, seventh and 14th day revealed gradual decline in the levels of total hydrocarbon content which was measured gravimetrically from the pentane extraction (Table).

Table. Levels of total hydrocarbon content in water and sediment

Date of observation	Levels of total hydrocarbon water (mg/l)	sediment (mg/g)
11-9-2002,		
Feeder canal	60.0	2.0
Mangalavanam	70.0	2.0
12-9-2002,		
Feeder canal	40.0	1.0
Mangalavanam	50.0	1.5
16-9-2002,		
Feeder canal	5.0	0.5

Mangalavanam	8.0	0.5
23-9-2002,		
Feeder canal	0.04	Nil
Mangalavanam	0.1	0.005

As a result of the diesel leak into Mangalavanam *Acanthus ilicifolius* population upto the high tide level showed wilting on the third day and subsequently the leaves showed chlorosis and finally the entire plants dried. These plants remained green and healthy with full foliage just before the diesel spill indicating that the death and drying up of *Acanthus* population at the mud flats of Mangalavanam is due to the impact of diesel spill. No mortality of fish, crab, shrimps or birds was noticed. Further change in the biota and the regeneration of *Acanthus ilicifolius* are monitored.

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