MARINE BIOMASS ESTIMATES OF THE INDIAN OCEAN SECTOR OF THE SOUTHERN OCEAN, DURING THE AUSTRAL SUMMER OF 1986-87

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An extensive area, between 32-70°S covering diverse ecosystems viz. icy shelf, polynya, fast ice, pack ice, subantarctic islands and oceanic waters, was surveyed from December 1986 to March 1987, for estimating the standing crop of krill, sea birds and marine mammals.

102 hauls of krill, 537 sightings of seabirds and 102 spottings of marine mammals, were made. Relevant environmental and biological data, on wind speed and direction, air and water temperature, salinity, dissolved oxygen, nutrient salts and phytozooplankton production are also considered- Spatial variations, in the distribution and abundance of producer/prey i.e. the krill and consumer/predator i.e. seabirds and marine mammals, were recorded.

The krill biomass varied from 112ml/1000$m^{3\,in}$ 70-60° S to 55 ml/1000m3 in 60-50°S to 50.2ml/1000m3 in 50-40°S. Similarly, the population density showed variations from 1665/1000 m^3 (70-60°S) to 1584/1000 m3 (60-50° S) to 753/1000 m3 (50-40° S).

The distribution and abundance of consumer species, displayed a direct relationship with the biomass and population density distribution of the prey species i.e. the krill. Out of the observed 40 species of seabirds and 12 species of marine mammals, 15 and 7, common species, respectively, were

investigated in detail, for delineating the population density distribution. Abundance was observed to vary from 25/100 km^2 to 1876/100 km^2 in seabirds and from 10/100 km^2 to 233/100 km^2 in rrrarine mammals. Highest population density was recorded in the ice edge-sea interaction zone, extending from 70 to 60°S. A northerly decrease from 60°S was discernible.

Data on the biomass and population density of the krill and of the seabirds and marine mammals, are further processed, for assessing the potential and sustainable yield of exploitable living resources from the Northern or the Indian Ocean sector of the Southern or the Antarctic Ocean.