

Plastic reinforced fiberglass- an addition to beach litter

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Beach litter or beach debris are solid wastes discarded intentionally by human beings or unintentionally either through land runoff or by waves. Marine litter is anthropogenic waste that has been released in water bodies or on land. Beach litter can become part of marine litter and *vice versa* due to water, wind and wave action. Among the beach litters 40-43% are formed by plastic litters which never get biodegraded but are progressively fragmented into tiny pieces called microplastics. These microplastics are even found inside the gut of filter feeding animals. Marine mammals and turtles are also killed by plastic litter every year. Nylon ropes, strings, net pieces, plastic carry bags, pet bottles, sachets and wrappers of oil and food items, ice cream containers, plastic spoons, glass bottles, parts of toys, CDs, chargers of mobile phones, electric bulbs, styrene plates and cups, insulating foam pieces, thermocole floats etc are the commonly seen litter items on our beaches. Recently sheets of fiberglass coated with epoxy polyester resin detached from a salvaged fiber canoe piled up in Arthungal beach, Alappuzha District of Kerala was observed. A few more fibreglass canoes to be salvaged were also seen at this beach. Fibreglass crafts are coated with glass fibers reinforced with plastic matrix most often Epoxy Polyester Resin or Vinylester through thermosetting. They are preferred over wooden crafts due to higher durability, added strength and protection from corrosion and biofouling.

As per the Kerala Marine Fishery Statistics-2013, there were 25542 motorised fishing vessels in Kerala. Of this, several Fibre crafts fitted with outboard engines are registered with the Department of Fisheries, Government of Kerala. Salvaging of these



condemned crafts occur on beaches itself as there are no exclusive salvaging yards in India. One such canoe can shed 25- 30 kg of fiberglass debris. Over a period of time these crafts can generate tremendous quantities of fibreglass with plastic matrix which will be deposited in the beaches of Kerala. Plastic reinforced fibreglass is considered as human carcinogen if inhaled. If proper disposal mechanisms are not observed, these materials can reach levels above 5-15 mg/m³ and become hazardous causing irritation to eyes, skin, nose and throat. From the beaches these tiny particles of glass fibre coated with plastic resin can also enter the marine food web which is undesirable.