

RESEARCH

A CASE STUDY ON THE SEAWEED COLLECTORS AT KILAKARAI, RAMANATHAPURAM DISTRICT

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The Gulf of Mannar (comprised of 21 chain of islands) is the first Marine Biosphere Reserve in the South East Asia. It was declared as protected Marine National Park by the Government of Tamil Nadu in the year 1986 under Indian Wildlife Protection Act (WPA), 1972 and later as the first Marine Biosphere Reserve of India in 1989 by the Government of India. The International Union for Conservation of Nature (IUCN) Commission on National Parks and Protected Areas, with the assistance of the United Nations Environment Programme (UNEP), United Nations Educational, Scientific and Cultural Organization (UNESCO) and World Wildlife Fund (WWF) has identified it as Reserve due to its diversity (Melkani *et al.*, 2006). This biosphere reserves cover about 10,500 sq. km with continuous stretches of coral reef. It is comprised of a 560 km core area of coral islands and shallow marine habitat. The Gulf of Mannar marine ecosystem is the richest coastal biodiversity consisting of abundant varieties of coral reefs, rocky shores, sandy beaches, mud flats, estuaries, mangrove forests, seaweed stretches and sea grasses beds which serve as a habitat for more than 4,200 species of plants and animals. The richness of marine biodiversity assessment studies in the Gulf of Mannar region were conducted by several organizations like Wildlife Institute of India (WII), Zoological Survey of India (ZSI), Central Marine Fisheries Research Institute (CMFRI), Tuticorin Fisheries and Research College, Integrated Coastal and Marine Area Management (ICMAM) project of Department of Ocean Development, Government of India, Anna University, Madurai Kamaraj University, Annamalai University, Suganthi Devadasan Marine Research Institute (SDMRI) etc (Chaudhury *et al.*, 2007; ENVIS Centre, 2015).

Their assessment come-up with a list of endangered (seriously at risk of extinction) species like dugong (sea cow), whale shark, sea horses, olive ridley, green and hawksbill sea turtles, pipefish and sea cucumbers. It also serves as a habitat of several endemic (unique to a defined geographical location) species such as balanoglossus (worm-like animal), sea grass, crabs, lobsters, pearl oyster and mangroves (shrub or small tree that grows in coastal region) (IWPA, 1972).

Further, it is home to hard corals (104 species), pisces (fish) (1147 species), sea turtles (5 species), sea grasses (15 species), marine algae (seaweed) (147 species), mangroves (12 species), sea horses (4 species), sea snakes (13 species), crustaceans (aquatic animal with hard outer shell and many legs. Eg. crabs, lobsters, crayfish, shrimp etc) (79 species), sponges (aquatic invertebrate with a soft porous body. Eg. calcareous sponges and glass sponges) (108 species), molluscs (soft-unsegmented invertebrate with external calcareous shell. Eg. octopus, squid etc) (856 species), echinoderms (hard, spiny skinned marine invertebrate. Eg. sea cucumber, starfish etc) (153 species) and birds (290 species) (Choudhury *et al.*, 2007; ENVIS Centre, 2015).

The main objective of Gulf of Mannar Marine National Park (GOMMNP) is to conserve the rich marine biodiversity of the Gulf of Mannar region by providing protection, management and restoration of coral reef system (Melkani *et al.*, 2006). Numerous species of marine plants and algae are commonly called as seaweed and they are one of the main agents which not only helps the corals in healthy propagation but also absorbing the wave action that alleviate coastal erosion. Hence the marine ecosystem demands seaweed colonization. Some of the anthropogenic activities such as industrial effluent discharge, commercial shell collection, coral mining, destructive fishing and seaweed collection results in high sedimentation and turbidity. As a consequent of increased turbidity and sedimentation the coral distribution in the Gulf of Mannar region is controlled. Coral death, bleaching and smoothening have been a major threat to the lives of marine organisms in the marine reserve (Melkani *et al.*, 2006; Junjie *et al.*, 2014).

The Centre for Women's Studies, Lady Doak College made an attempt to focus on the women seaweed collectors and their families who solely depend on the Gulf of Mannar Marine reserve. About 2,000 women and men are involved in seaweed collection along the coast of southern Tamil Nadu from Pamban to Thoothukudi. Few women seaweed collectors from

Keelakarai, Ramanathapuram district were interviewed and following are the stories which tells us about strive for their survival. These stories highlight the intersections of poor women's livelihoods and bio conservation.

Mrs. Raakammal, a 54 years old women who engaged herself in sea weed collection since age of 10. She was born and brought up at Bharathi nagar, Kilakarai in Ramnathapuram district. Her interest towards this field was inherited from her parents. Further, she finds freedom in doing this work than any other daily wages. Generally, in a month the sea weed collectors go to sea for a maximum of 13-15 days. Subsequently, she earns a minimum of Rs.300 and a maximum of Rs.500 per day as the cost of one kilogram of sea weed has been fixed as Rs.15. The diesel fare to take their boats into the sea to collect seaweeds has also to be met with their earning. Despite her low income and being a single parent she has strived hard to educate her children. The women avoid going into sea if there are any family functions or festivals in any of the houses in their village and this has been a traditional practice followed by all of them. Usually, the sea weed collectors have to travel 3-4 hours to reach the islands such as Mulli, Valai, Appa, Nalla Thanni and Uppu Thanni where the sea weeds are in abundance and being harvested. They wear T-shirt, diving goggles, slippers, gloves and also carry collecting net bag to store sea weeds. Probably, they spend nearly 5 hours to collect the sea weeds. Men are also involved in collection, in addition, they operate the boat. From their conversation it is understood that the ability to harvest seaweed depends on the individual person regardless of whether they are men or women. They are struggling for about 20 years to get identification card to stay in the islands in order to collect larger amounts of seaweed, but the Government of India is unable to do so due to the bio conservation norms. Due to their low economic status, they cannot spend much on nutritious food or have delicious food. On the other hand, free rations supplied by the Government is enough compensation for them. They get loans from the agent who acts as a middleman between the collectors and the Sea Weeds processor industries. Eventually, the livelihood of these people wholly depend on seaweed collection.

Mrs. Maariammal came into this field when she was 15 years old and now she has crossed 50 years. She used to stay in island for harvesting seaweeds. At times, if they are caught by coastal guards while they are at islands, they will be penalized for about Rs.10, 000 - 30,000. No receipt will be given at any cost. Even though they realize seaweed collection is illegal they don't know

any other work since they were born and brought up in the fisher folk community. They abide to the rules and regulations of their community. For instance, they are not supposed to go to sea on all the first days of the month and it is mandatory to participate in all the family functions in their community otherwise they will be fined for about Rs.500.

At the age of 10 Mrs. Panchavarnam started her profession as a seaweed collector. She is passionate about doing her work even at her late 50's. The reason for choosing this field is that no one can question her and she will be paid as per her collection/harvest. She added that they are facing restriction for seaweed collections for about 25 years and not earlier. She contends that the sea is their asset. If they are penalized for entering into the islands, it will be paid by the owner of the seaweed industry. She expressed in anxiety that the coastal guards never show mercy on them. They used to destroy the boat, weapons, food, and diesel and take away their saris when the women are in underwater for seaweed collection. Though the field is insecure they have been used to it for more than two generations. However, their children are not interested in this field. She was able to educate her two daughters till 10th std. *Gelidiella acerosa*, *Gracilaria*, *Turbinaria* and *Sargassum* are the main species of seaweed which has been collected. In times of crisis, through their small savings in the self-help groups they manage their financial needs. They were also advised to do other work like cattle maintenance, agriculture and flower strings by the forest officers and coastal guards but they refused.

Mrs. Jeyanthammal, a 47 years old seaweed collector was inspired by her parents. Her siblings are also engaged in the same profession. She stated that her grandparents lived for many years in islands and used to come back to their village only for family functions and temple festivals. She added that all the fisher folk community possess the sea and its resources. She has a traditional knowledge of identifying the seaweeds based on their uses and applications. Though her husband passed away a few years back, she has brought up her children to an extent and arranged the marriages of her daughter solely from her earnings in sea weed collection.

A man who continuously stands behind for the welfare of the fisher folk community and seaweed collectors is none other than Mr. Anand, Secretary, Fisher folk workers and Seaweed collectors Association, Ramnathapuram District. The association has members from 119 villages. He said that they use their bare hands to harvest seaweeds and this is their unique way of seaweed collection. This association was started in 1999 initially with members from 20 villages. Presently,

there are about 19,000 members involved in seaweed collection from Dhanushkodi to Tuticorin. Mostly women are involved in this field than men. Since their income is very little they are not able to have any savings.

The Gulf of Mannar seaweed collectors had conducted a study to identify the locations of live and dead corals in the region of Gulf of Mannar and its associated islands. The report has been given to the Joint Secretary of State Planning Commission, Tamil Nadu in 2011 as mentioned by Mr. Anand. They also requested the Government of Tamil Nadu to provide bank loans to start a seaweed processing industry by the fisherwomen cooperative society. On behalf of the seaweed collectors, Mr. Anand has requested the State Planning Commission, Tamil Nadu to provide identification card for the seaweed collectors and allow them to stay in islands for at least the period needed to dry the seaweeds after it has been harvested. He added that the fisher folk community restrict themselves to enter into sea from the month of April to June and avoid using scrapers for seaweed harvesting. This is how they are protecting sea and its resources. However, if the coastal guards find them in islands they burn their saris and kick away their food. On one occasion they left 20 women in island and took away their boats. And all the women reached seashore by swimming.

These stories by the women and Mr. Anand, highlight the plight of the women sea weed collectors, their dependence on this income source and the inhuman attitude of the forest guards. The women seem to be unaware of the dangers or negative impacts to the marine ecosystem of plucking/harvesting seaweeds. The consequence of seaweed collections may be

1. Increase the sedimentation rate which obviously threaten coral reefs
2. Walking on the live coral reef causes high sedimentation and reduces the light intensity which are unfavorable for the growth of coral reef
3. Dead corals act as substratum for the coral larvae. Damaging the dead corals cause demand for the survival of coral larvae.
4. Marine water pH will be low which disturb the marine ecosystem (Venkataraman and Raghuram, 2006; Choudhury *et al.*, 2007; ENVIS Centre, 2015, Ramesh *et al.*, 2019)

On the one hand the seaweed collectors struggle for their livelihood on the other hand there has been a rational exploitation of seaweed which further leads to the habitat loss of numerous marine organisms.

The Central Government of India and State Government of Tamil Nadu are taking several initiatives for the conservation of Gulf of Mannar Marine reserve and livelihood security of seaweed collectors. Sustainable livelihood options for the women sea weed collectors needs to be pursued so that both the stakeholders' needs are met.

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