RESEARCH ARTICLE

Aspects of Biology of Indian moony, Diamond fish *Monodactylus argenteus* (Linnaeus 1758) recently habitat in Mithbav Creek, Sindhudurg district, Maharashtra, India

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ABSTRACT

The present study investigates some aspects of the biology of newly recorded moony, Diamond fish, finger fish *Monodactylus argenteus* (Line) from Mithbav creek (L.16^0 20' N.L17^0 25'), Sindhudurg district Maharashtra, India. This species is first time noticed in this creek. The local natives are commonly known as 'Chand (Moon) fish. It is of diamond like shining and looking like a diamond shape. Diurnal fish collections were carried out from the creek between october 2011 to September 2012. The fish were caught with cast (mesh size 10-18mm) and gill nets (mesh size 15-22mm). The specimens were fresh directly for gut contents finding. Data on total length (SL) and body weight (w) measurements were taken from standard measuring board and with digital balance. Sexes were different separated by maro and microscopically examination of the gonads after making slit from the ventral to opercula region of the fish. The condition factor from the expression K=100w/L3. The main food items were plankton, detritus and larvae.

Key words: Mithbav, food item, *Monodactylus argerteus.*

INTRODUCTION

Moony *Monodactlylus argenteus* is a member of the family Monodactylidae (Cuvier 1829). It is a sub-tropical fish found along the coasts, estuaries, and mangroves of Mithbav creek and commonly referred to as monos, moonfish, Diamonfish, silver batfish, Malayan angel, mono argentus etc. The family having six extant species in two genera *Monodactylus* and *Schuettea*. All are laterally compressed, with an approximately diamond shape body with long anal and dorsal fins. It is economically and ecologically important as food. At present there is no information available in India on member of the family Mondoactylidae. Therefore, a need for this type of study to provide scientific evaluation of some biological aspects of this species in

Mithbav creek. The Eastern pomfret occur in schools on inshore rocky refs. Adult are characterised by a deep rhomboid shaped silver body that is yellow dorsally with a dark bar from the nape to pectoral fin base and with yellow dorsal, caudal and anal fins. The big eyes are crossed by a dark ray. Its fins are silver with yellow reflection. Both yellow and dark colouring are fading with age. It is commonly called finger fish because its genus *Monodactylus* means "one finger". It is also sometimes know as "sea Angel" in the pet shops. They always move along or against the current of water because of compressed, body but difficult laterally. Monsoon is the most disturbing period both in food point of view as well as swimming. During monsoon, they prefer to live in lagoons, mangrove mud-flat regions but not in main stream of creek. In post monsoon, they are inhabited in open areas of the creek for planktonic feeding Gonado-somatic Index showed that they spawn, in pre-monsoom season. Even though, it is marine species which can survive in fresh water for some times. The natives are using this fish as an aquarium fish. It is tasty fish hence demand in the market more. The coastal native treat this species has estuarine pomfret as well as recreation fish.

MATERIALS AND METHODS

Mithbav creek is located in Sindhudurg District. It Serves as a mean of livelihood for coastal natives. It exhibits relatively high species richness, which might possibly due to succession of species temporarily using the environment for feeding, spawning and shelter. The fish population from the creek exhibits relatively high diversity, species richness and a high biological productivity than many other comparable water bodies. The specimens were collected from the local coastal people for the study of gut contents. To examine seasonal dietary differences, adults were collected monthly from cast net, gill net fishery. The standared lenght (SL) and body weight (W) measurements were taken for the calculation of condition factor (k). The sex was determined by making incissions from vent through the throat of the fish to reveal gonads. All the discerrable gonads were differentiated as males or females. The sex ratio was expressed in terms of the total numbers of males to females.

RESULTS AND DISCUSSION

In the present study, many live as well as preserved specimens of *Monodactylus argenteus* were used for examination. The species were dissected out to collect the stomach contents under hygienic condition and remaining body used for consumption. It is rare compare to others and tasty hence captured fish totally used by the coastal natives. The length range was 04-11cm. It was also noticed that the juveniles (<3cmSL) spend more time in active feeding than adults. The detritus was observed highest 20.18% in monsoon and lowest 12.37% in pre-monsoon, In raing season due to speedy water current the species has no stability to withstand and spend more time on selectivity of food items.

Fig. 1: ***Monodactylus argenteus.***

Table 1: Seasonal occurrence of food items of *Monodactylus argenteus*

Food Categories	Monsoon%	Post monsoon %	Pre-monsoon %
Detritus	20.18	13.14	12.37
Diatoms	13.09	19.11	17.18
Blue-green algae	05.28	7.12	05.15
Decapods	27.21	28.19	11.38
Copepods	14.64	21.51	27.17
Animal derivatives	07.11	11.11	16.15
Eggs	05.49	1.06	0.6

Table 2: Sex ration in *Monodactylus argenteus* from Mithbav creek

Size interval (M)	Number of males	Number of females	Sex ratio Male: Female	Frequency %
4.0-4.9	1	1	1:1	2.94
5.0-5.9	4	2	1:0.5	8.82
6.0-6.9	3	4	1:1.3	10.29
7.0-7.9	7	6	1:0.8	19.11
8.0-8.9	4	3	1:1.1	10.29
9.0-9.9	11	13	1:1.1	35.29
10-10.9	5	4	1:0.8	13.23
Total	35	33	1:0.94	

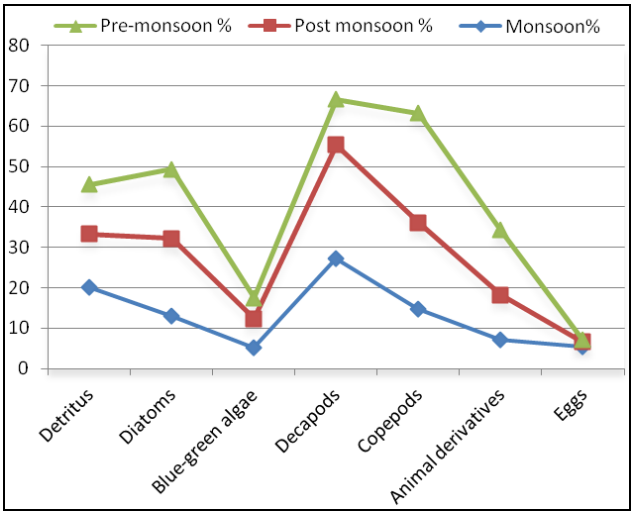

Fig.2: Graph showing seasenal occurrence of food items of *Monodactylus argenteus.*

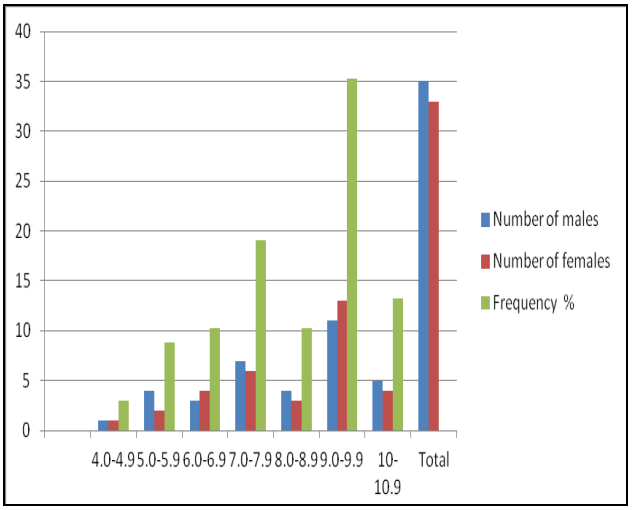

Fig. 3: Histogram showing size groups in relation to frequency of *M. argenteus.*

They ate any particulates matters come across to their mouth. The availability of disposed matter were high in the creek therefore but natural the fish directly consumed them. The parentage percentages of empty stomach were also high during monsoon. During post monsoon, the intensity of feeding gradually increases along with increase in salinity. The percentage composition of decapods was 28.19% highest and then slightly declined in pre-monsoon. The availability of copepods increased gradually from post-monsoon so that the rate of intake also increased to 27.17% highest in pre-monsoon.

The animal derivatives like the appendages of shrimp, molluscan larvae, were observed highest 16.15% in pre-monsoon. The speciality of this species was noticed that as per the availability of food items consumed one after the other. The lowest percentage

was of eggs, ranging between 0.6% to 5.49%. During monsoon, most of the fish, shrimps, spawned hence availability of eggs plenty in the environment. It is noticed that the feeding is directly correlated to the abundance of food diets. It is also observed that during pre-monsoon, GSI of both the sexes were high which is inversely co-related to contents of stomach. This species are usually spawned in the month of April-May and their larvae grow faster in low salinity.

Sex ratios of *M.argenteus* from Mithbav creek are presented in Table 2. out of 68 specimens, 35 individuals were males and 33 females. The overall sex ratio of 1 male: 0.94 females. The sex ration was in favour of male individuals. The population density of this species compare to others is not that much high. In the length frequency also seen that the percentage of 9.0-9.9 length group was maximum (35.29%) and lowest of 4-4.9 group.

In the present study the length frequency distribution showed three size groups amongst, medium size was dominated and few small and large fish. Presence of few adult and large number of juveniles may be related to its migratory nature and suggest that the creek serves as a veritable spawning, breeding and feeding ground for some fish.

CONCLUSION

Mithbav creek is very much favouring this species in relation to feeding, breeding as well as spawning, The juveniles population was mostly found in monsoon which favours the luxurious morphometric growth. The sex ratio was in favours slightly higher to the females. The species population year after year is increasing geometrically so in future this species is quite suit for the fish farming. It is eurihyaline so that survival rate is always high. The information further provide useful tool for sampling programs, to estimate growth rates and other dynamics components of fish stock assessment.

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