

ORIGINAL RESEARCH ARTICLE

Fishery Potential of Red Lionfish *Pterois volitans* (Linnaeus) from Cuddalore Coast, South East Coast of India

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ABSTRACT

The fishery data for any coast is essential, due to data the ocean's capacity to provide. Estimates based on fisheries catch data. Impacts of fishing have fallen particularly hard on slow-growing predators. Lionfish appear graceful and attractive to most observers and such a fish not having predators of their own and it can prey on ecologically important native regions are causing dramatic reduction in diversity of species. Because, the lionfish are voracious hunters, the main function it will take at the few minutes more than 49 species of prey in the native regions. After harvesting the fisherman don't consider in lionfish for food and other uses, simply collect and throw outside, since there is no clear cut information, use of lionfish. The commercial fisheries may suffer losses as lionfish on economically important ones and vie with those species for food. Swimmers, divers and fishermen are also at risk of being stung by the venomous lionfish. In the present study were investigate the gear, graft and landing report of *P. volitans* from Cuddalore coast, south east of India.

Key words: Lionfish, triumph angel killer prey, colour planet, landing report.

INTRODUCTION

The seafood forms a main food item in many countries. Fishes an important source of food for millions of people worldwide. Totally the marine catch accounts for 16% of global animal protein consumption. Many people as a part of the daily diet of fish, it is having a high taste and nutrition especially protein ^[1, 2, 3]. The fisheries resources significantly contribute to food security, income generation and economic welfare and are nevertheless important in some ways. The family scorpionfish in member of the red lionfish is known by many names viz., lionfish, turkeyfish, zebrafish, butterfly cod, ornate butterfly cod, peacock lionfish, and red firefish. When compare other fishes it is easily identified and widely distributed, stands out in its habitat with its strange appearance and coloration ^[4,5]. That invasive lionfish population is a concern to marine regions due to the potential threat to fisheries resources and native communities and consumer health. The lionfish directly or indirectly, cause to inhabited regions, since the forage fish community, the density of lionfish, and the geographic location, it can provide observations of

lionfish impacts on community structure and the abundance of forage fishes are needed. The distribution, abundance and availability of fishery resources are mainly influenced by ecologically. Climate change is strongly influencing the distribution and abundance of fish life patterns, such as growth, survival and reproduction ^[6,7]. The exploited scorpion fish resources with respect to individual species, *P. volitans* have been attempted based on the personal observation along the Cuddalore coast. The coast provides sufficient quantity of seafood from the state, still there is no clear cut intimation on the landing of fishes. Hence in the present study, an attempt was made to investigate the fishery potential of *P. volitans* in Cuddalore, Tamilnadu which is one of the most important fish landing centres.

MATERIALS AND METHODS

Data Collection

The present study was carried out for one year from January 2012 to December 2012 from Cuddalore (11° 43' N, 79° 49' E), south east coast of India. The data has been collected by frequent

visit and observation in the landing centre. Similarly, the details for non-sampling fishing days were collected from the merchant's diary (fish marketing agency) for as many days as possible. The average daily fish landing was worked out from the data thus obtained and raised to the number of fishing days to assess the monthly total fish landings of the centre. The number and types of craft and gears used for fishing were enumerated and compared with the data kept with owners association. The collected data for entire study area were noted and processed through proper tools (Plate 1).

Plate 1: Fishes landed in landing centre



RESULTS

Crafts and Gear

A variety of indigenous and mechanized crafts are employed for fishing at Cuddalore. Selectivity of fishing craft is an important criterion in fishery as the size, capacity and infrastructure facilities of the craft affects the efficiency of catching. In Cuddalore, three different types of crafts were majorly used for fishing such as (i) Motorized fishing vessels, (ii) Mechanized fishing vessels and (iii) Deep sea fishing vessels.

Motorized Fishing Vessels

The boats or crafts fitted with motorized means of propulsion having engine not more than 15 horse powers and length of not more than eight meters (Eg. Engine catamarans, Thoni, Vallam and Mechanised boats) (Fig 1).

Mechanized Fishing Vessels

"Mechanized fishing vessels" means a ship or boat fitted with mechanized means of propulsion having an engine not less than fifteen horse power but not more than one hundred and twenty horse power and measuring in length not less than eight metres and not more than fifteen metres (Trawlers, Gill netters, Purse seiners) (Fig 2).

Deep Sea Fishing Vessels

A ship or boat fitted with mechanical means of propulsion having an engine of not less than one hundred and twenty horse power and measuring in length not less than fifteen metres (Vessels and fishing ships) (Fig 3).

Fig 1: Major Crafts used at Cuddalore motorised boat



Fig 2: Major Crafts used at Cuddalore (a) Motorised boat, (b) Trawlers



Fig 3: Major Crafts used at Cuddalore deep sea fishing vessels



Fishing Gears

Gears are the tools used to catch the fish selectivity of fishing gear are an important tool for effective management of fisheries. The main

fishing gears are nylon bottom driftnets of 55mm to 62mm stretched mesh, measuring up to 400 m. In Cuddalore, three different types of fishing gears were broadly used for fishing of *P. volitans* such as (i) Gill nets, (ii) Hooks and Long lines, (iii) Trawl nets (Fig 4).

Gill Net

In Tamil, the Gill net is called as Neduvalai and Sevulvalai. It has large wall of netting, which may be set from mid water to the surface for pelagic fishes and fishes get entangled with their gills in between the mesh. The nets are made of fine twines of nylon or polyethylene, which will not be visible to the eyes of the fishes.

Hooks and Lines

Hooks and lines are also commonly used at Cuddalore. A number of hooks are allowed to hang through small line attached to long rope with buoys. Trash fish are used as bait. The cost of the long line varies from Rs. 500 to 1000, based on the length of rope and number of hooks.

Trawl Nets

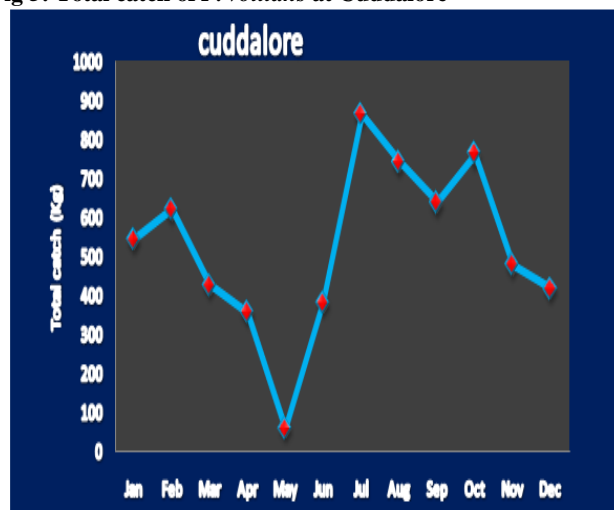
It is commonly called as “Ezhupu valai” which is operated at depths of 50 to 300 meters and up to a distance of 10 to 40 km sometimes 75 km in station 1.15 to 50 meters and up to a distance 5 to 75 km in stations 2, 3; it depends on the availability of fish. Each trawl operations may last for four to six hours and two or here operations may carry out during each trip and some times more. The cost of a trawl net is about Rs. 20,000.

Fig 4: Major Gears used to catch *P. volitans* at Cuddalore:(a) Gill net (b) Hook and Long line (c) Trawl net



The total landings of *P. volitans* at Cuddalore were recorded and presented in (Fig.5). Results revealed that maximum (864 kg) landing was recorded during the month of July 2012 whereas minimum (59 kg) was recorded during May 2012 (Fig 5).

Fig 5: Total catch of *P. volitans* at Cuddalore



DISCUSSION

The magnitude of east coast fishery is not comparable to that of the west coast substantially to the Indian fisheries. [8, 9] were recorded that 3.9 laks tons of fish landed from the entire coastline of Tamil Nadu which ranks fourth among the maritime states of India in marine fish production. Lionfish introduced in anywhere regions it will easily adapt and survive for 85%. The voracious feeding behaviour, there are problematic ecologically and economically, since the feed mainly native species, especially fishes, crustaceans and outcompete native predators for prey [10]. Also, the lionfish spines are venomous, though not fatal to humans. The dorsal- and anal-fin spines of the lionfish contain potent pretty poisonous and painful if people touch the lionfish. However, in India and many countries lionfish are eaten. Now a day, some fishing organisations motivate and educate, on how to prepare lionfish. The fisherman simply harvest and using for local consumptions and export. The lionfish spines only having venom, not the flesh, even cooking destroys any residual toxins [11, 12, 17, 18, 21]. Therefore, it is poses a threat to fisherman and handling fellow as a divers and wildlife inspectors. Touch the sting can induce extreme pain, swelling, redness, bleeding, nausea, numbness, joint pain, anxiety, headache, disorientation, dizziness, nausea, paralysis, and convulsions. Still, extreme caution is urged when handling these fish, as their spines can inflict a powerful sting. In recent years, a growing interest in aquaculture throughout the world to increase the fish production mainly in coastal waters [13, 14, 17, 18]. Hence, the present study was undertaken to understand the total landing of *P. volitans* at Cuddalore coast.

The study about the crafts and gears used at Cuddalore revealed that three different crafts such as motorized fishing vessels, mechanized fishing vessels and deep sea fishing vessels and crafts such as gill nets, hooks and lines and trawl nets. Similarly, [2, 15,16,19] also reported that motorized fishing vessels, mechanized fishing vessels and deep sea fishing vessels and crafts such as gill nets, hooks and long lines, and trawl nets were the major equipments used for fishing at Cuddalore east coast of India.

The study on total landing of *P. volitans* at Cuddalore revealed that maximum fish landing was recorded during July and minimum during May. The maximum landing was recorded during the month of July, and was mainly constituted by the pelagic fin fish. The fishermen are mostly affected during the rainy season when they could not get themselves engaged in fishing activities [16,19]. At times their boats and nets are getting damaged due to heavy rains, cyclones, and flood and the boats are getting drifted from the landing centre into the sea. The results concluded that this is a prolific fishing grounds and one of the landing platforms in Tamil Nadu, the fish landings of the study area contribute much to the states fish production [19, 20, 21]. The differences in the fish landings in the past two decades are due to many reasons, including the development of improved fishing craft and gear, importance of fish meat in the national and international markets and changes in the environmental parameters etc. The lionfish meat is not only used for the human consumption but recently most of the fishes are being fished as the source of fishmeal. Preparation of fish meal from the lionfish for human consumption seems to be advisable so as to get maximum benefit out of the catch. Steps should be taken to export this fish to foreign countries so as to make the industry lucrative. In the present study also confirms that Cuddalore coast is one of the important lionfish alive and catchment area for *P. volitans* in the east coast of India.

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