PREFACE

Bottom trawling is one among the most destructive human induced physical disturbances inflicted to seabed and its living communities. The bottom trawls are designed to tow along the sea floor, which on its operation indiscriminately smashes everything on their way crushing, killing, burying and exposing to predators the benthic fauna. Bottom trawling causes physical and biological damages that are irreversible, extensive and long lasting. The commercial trawling fleet of India consists of 29,241 small and medium-fishing boats. The northwest coast of India has the largest fishing fleet consisting of 23,618 mechanized vessels, especially the bottom trawlers. However, attempts were not made to study the impact of bottom trawling along Northwest coast of India. The estimated optimum fleet size of Gujarat is 1,473 mechanised trawlers while 7402 commercial trawlers are operated from the coast of Gujarat. Veraval port was designed initially for 1,200 fishing trawlers but 2793 trawlers are being operated from this port making it the largest trawler port of Gujarat. The aim of this study was to investigate the effects of bottom trawling on the substratum and the associated benthic communities of commercial trawling grounds of Veraval coast. The study compared the differences between the samples collected before and after experimental trawling to detect the impacts of bottom trawling. Attempts were made to assess the possible impact of bottom trawling on: (i) the sediment characteristics (ii) the sediment heavy metals (iii) epifauna (iv) macrobenthos and (v) meiobenthos. This study is expected to generate information on trawling impacts of the studied area that will help in better management of the biological diversity and integrity of the benthic fauna off Veraval coast. An exhaustive review on the studies conducted around the world and in India on impact of bottom trawling on the benthic fauna is also detailed.

In the present study, the bottom trawling induced variations on sediment organic matter, epifauna, macrobenthos and meiobenthos were evident. It was also observed that the seasonal/natural variations were more prominent masking the trawling effect on sediment texture and heavy metals.

Enforcement of control of excess bottom trawlers and popularization of semi pelagic trawls designed to operate a little distance above the sea bottom for off bottom resources will minimize disturbance on the sea bottom. Training and creating awareness in responsible fishing should be made mandatory requirements, to the coastal communities. They should be made wardens to protect the valuable resources for the benefit of sustainability. To protect the biodiversity and ecosystem health, the imminent need is to survey and make catalogue, identification of sensitive areas or hot spots and to adopt management strategies for the conservation and biodiversity protection of benthic fauna.

The present study is a pioneering work carried out along Veraval coast. This thesis will provide a major fillip to the studies on impact of bottom trawling on the benthic fauna along the coast of India.