

## Coastal Environment Overview in Raigad District, Post Chitra Khalijia Collision

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India with the shoreline of over 7500 km. is rich in marine wealth in form of varied sea flora and fauna. The faunal diversity has been satisfying the requirement of human being about food (Protein rich diet), aesthetics (Shells and other sea forms), recreation (Coastal tourism) and many others. The main advantage of this coastline is international logistics. Freight worth lacs of tones is transported through sea from one country to another. Cruising of these huge ships is controlled by various cruise control agencies. A minor mistake or slightest negligence on part of these agencies can cause hefty losses to the shipping companies and also the countries involved.

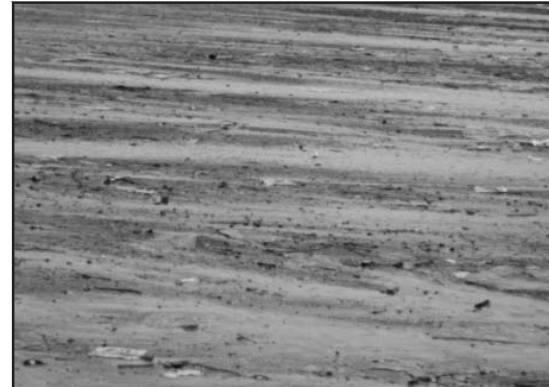
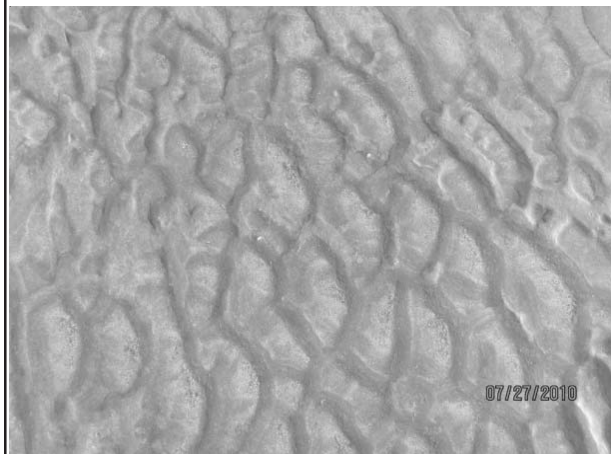
One such incident that happened in Indian sea was the collision between Panamian cargo ship MSC Chitra and Gulf cargo ship MV Khalijia on 7<sup>th</sup> August 2010. It has been the most catastrophic happening near Mumbai. When Khalijia collided with Chitra, the latter one was carrying over 500 cargo containers with diesel, hazardous chemicals, lubricating oil and much more. After the collision, Chitra sank partially on one side and hence, it was decided to sink it completely with all its contents. With the help of people from a company specialized in this, the ship was sunk 350 nautical miles (around 680km) from Mumbai port.



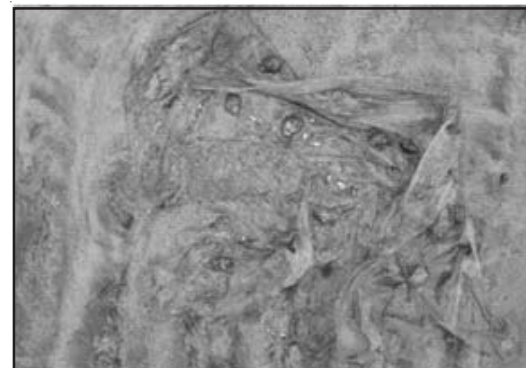
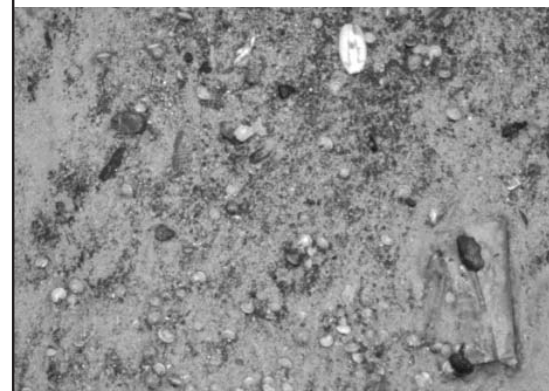
On collision, a lot of oil (around 700 tonnes) spilled from the ships and polluted sea water seriously. Further, the containers (over 500) on MSC Chitra were also sunk with the ship and they carried deadly pollutants. All the contents of these containers got released into water causing serious damage to the water and marine life in Mumbai and nearby shores. Over 300 hectares of mangrove was destroyed by this oil spill (Deepak Apte 2010). It has a long lasting effect on marine flora and fauna as it prevents light penetration into water (Deepak Apte 2010). Oil spill and effects of sinking of ship worsened this problem. The crisis did not end there. Other containers sunk to the bottom which will corrode gradually and over a period of time, release chemicals and other material which are still more toxic. In future, after corrosion of the containers there is likely to be another shock for the marine life.



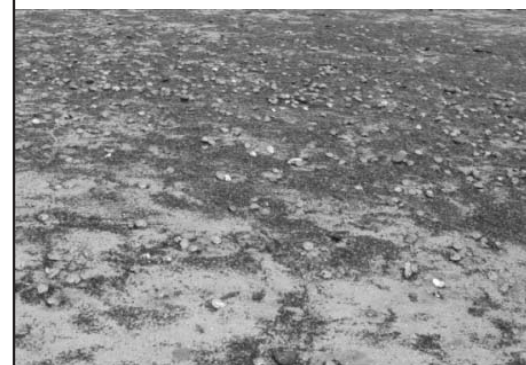
**Clean shore before the effect of collision of ships**



**Carbon and tar deposits in mid-littoral zone**



**Molluscan shells trapped in plastic and tarballs**



As such, main focus of the organized efforts to treat the hazards of this collision and its side effects was Mumbai and nearby coastline. But actually the scenario after this collision was quite alarming at coastline of Alibaug, and nearby villages in Dist. Raigad located about 100km from Mumbai. The oil and grease content of sand was found to be 234gm/kg. The detrimental effect was lot of oil deposits, thick tar-ball deposits, wrappers of hazardous chemicals scattered along the shores, long sheets of non-degradable plastic, empty syringes, needles and much more. Many molluscan shells were observed to be coated with thick layer of carbon or oil. Numerous molluscans were found dead along the mid and infra-littoral zones. Thick black oil deposits were observed in the supra-littoral region. Exotic marine fauna like sponges, gorgonia were found dead whereas, *Thias lacera* were abundant in comparison to records in earlier years.

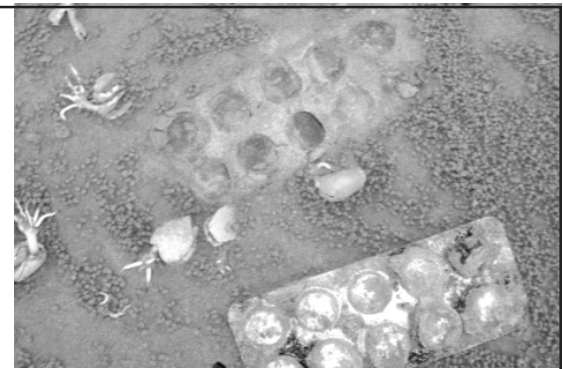
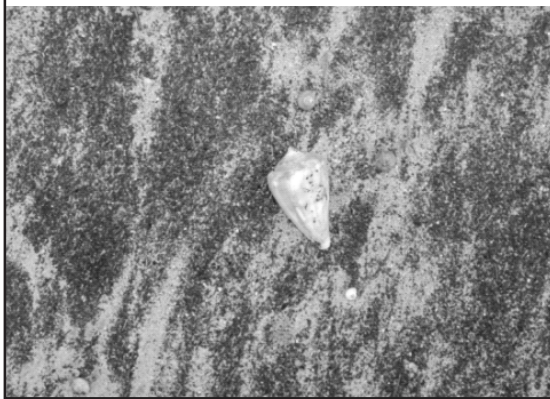




**Dead molluscs in thick carbon deposits**



**Plastic sheets washed ashore**



**Hazardous material washed ashore**



**Local people carrying these plastic sheets for their own utilization**



The entire coast was almost covered with tar deposits. sand was also found to be dark probably due to carbon pollutants. Plastic sheets found lying in the intertidal region got gradually covered by sand and the hazardous articles were washed ashore. The local villagers were found carrying plastic sheets for covering their houses without paying any attention to probable threat to their health.



**Beach cleaning by students and, teachers of Bandodkar college, Thane & senior citizens**



The coastline was reported to have many molluscan, crustacean species in the intertidal region. After the pollution due to the said collision, this fauna is prone to depletion. In view of this, students and some faculty members of Bandodkar college of Science, Thane participated in the beach cleaning program along with the members of senior citizens club, Revdanda.

**Acknowledgement:**

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