

## Phytoplankton diversity in Mandovi-Zuari estuarine system of Goa

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Mandovi-Zuari (M-Z) estuarine system experiences large variations in freshwater input, land runoff and seawater input in different seasons. The changes in input of these waters are also influenced by tides. In recent times, the M-Z system is also subjected to human influence through alterations in catchment area and ore mining activities, and the consequent land runoff. These aspects had prompted us to examine changes in phytoplankton diversity during last two decades. Phytoplankton counts in M-Z are high during non-monsoon period compared to monsoon. In Mandovi estuary phytoplankton varied from 1.32 to 5.22 X 10<sup>5</sup> L<sup>-1</sup> during April whereas these were from 0.628 to 3.078 X 10<sup>5</sup> L<sup>-1</sup> in Zuari. During monsoon phase (September) phytoplankton counts range in Mandovi was 0.68 – 1.36 X 10<sup>5</sup> L<sup>-1</sup> and that of Zuari were 1.02 – 3.07 X 10<sup>5</sup> L<sup>-1</sup>.

Similar pattern was also observed in pigment distribution. In Mandovi Chl *a* during non monsoon period was as high as 6 mg m<sup>-3</sup> and that in Zuari was 10 mg m<sup>-3</sup>. During monsoon the Chl *a* was mostly less than 4 mgm<sup>-3</sup>, which is lower compared to that in non monsoon period. In Mandovi estuary *Nitzschia* spp., *Melosira* spp., *Synedra* sp., *Rhizosolenia* spp., *Chaetoceros* spp. and *Coscinodiscus* spp. were the dominant phytoplankton found in April whereas *Nitzschia* spp., *Coscinodiscus* spp. were the dominant ones in Zuari. In September *Nitzschia* spp., *Synedra* sp., *Thalassiosira* spp., *Dinophysis* sp. were dominant in Mandovi but Zuari waters were dominated by *Pheodactylum* sp. and *Nitzschia* spp. These differences in two estuaries are compared and discussed.

Although the number of species in both seasons varied greatly the diversity index remained unchanged (1 to 3.4) in both Mandovi and Zuari rivers. The low diversity  $\leq 1$  was associated with development of phytoplankton blooms of species *Nitzschia* spp., *Coscinodiscus* spp. and *Navicula* spp. in the study area. These data are compared with historical data collected in the last 20 years and long term (decadal) changes in phytoplankton biomass and diversity in M-Z estuarine system of Goa is discussed.