

M.S. 34. NARAYANA PILLAI, V.—Physical characteristics of the coastal waters off the south-west coast of India—1983—Dr. A.V.S. Murthy.

The most important aspect of the oceanography of the area under study is the prevailing current systems at the surface levels which change their direction from one season to another.

The effect of the spreading of the high-saline Arabian sea water towards south is neutralised to a large extent by the south-west monsoon rain and the river runoff.

The sea water temperature within the area under study shows very wide seasonal and spatial fluctuations.

The salinity maximum, characteristic of tropical oceans, was found at depths of 100-150 m. during the north-east monsoon period and between 30-50m. during the south-west monsoon period. The variations in salinity which are mainly brought about by the influence of rainfall, river runoff and the prevailing seasonal surface currents are characteristic of surface layers above the salinity maximum layer.

In general, the shelf waters were well aerated during the major part of the year except during the south-west monsoon season.

Comparatively low values of vertical stability parameter observed at the surface levels during the winter season could very well be indicative of the existence, duration and intensity of the process of sinking.

The process of upwelling is very active in certain localities between Karwar and Cape-comorin. No regularity in the occurrence of upwelling could be observed for any specific locality.

The fishery in the area under study for oil sardine and mackerel commences immediately after the south-west monsoon when the zooplankton biomass at the surface layers reaches the peak in areas of effective upwelling.

The process of upwelling is initiated by the prevailing north-east wind system which removed the surface waters away from the coast thereby inducing subsurface waters to move towards comparatively shallower depths near the coast.

The vertical time sections for temperature and dissolved oxygen were found to be good indicators of the commencement, intensity and duration of the process of upwelling.

A study on the occurrence, abundance and migrations of oil, sardine, mackerel and anchovy based on observations indicated that factors such as the sea water temperature, dissolved oxygen content, salinity characteristics and plankton biomass at surface levels influenced the abundance and seasonal migrations of these fishes.