

## DIVERSITY OF BIOFOULING ORGANISMS IN AYIRAMTHENGU MANGROVE

### Executive Summary

As a part of diversity of biofouling organisms in Ayiramthengu mangrove was investigated during June 2013-May 2014. A total of 9 phyla including 24 families of biofoulers were observed. Eleven categories of macrofoulers belonging to four phyla and thirteen categories of microfoulers belonging to five phyla were identified. Biofouling is a serious problem in marine industry and aquaculture development. The construction of woods act as suitable substratum on which the organism attached for food and shelter. Plastic debris also act as suitable settling ground for the biofoulers, but several toxic chemical released from plastic severely affect the organism and lead to biomagnification thus decrease biodiversity. The abundance of fouling organisms varies with geographical and seasonal variation. Parameters such as temperature, dissolved oxygen and salinity showed seasonal fluctuation in Ayiramthengu mangrove that influence the distribution of biofoulers.

In order to assess the settlement and diversity of biofouling organisms, three different stations of Ayiramthengu was selected. Biofilm samples were scraped and macrofoulers were hand picked, water samples for analysis of dissolved oxygen and salinity were collected and analysed. Premonsoon, monsoon and post monsoon showed marked variation in physico-chemical parameters.

Biofoulers also contribute to beneficial and harmful effects.

*Navicula* species play an important role in global ecology producing about one fourth of all the oxygen within earth's biosphere and serve as a keystone species in food chain of many aquatic species. *Anabaena* is a nitrogen fixing biofouler and is

filamentous Cyanobacteria that produce neurotoxin harmful to animals and some are effective natural fertilizers. *Nitzchia* species are extremophiles tolerant to high salinity include several diatoms species known to produce neurotoxin called "**Domoic acid**" a toxin which is responsible for human illness called Amnesic Shell Fish Poisoning. *Dinophysis* were linked to toxin include "**Okadaic acid**" responsible for toxic syndrome **Diarrhetic Shell Fish Poisoning (DSP)**, gastrointestinal illness causing huge economic loss for mussel industry. High concentration of *Leptocylindricus* species result in discolouration of water

Our result clearly suggest that increase in temperature and salinity cause decrease in biodiversity but it increases species abundance .In brief the result indicates that increase in species abundance was joined with decreasing biodiversity and species richness. In general the local environmental habitat conditions temperature salinity and other geographical conditions and distant from coast are most important factors on seasonal variation of biofouling that were reported.