



**ICHTHYOFAUNAL ASSEMBLAGE IN MACRO ALGA CHAETOMORPHA AEREA  
(DILLWYN) KUTZING, (CHLOROPHYCEAE) IN PULICAT ESTUARY,  
TAMILNADU, INDIA**

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**Abstract.** In the present study an attempt was made to find out the ichthyofaunal assemblage in the green alga *Chaetomorpha aerea*, at Pulicat estuary during the period of October 2011- November 2012. The qualitative data analysis showed that, the Ichthyofaunal diversity in *C.aerea* mainly occupied by the Order Perciformes (Family: Lutjanidae, Caragidae, Terapontidae and Ambassidae) followed by Mugilliformes (Family: Mugilidae). The present study constitutes the first baseline approach to the Ichthyofaunal diversity of the green alga *C. aerea* at the Pulicat Tamil nadu, India. However, knowledge on algae associated ichthyofauna is essential for future monitoring, conservation and for making reliable management decisions, especially in protected areas such as Pulicat Lake, Tamil nadu, India.

**Keywords:** Ichthyofauna, Pulicat Estuary, Green algae.

## 1. INTRODUCTION

Macroalgae, popularly known as seaweeds are prospective renewable resources in the marine environment. Macroalgae are primary producers and they play a significant role in the benthic food web. Many macroalgae build biogenic habitats which give shelter and provide a suitable physical environment for many fish species and other of organisms Day et al. (1989). The fauna associated with algal beds forms an important link to higher trophic level organisms such as juvenile fish (Andrew and Jones, 1990 and Fletcher and Day, 1983). Macroalgae and seagrasses

often occur as dense aggregations, forming habitat patches to the associated fauna (Gunnill, 1982; Edgar and Moore, 1986). In India, Sarma and Ganapathy (1972; 1975), Sarma (1974), studied the phytal fauna from Visakhapatnam coast. Joseph (1978<sup>a,b</sup>) studied the phytal fauna from Mandapam; Yogamoorthi (1982) studied the phytal fauna from Vellar estuary; Muralikrishnamurthy, (1983) studied the phytal fauna from Visakhapatnam coast; James, et al.,(1986) studied the phytal fauna from Palk Bay and Gulf of Mannar; Selva Ranjitham et al. (2008) studied the phytal fauna from Vellar estuary and Jansi, et al.(2009) studied the phytal fauna from Manakkudy estuary. The present study is aimed at to study the ichthyofaunal assemblage in Pulicat Lake.

## 2. MATERIALS AND METHODS

**2.1. Study area - Pulicat Estuary.** Pulicat estuary is the second largest brackish water body in India and is located between 13°26' and 13°43' N latitude and 80°03' and 80°18' E longitudes, with an average water spread area of about 461 sq. km on the Coromandel coast. Pulicat estuary has been so rich in biodiversity and fisheries since ancient times.

**2.2. Collection and Identification.** The green alga *Chaetomorpha aerea* was collected from Pulicat estuary (Quadrat, 25 × 25 cm<sup>2</sup>; each 10 replicates). The animal groups were sorted, counted and preserved in 4 % formalin for specific determination. The collection of fauna associated with the seaweeds was carried out following the procedure advocated by Sharma and Ganapati (1975).

## 3. RESULTS AND DISCUSSION

**3.1. Ichthyofaunal assemblages.** In the present study, green alga *C.aerea* associated fish species (*Ambassis ambassis*, *Lutjanus johnii*, *Mugil cephalus*, *Terapon puta* and *Atule mate*) were recorded at Pulicat estuary, the fish species belong to the following families Lutjanidae, Caragidae, Terapontidae, Ambassidae and Mugilidae during the study period in Pulicat (Table1) and (Plate1). The fish species composition of *C.aerea* ranged between 12.33 and 32.63%.

TABLE 1. Green alga *Chaetomorpha aerea* associated fishes at Pulicat estuary

Classification of fishes	Description	Distribution	References
Order: Perciformes Family: Terapontidae Genus: <i>Terapon</i> Species: <i>T. puta</i>	Dorsal spines (total): 11-12; Dorsal soft rays (total): 9-11; Anal spines: 3; Anal soft rays: 8-9.	<i>Terapon puta</i> is distributed in the Indo-West Pacific; northern Indian Ocean and the Indo-Australian Archipelago. Adults inhabit coastal waters, entering brackish estuaries and mangrove areas	Paxton, et al., 1989 : Froese and Pauly, 2017
Order: Perciformes Family: Ambassidae Genus: <i>Ambassis</i> Species: <i>A. ambassis</i>	Single supraorbital spine; rostral spine absent; preopercle ridge and rear margin serrate; interopercle edge smooth except for few small serrae at angle; 2-3 rows of cheek scales; predorsal scales 13-18; lateral line continuous (normally); lower gill rakers 19-23; pectoral-fin rays 14-15.	<i>Ambassis ambassis</i> is found in the Indo-West Pacific from subtropical eastern South Africa to Kenya, Madagascar, Runion and Mauritius, Australia and India	Froese and Pauly, 2017: Nelson, 1994
Order: Perciformes Family: Carangidae Genus: <i>Atule</i> Species: <i>A. mate</i>	<i>Atule mate</i> having a moderately compressed, oval-shaped body. The dorsal and ventral profiles of the fish are nearly evenly convex, with the two lines intersecting at the pointed snout. There are two separate dorsal fins; the first consisting of eight moderately high spines and the second of a single spine followed by 22 to 25 soft rays. The anal fin consists of two anteriorly detached spines followed by a single spine attached to 18 to 21 soft rays.	The yellowtail scad is widely distributed in the tropical and subtropical regions of the Indo-Pacific region	Froese and Pauly, 2013; Nelson, 1994

Classification of fishes	Description	Distribution	References
Order: Mugiliformes Family: Mugilidae Genus: <i>Mugil</i> Species: <i>M. cephalus</i>	<i>Mugil cephalus</i> is commonly called as flathead grey mullet; identified with elongated body, with two short dorsal fins, the first of which has four spines rays, wide jugular space; very visible adipose eyelids; very big cycloid scales on the body, small cycloid scales on the head; no lateral line; small mouth; pectoral fins are inserted at a high level; bluish almost black back and silver flanks.	It is euryhaline and can tolerate big changes in the salinity; moreover, it can tolerate very different environmental conditions, such as pollution or water lacking of oxygen. <i>M.cephalus</i> feeds on planktons and detritus. <i>M. cephalus</i> occurs worldwide, attested by different names for this fish.	Paxton, et al., 1989; Nelson, 1994; Froese and Pauly, 2017
Order: Perciformes Family: Lutjanidae Genus: <i>Lutjanus</i> Species: <i>johnii</i>	Lutjanus was identified by its steeply sloped head and the centre of each scale with a reddish brown spot. A distinct large black blotch is present above the lateral line below the anterior dorsal fin rays.	The family Lutjanidae is confined in general to tropical and subtropical marine waters, although three species of the genus Lutjanus from the Indo-West Pacific inhabit fresh water and the juveniles of several species in this genus around the world frequent brackish estuaries	Nelson 1994; Froese and Pauly, 2017.

The coastal and marine environs have some of the richest biodiversity areas which include extensive areas of complex and specialized habitats such as enclosed seas and tidal systems, estuaries, salt marshes, coral reefs, sea grass beds, and mangroves. Estuaries are unique coastal ecosystems acting as repository for a plethora of organisms. These are often called 'tidal forest', coastal woodlands. They play a major role as nursery ground for young ones of many species of fin and shell fishes (Ajmal Khan et al., 2005).

It is well known that the faunal density is also dependent on the morphology of the algae (structure, texture, color and contour) and its sediment retaining capacities. The filamentous alga *C. aerea* due to its densely growing habit providing more area of the substratum, it supported a high number of fishes and other organisms, compared to other seaweeds. Many species

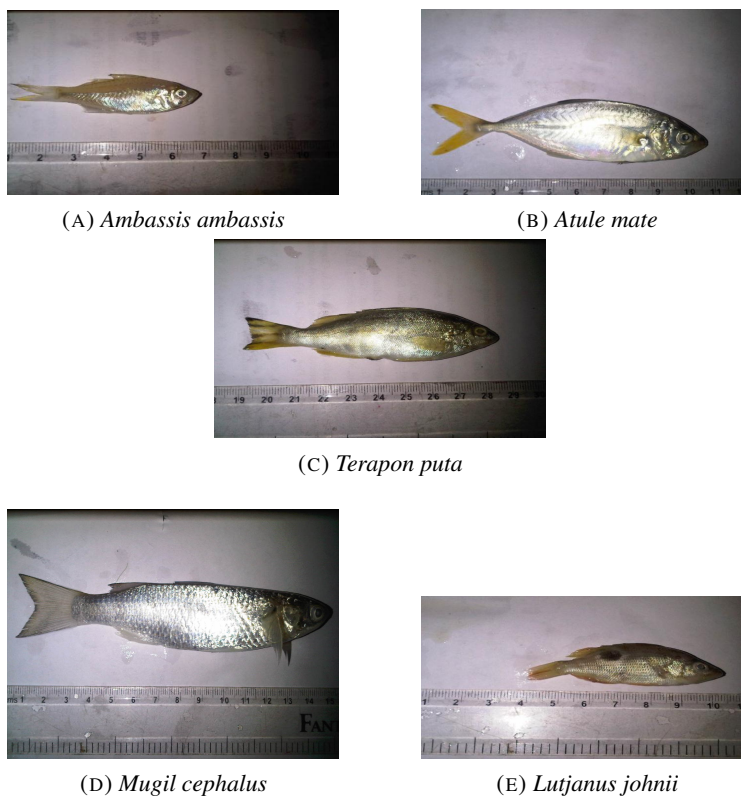


FIGURE 1. Fish species

inhabiting marine algae depend on them for food (Andrew and Jones, 1990 and Fletcher and Day, 1983).

#### 4. CONCLUSION

This is the first study fish species diversity, composition and richness of faunal assemblages in *C. aerea* at Pulicat estuary. The filamentous alga *C. aerea* due to its densely growing habit providing more area of the substratum, it supported an elevated number of fishes. Five fish species of *C. aerea* were recorded from the Pulicat estuary. The present study constitutes the first baseline approach to the alga associated fish faunal diversity in Pulicat estuary. However, knowledge of seasonal fluctuations of green alga *C. aerea* associated Ichthyofauna is necessary for forthcoming monitoring, administration and for making consistent management decisions, especially in protected areas such as Pulicat estuary, Tamil Nadu, India.

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