

# STATUS AND FUTURE OF MARINE ALGAL RESEARCH ON THE EAST COAST OF INDIA

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## Introduction

The east coast of India, including the maritime states of West Bengal, Orissa, Andhra Pradesh and part of Tamil Nadu, provides an unique environment for marine communities, since major rivers like Ganges, Mahanadi, Godavari, Krishna and Cauveri, open into Bay of Bengal and highly productive mangrove habitats occur in the river deltas and coral reefs at the southern end. In these marine habitats two types of algae occur- the macro algae or seaweeds and the micro algae or phytoplankton. These algae directly or indirectly play an important role in the economy of the maritime states as autotrophic food producing organisms and as synthesizers of complex organic compounds such as polysaccharides, pigments, protein, pharmaceuticals and various other products useful to man. But on the east coast of India, research and commercial activities on macro- and microalgae are very limited. The present status of marine algal research and the future programmes needed on this important renewable plant resource are briefly outlined here.

## Macroalgae or Seaweeds

Macroalgae grow in the shallow coastal habitats. The rocky or coral formations ideally suited for marine algal growth are seen in the northern parts of Andhra Pradesh. The algal species diversity of these areas is well understood. In recent years taxonomic accounts and other contributions relating to the occurrence of marine algae have been published from West Bengal, Orissa and some northern areas of Tamil Nadu, such as Mahabalipuram, Covlong, Kattumvadi, Pondicherry, Porto Novo and Cuddalore.

As seaweeds are utilised for the manufacture of agar-agar, algin and as sources of food, and fertilizer, pioneering work was done on seaweed utilization by late Mrs. Thivy, working in CMFRI, Mandapam since late 1960s. Agar-agar and algin are being manufactured in our country using red algae (*Gelidiella acerosa*, *Gracilaria edulis*) and brown algae (*Sargassum* and *Turbinaria* spp.) respectively. This awareness on seaweeds helped in estimating the seaweed resources and the quantities estimated from Andhra Pradesh, Mandapam to Kilakkarai section of Tamil Nadu and Chilka Lake are given below:

States	Alginophytes	Agrophytes	Others	Total
Tamil Nadu:				
a) Rameswaram Kilakkarai	8998	1180	7143	17321
b) Deepwater Zone	1762	0	15388	17150
Andhra Pradesh	219	559	6720	7499
Orissa (Chilka Lake)	-	5	-	5

At present seaweeds are harvested from Tamil Nadu Coast and resources available in other part of east coast are not exploited. For proper management of seaweed beds and for the cultivation of commercially important seaweeds, intensive studies were carried out on the biology and ecophysiology of useful algae of Mandapam and Visakhapatnam areas. Technologies for the commercial cultivation of *Gelidiella*, *Gracilaria*, *Hypnea* and *Euchema* have been developed working in the Gulf of Mannar near Mandapam.

### Microalgae

The microalgae also play a crucial role in aquaculture industry of fin and shell fish, especially in hatchery production as larval feeds. The coastal zone on the East Coast from Chennai to Chilka Lake is the hub of prawn culture activity in India. At present diatoms like *Chaetoceros*, *Skeletonema* are widely used as larval feeds. Though many taxonomic studies are made on diatoms and dinoflagellates of the inshore waters of Bay of Bengal there is little published data on the chemical composition of these two groups and other microflagellates of Chlorophyceae,

Chrysophyceae and Prymnesiophyceae. It is well documented that the chemical composition and growth rate of microalgae are influenced by temperature and other environmental conditions, and hence, more work is necessary on microalgae of our waters to develop strains for providing nutritionally balanced diet under tropical conditions.

### Future Programmes

From the foregoing account it is evident that our knowledge on algal research and development is incomplete and the following activities must be taken up on the East Coast.

1. Harvesting of *Gracilaria* and *Sargassum* and other important seaweeds available in different parts of the East Coast.
2. Studies on the possibilities of cultivating useful seaweeds in suitable areas.
3. Manufacture of liquid fertilizer and utilization of seaweeds of this area for bioactive compounds etc.
4. Isolation and testing of microalgae for their sustainability in mariculture and cultivation of high value products.

