

SIZE DISTRIBUTION PATTERN OF TWO FISHES OF THE GENUS *LEIOGNATHUS* (LEIOGNATHIDAE: PERCIFORMES) COLLECTED FROM KORANGI CREEK, KARACHI COAST, PAKISTAN

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ABSTRACT

Nine hundred sixty six samples of genus *Leiognathus* (511 *Leiognathus blochii* and 455 *L. splendens*) were collected from Korangi fish harbour, Karachi during January 2007 to December 2007. *L. blochii* occurred throughout the year but abundantly in July where as *L. splendens* was abundant in the month of March (30.9%) and December (67%) and very rare in the month of May. The length of *L. blochii* ranged from 1-10.8 cm, averaged to 6.072 ± 0.1621 cm and varied around 60.36%. The size class of 6.5 to 7.5 cm was predominant (30.7%) followed by the size class 5.4 to 6.4 (26.6%). Smaller and larger fishes were less frequent. *L. splendens* reached to 14.5 cm in length, averaged to 7.047 ± 0.1187 cm and varied around 36.24%. Size class of 5.3 to 8.4 cm was predominant (28%). Very Small and larger *L. splendens* were also represented less frequently.

Keywords: *Leiognathus blochii*, *Leiognathus splendens*, Korangi Creek Karachi, Size-distribution Pattern

INTRODUCTION

According to Danil'chenko (1960) and Nelson (1994) the family Leiognathidae is the smallest family of order Perciformes. This family is commonly known as pony fishes or slipmouths. Local names of these fishes are "Kaanteri" in Sindhi and "Mith" in Balochi. According to Froese *et al.*, (2000) there are 3 genera and 46 species in family Leiognathidae are found in the world but only 3 genera and 10 species of this family have been recorded from Sindh and Makran coast of Pakistan. Qureshi (1955) reported only 5 species belonging to 2 genera of family Leiognathidae found on Karachi coast, which included; *Leiognathus splendens*, *Leiognathus blochii*, *Leiognathus fasciatus*, *Secutor incidiator*, *Secutor ruconius*. But recently Gazza *rhombea* and *Leiognathus equulus* have also been recorded at Karachi coast in 2007 (Pers. Comm. Kashifa Zohra). *Leiognathus splendens* and *Secutor incidiator* are commercially important marine fishes of Pakistan. Ajazuddin and Muzamil, (2002) recorded 3 species of this family - *Gazza minuta*, *Leiognathus splendens* and *Secutor incidiator* from Miani Hor lagoon of Balochistan coast.

These fishes are small, laterally compressed fishes, with a bland silvery colouration. Scales are small, cycloid. Head is naked. They are distinguished by highly extensible mouths. Dorsal fin is continuous with VIII or IX spines and with 14-16 soft rays. Dorsal and anal fin spines are provided with a locking mechanism (Seigel, 1982). They also possess a luminous organ in the throat, which projects light through the animal's underside. They are found in shallow coastal water near the bottom. They are found at depth ranging from 5-150m (James, 1984).

Korangi town is located in the eastern parts of Karachi, Pakistan, in the south of Malir River. Korangi Creek (Latitude: 24° 41' 16" N, Longitude: 67° 11' 28" E) is located on Karachi Coast. During the survey of Korangi fish harbor in 2007, only two species (*Leiognathus blochii* and *Leiognathus splendens*) of this family were recorded. According to Kimura *et al.*, (2008) *Leiognathus blochii* have maximum size of 10 cm, with VIII dorsal spines and 16 soft rays; III anal spines and 14 anal soft rays. Youngs enter brackish waters (Talwar and Jhingran, 1991). It feeds mainly on small crustaceans, foraminiferans and nematodes. (Blaber, 1980). It is sold fresh and dried salted in markets - also used for fish meal. Demersal; amphidromous (Riede, 2004). Found in brackish; marine water at depth range up to 40m (Kimura *et al.*, 2005) *Leiognathus splendens* is reported to attain length of 17.0 cm, found at depth range 10 - 100m. VIII dorsal spines, 16 dorsal soft rays; III anal spines and 14 anal soft rays. This schooling species inhabits coastal waters. It feeds on fishes, crustaceans, foraminifera's, and bivalves. Size structure data particularly the size frequency distribution is very important fisheries management tool. This is also applied to assess the conditions of the oceans and provide useful information to researchers and fish managers in the future.

MATERIALS AND METHODS

Nine hundred sixty six samples of fishes of *Leiognathus blochii* (511) and *L. splendens* (455) (family Leiognathidae) were collected from Korangi fish harbor during the period from January 2007 to December 2007. All samples were preserved in 10% formalin solution. Total length (TL) of each specimen was measured in centimeters

from the tip of snout to the long tip of caudal fin. Each specimen was identified up to the species level by using FAO species identification sheets for fishery purposes (James, 1984) and field guide (Bianchi, 1985) in the field as well as in laboratory. Size distribution of the two species were prepared. The histograms were plotted.

RESULT AND DISCUSSION

Samples of genus *Leiognathus* (966) for study were collected during the period of January 2007 - December 2007, two times in a month, from the landing specimens in Korangi fish harbor. During survey fishes of the species *Leiognathus blochii* were abundant throughout the year. But the fishes belonging to species *Leiognathus splendens* were abundant only in the months of March and December; while this species was very rare in other months (Table 1-2). In year 2007, total catch samples contained, 52.89% individuals of *L. blochii* and 47.1% of *L. splendens*. *L. blochii* constituted 24.2% of total catch samples, in the month of July. This sample was dominated then all other samples collected during other months of year 2007. The catch of *L. splendens* in December 2007 constituted 67% of its total catch. It predominated over all other samples of that year (Table 1 & 2).

Size distribution pattern

Leiognathus blochii

The body length of *L. blochii* ranged from 1-10 cm, averaged to 6.0722 ± 0.1621 cm and varied around 60.36%. The size-group 6.5-7.5 cm, constituted 30.7% of the total *L. blochii* catch. This size group showed dominance in the all samples collected during survey (Figure 1). The fishes belonging to the size group 1.0-2.0 cm constituted 0.39% of total *L. blochii* catch. This size group was very rare in total catch (Table 1).

Leiognathus splendens

The body length of *L. splendens* (N = 455) reached to 14.5 cm, averaged to 7.047 ± 0.1187 and varied around 36.24%. The size group admeasuring from 5.3 to 6.8 cm constituted 28.0% of total *L. splendens* catch. This size group dominated in the all samples collected during survey in year 2007 (Figure 2). The fishes belonging to the size group 13.3-14.8 cm constituted 0.44% of total catch, which was very also rare in total catch (Table 2).

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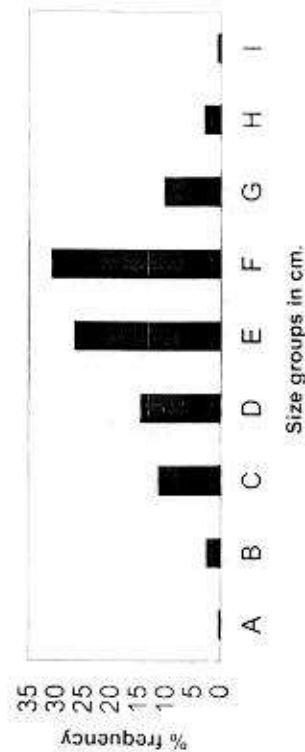
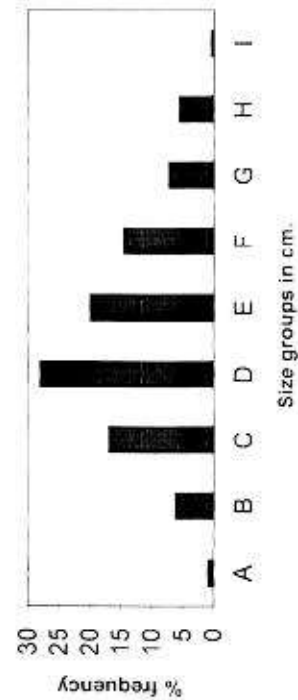
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Table 1. Size-frequency data of *Leioagnathus blochii*.

Size groups cm	Sampling in 2007												Rank
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
1.0-2.0 (A)	2	0	0	0	0	0	0	0	0	0	0	0	9
2.1-3.1 (B)	1	1	0	0	0	0	4	6	1	0	0	0	7
3.2-4.2 (C)	0	0	0	0	0	0	24	24	10	0	0	0	4
4.3-5.3 (D)	0	0	1	0	0	0	30	20	5	0	0	10	3
5.4-6.4 (E)	35	18	6	0	0	0	30	15	4	0	0	28	2
6.5-7.5 (F)	14	50	14	0	0	0	20	9	0	0	0	50	1
7.6-8.6 (G)	0	8	40	0	0	0	2	1	1	0	0	0	5
8.7-9.7 (H)	1	1	8	0	0	0	4	1	0	0	0	0	6
9.8-10.8 (I)	1	0	1	0	0	0	1	0	0	0	0	0	8
total catch/month	54	78	70	0	0	0	124	76	21	0	0	88	
% frequency/month	10.5	15.3	13.8	0	0	0	24.2	14.8	4.1	0	0	17.2	
SUM=611													

Table 2. Size-frequency data of *Leioagnathus splendens*.

Size groups cm	Sampling in 2007												Rank
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	
0.5-1.0 (A)	0	0	4	0	0	0	0	0	0	0	0	0	8
1.1-1.6 (B)	0	0	28	0	0	0	0	0	0	0	0	2	6
1.7-2.2 (C)	0	0	50	0	0	0	0	0	0	0	0	27	3
2.3-2.8 (D)	0	0	35	0	2	0	0	0	0	0	0	50	1
2.9-3.4 (E)	0	0	18	0	4	0	0	0	0	0	0	69	2
3.5-4.0 (F)	0	0	4	0	2	0	0	0	0	0	0	68	4
4.1-4.6 (G)	0	0	2	0	1	0	0	0	0	0	0	39	5
4.7-5.2 (H)	0	0	0	0	0	0	0	0	0	0	0	25	7
5.3-5.8 (I)	0	0	0	0	0	0	0	0	0	0	1	1	9
total catch/month	0	0	141	0	9	0	0	0	0	0	0	305	
% frequency/month	0	0	30.8	0	1.97	0	0	0	0	0	0	67	
SUM=455													

Fig. 1. % frequency distribution of *Leioagnathus blochii*Fig. 2. % frequency distribution of *Leioagnathus splendens*

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