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Quantification Study of Shrimps and Crabs in Poompuhar Fish Landing Site, Mayiladuthurai District, Tamil Nadu

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Abstract:- As we know, the marine resources are important and have nutritive values to the human being. In this present study to reveal the quantity of shrimps and crabs landed in Poompuhar fish landing centre, Mayiladuthurai District, Tamil Nadu during from January 2016 to December 2016. Fortnightly the data were collected in the fish landing center and weighed itself. The average was calculated from 11 months of study period due to the fishing ban period occurs during from April 15th to June 15th of every year. Meanwhile the data were incorporated the balance month of April and June also. The results showed that, the average landing of shrimps per month was calculated that *Penaeus monodon* was high and least was *Aristeus alcocki*. In crabs, *Portunus sanguinolentus* was high and least was recorded *Podaphthalamus vigil* and *Charybdis truncate*. The month wise calculation was made to know the quantity of shrimps was landed in Poombuhar fish landing site during the study period. In December showed that, high amount of shrimps landed and the least amount of shrimps was landed during the month of August. In case of Crabs showed that, high amount of crabs landed during October and the least amount of crabs was landed during the month of April. It concluded that, the fishing equipments like fishing net, fishing vessels and experience of fisherman which directly influence to the fish quantity in the landing sites of Tamil Nadu.

Keywords:- *Shrimps, Crabs, Quantification, Poompuhar fish landing center, Decopods.*

I. INTRODUCTION

The marine resources are important and have nutritive values to the human being. The crustaceans are commercially important valuable sea food [1]. Among the marine food resources, decopods is the tasty and nutritive resources from the order of Crustacea. Crustaceans are chief members because more number of species present for human consumption and a fabulous variety of small species contribute to the involvedness and functioning of tropical ecosystems [2]. Already various studies documented that, the diversity and density of crustaceans in an around the study area. In Pichavaram mangrove areas [3,4] and Parangipettai coast [5,6], Chennai coast [7,8,9], Gulf of Mannar areas [10], Pondicherry mangrove areas [11] were reported. In Indian coast fifteen edible crabs are commonly available, among them twelve crabs are commercially valuable of local and export trade [12]. Afsal and Thomas [13] have been reported that, the Poompuhar fish landing site have been landed 78.63 tonnes of fishes from the 354 fishing vessels during the June month alone. Data on landing quantity of shrimps and crabs are important for ecological studies and species conservation assessments, especially when the species concerned is threatened among others by habitat destruction and uncontrolled resources utilization. Poombuhar is an important fish landing centre in Myiladuthurai District, Tamil Nadu, where thousands of fishermen from various villages are engaged to fishing and also exporting the landed fishes, shrimps, crabs etc to various places in India. Various studies were focused on the diversity of sea resources through fishing boats in this study area also. But the landing quantity of shrimps and crabs studies very scare in the study areas.

II. MATERIALS AND METHODS

Poompuhar was the one of Ancient port which involved major maritime activities during the Christian era itself. Now the study area (N 11º09'08; E 79º51'23) a popular fish landing centre is an important and significant in the Cauvery Deltoic region of Tamil Nadu. The fish landing site can supply fishes, shrimps and crabs throughout Tamil Nadu as well as India. The various shrimps and crab species were collected fortnightly as sampling from Poombuhar. Shrimps and crabs were identified to species level and weights were recorded by using weighing balance which used by the fisherman. The shrimps and crabs were identified by following Chapghar [14], Sakai [15], Galil [16], Ng et al., [17] for brachyuran crabs, Holthuis [18]; Sethuramalingam and Ajmal Khan [19] and Perez Farfante and Kinsley [20] for shrimps. Month-wise and species wise trawl landing data were subjected to one way ANOVA to know the significance changes during the months and species level by PAST software.

III. RESULTS

The study investigated the total quantity of Decopods captured and landed in the Poombuhar fish landing sites of Mayiladuthurai Taluk & District, Tamil Nadu. The average was calculated from 11 months of study period due to the fishing ban period occurs during from April 15th to June 15th of every year. Meanwhile the data were incorporated the balance month of April and June also. Totally 30.99 tonnes/month of shrimps and crabs were landed in Poopuhar fish landing site. In that, *Penaeus monodon* was high (3.96

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tonnes) followed by *Fenneropenaeus indicus* (3.54 tonnes), *Penaeus semisulcatus* (3.13 tonnes), *Metapenaeus affinis* (3.12 tonnes), *Parapenaeopsis stylifera* (2.66 tonnes), *Metapenaeus monoceros* (2.53 tonnes) and so on. The least was recorded that, *Aristeus alcocki* (1.65 tonnes/month) (Fig. 1). In crabs, *Portunus sanguinolentus* was high (1.05 tonnes) followed by *Portunus pelagicus* (0.92 tonnes), *Charybdis feriatus* (0.80 tonnes), *Charybdis lucifera* (0.64 tonnes) and so on. The least was recorded during the study period that *Podaphthalamus vigil* and *Charybdis truncate* (0.16 tonnes/month) (Fig. 2).

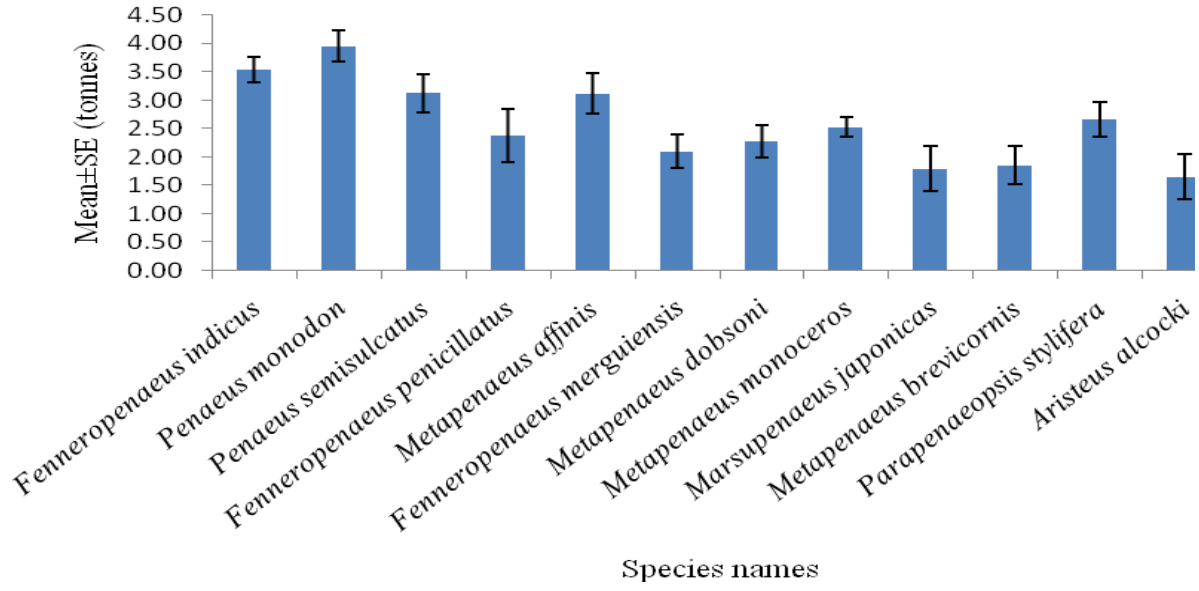

Fig. 1 Species wise shrimps landed in Poombuhar fish landing sites during the study period from January 2016 to December 2016 (n=11) (Mean±SE) (tonnes) (f=4.721; P<0.001)

The month wise calculation was made to know the quantity of shrimps was landed in Poombuhar fish landing site during the study period. In December showed that, high amount of shrimps landed (3.25 tonnes) followed by November (3.12 tonnes), January (2.88 tonnes), October (2.79 tonnes), Febraury (2.76 tonnes) and so an. The least amount of shrimps was landed during the month of August (2.13 tonnes) (Fig.3). In case of Crabs showed that, high amount of crabs landed (0.859 tonnes) during October followed by December (0.854 tonnes), November (0.805 tonnes), and so an. The least amount of crabs was landed during the month of April (0.349 tonnes) (Fig.4).

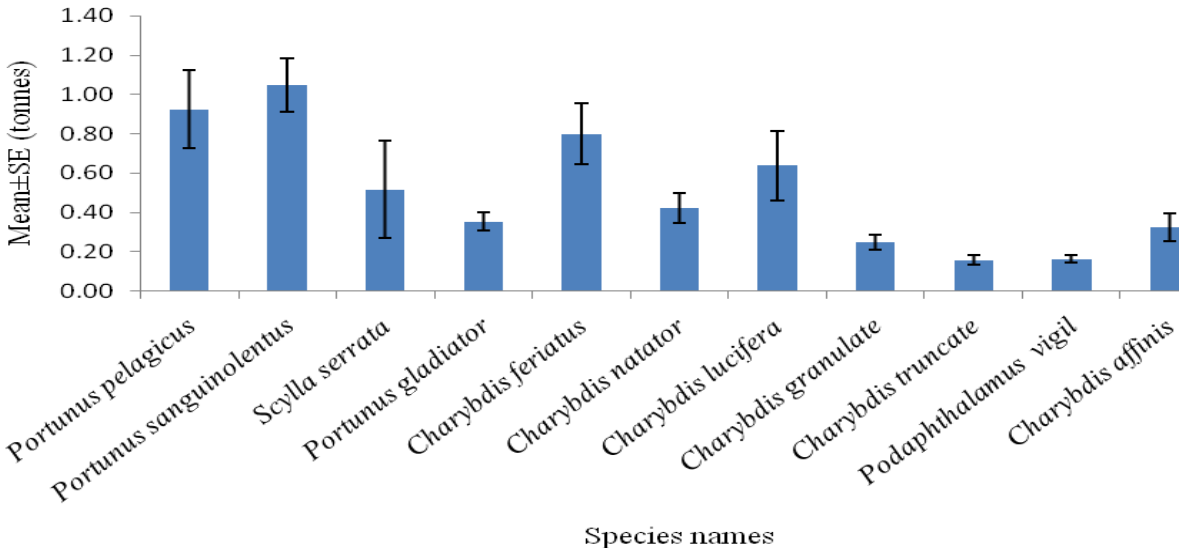

Fig. 2 Species wise crabs landed in Poombuhar fish landing sites during the study period from January 2016 to December 2016 (n=11) (Mean±SE) (tonnes)(f=9.108; P<0.001)

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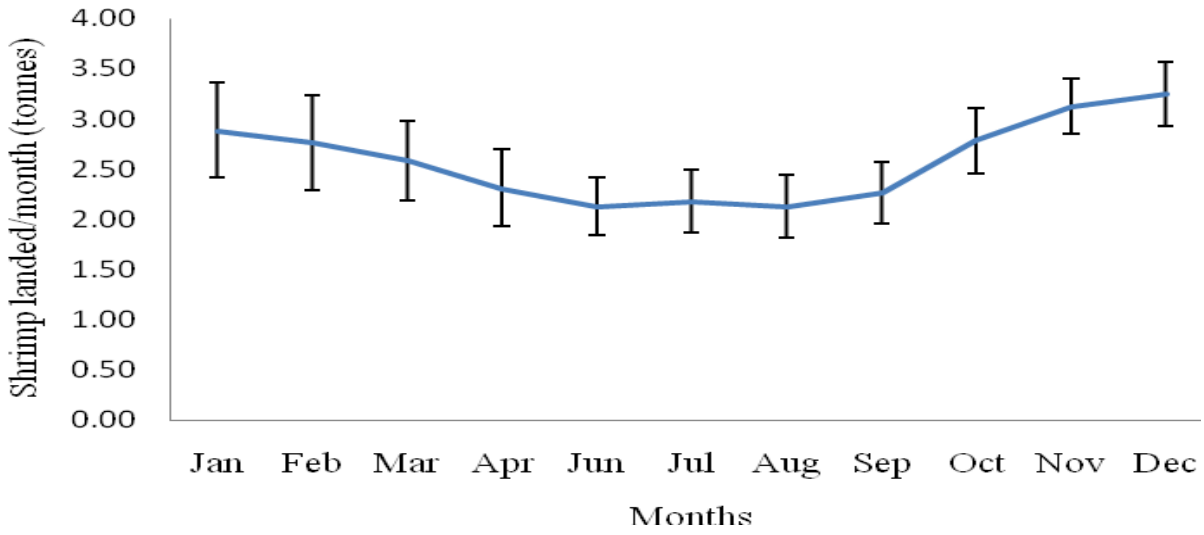

Fig. 3 Quantity of Shrimps landed in Poombuhar fish landing sites during the study period from January 2016 to December 2016 (n=11) (Mean±SE)

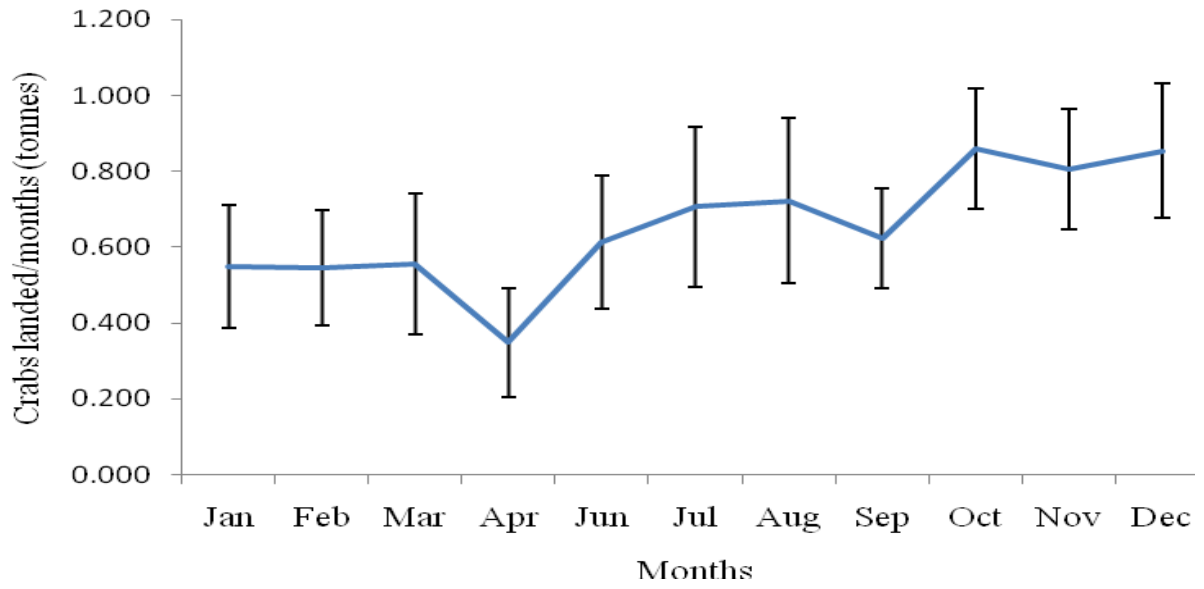

Fig. 4 Quantity of Crabs landed in Poombuhar fish landing sites during the study period from January 2016 to December 2016 (n=11) (Mean±SE)

IV. DISCUSSION

The study investigated the total quantity of shrimps and crabs captured and landed in the Poombuhar fish landing sites of Mayiladuthurai Taluk & District, Tamil Nadu during from January 2016 to December 2016. The average was calculated from 11 months of study period due to the fishing ban period. It shows that, the average landing of shrimps per month was calculated that *Penaeus monodon* was high and least was *Aristeus alcocki*. It may be due to the *Penaeus mondon* is a species which attain large size among the shrimps (MPEDA). In crabs, *Portunus sanguinolentus* was high and least was recorded *Podaphthalamus vigil* and *Charybdis truncate*. Afsal and Thomas [13] have been reported that, the Poompuhar fish landing site have been landed 78.63 tonnes of fishes (both shell and fin fishes) from the 354 fishing vessels during the June month alone. Similarly this study also showed that, shrimps and crabs alone 30.99 tonnes/month landed.

The month wise calculation was made to know the quantity of shrimps was landed in Poombuhar fish landing site during the study period. In December showed that, high amount of shrimps landed and the least amount of shrimps was landed during the month of August. During the December the water flow from river to sea occur. It may be increase the quantity of shrimps during the month while compared other months of study period. In case of Crabs showed that, high amount of crabs landed during October and the least amount of crabs was landed during the month

of April. It may be due to the seasonal fluctuation of the species landing from the fishing vessels. Fish farmers can take various types fishing vessels to catch the fishes in seashores as well as deep sea. They also spend time for fishing in the sea may vary based on the fishing vessels and equipments. It varied from 1 day to several weeks. The variation also influences the shrimps and crabs catching in the sea. The fishing equipments like fishing net, fishing vessels and experience of fisherman which directly influence to the fish quantity in the landing sites of Tamil Nadu. The study clearly indicates that, the quantification of shrimp and crabs in the Poompuhar fish landing site. In future, the result might be used for the fisherman to know their quantity of shrimp and crabs in their areas.

REFERENCES

[1.] U. Sathiya and V. Valarmathi, "Index value H,D and E of marine crab from Akkaraipeddai coastal water, Nagapattinam area, Tamil Nadu, India," International Journal of Zoology and Applied Biosciences. [2017] 2(5); 227-231.
[2.] M.E. Hendrickx, "Checklist of brachyuran crabs (Crustacea: Decapoda) from eastern Tropical Pacific," Bulletin de l'Institut Royal des Sciences Naturelles de Belgique, [1995] 65: 125-150.
[3.] S. Ajmal Khan, S.M. Raffi, and P.S. Lyla, "Brachyuran crab diversity in natural (Pitchavaram) and artificially developed mangroves (Vellar estuary)," Curr. Sci. [2005] 88: 1316-1324.
[4.] S. Ravichandran, and T. Kannupandi, "Biodiversity of crabs in Pichavaram mangrove environment. Zoological Survey of India,' In: National Symposium on Conservation and Valuation of Marine Biodiversity, [2007] pp. 331-340.
[5.] N. John Samuel, N. Thirunavukkarasu, P. Soundarapandian, A. Shanmugam, and T. Kannupandi, "Fishery potential of commercially important portunid crabs along Parangipettai coast," In: Proceedings of Ocean Life Food and Medicine Expo, [2004] 165-173.
[6.] N. John Samuel, and P. Soundarapandian, "Fishery potential of commercially important crab *Portunus sanguinolentus* (Herbst) along Parangipettai coast, south east coast of India," Int. J. Ani. Veterin., Advan. [2009] 1: 99-104.
[7.] V. Thangaraj Subramanian, "On the exploitation of portunid crab *Podophthalmus vigil* (Weber) along the Chennai coast in Tamil Nadu," Indian J. Fish. [2001] 48, 431- 434.
[8.] P. Krishnamoorty, "Brachyura. Zoological Survey of India, Fauna of Chennai coast," Ecosystem Series, [2007] 1: 83-109.
[9.] S. Lakshmi Pillai, and P. Thirumilu, "New record of brachyuran crabs from the Chennai coast," J. Mar. Biol. Assoc. India, [2008] 50: 238-240.
[10.] R. Jeyabaskaran, and S. Ajmal Khan, "Diversity of brachyuran crabs in Gulf of Mannar (Southest coast of India)," In: Biodiversity Conservation of Gulf of Mannar Biosphere Reserve (Kannaiyan S, Venkataraman K, eds). National Authority, Chennai, India, [2007] pp. 68-82.
[11.] P. Satheeshkumar, and A.B. Khan, "An annotated checklist of brachyuran crabs (Crustacea: Decapoda) from Pondicherry Mangroves, south east coast of India. World J. Zool., [2011] 6: 312-317.
[12.] U. Sathiya, and V. Valarmathi, "Diversity of commercially important marine crabs in Nagapattinam Coastal area, Tamil Nadu, India," Journal of Pharmacy and Biological Sciences. [2018] 13(5): 81-86.
[13.] V.V. Afsal, and J.V. Thomas, "Highlights of marine fish landings in selected fishing harbours of India – June 2021," MPEDA Newsletter, [2021].
[14.] B.F. Chapghar, "On the marine crabs (Decapoda:Brachyura) of Bombay State," J. Bom. Nat. Hist. Soc. [1957] 54: 503-549.
[15.] T. Sakai, "Crabs of Japan and the adjacent seas," Kodansha Ltd., Tokyo. Japan, [1976] pp. 773.
[16.] B.S. Galil, "Crustacea Decapoda: A revision of the Indo Pacific species of genus *Calappa* Weber, 1795 (Calappidae). In: Crosnier, A. (Ed.), Result atsdes Campagnes MUSORSTOM, Volume 18. Memoires du Museum National d' Histoire naturelle, Paris, [1997] 176: 271-335.
[17.] P.K..L. Ng, D. Guinot, and P.J.F. Davie, "SystemaBrachyurorum. An annotated checklist of extant brachyuran crabs of the world," Raffles Bull. Zool. Suppl. Ser., [2008] 17: 1-313.
[18.] L.B. Holthuis, "FAO species catalogue," Vol. I. Shrimps and prawns of the world. FAO Fish. Synop., [1980] I (125).
[19.] S. Sethuramalingam, and S. Ajmal Khan, "Brachuran crabs of Parangipettai coast," CAS in Marine Biology, Annamalai University, Parangipettai, India [1991].
[20.] I. Perez Farfante, and B. Kensley, "Penaeoid and sergestoid shrimps and prawns of the world- Keys and diagnosis for the families and genera," Memoires Museum National D'Histoire Naturelle, [1997] p. 1-223.