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## FEEDING HABITS OF PICK HANDLE BARRACUDA (*SPHYRAENA JELLO*) CUVIER, 1829 ALONG THE COAST OF PAKISTAN

Hina Manzoor, Kashifa Zohra and Hamid Badar Osmany

Marine Fisheries Department, Karachi, Pakistan.

email: hamid61612002@yahoo.com

**ABSTRACT:** A one year combined study of both sexes was conducted from March 2017 to February 2018 to investigate the feeding habit of Pick handle Barracuda (*Sphyraena jello*) Cuvier, 1829 locally called as Safaid kund along the coast of Pakistan, a large species found in Pakistani water caught mainly by bottom set gillnet throughout the year. Samples studied at Karachi fish harbor, in commercial catch which is the major landing center of Pakistan. During this counting method was applied with naked eye. Mostly fishes characterized by 91.66%, cephalopod 5.66% and shrimp 2.78% made the highest and lowest stomach content respectively shows carnivorous behavior of the species.

**KEYWORDS:** Feeding habit, Pick handles Barracuda, *Sphyraena jello*, Coast of Pakistan

### INTRODUCTION

Pick handle Barracuda (*Sphyraena jello*) Cuvier, 1829 belongs to family of Sphyraenidae which is also known as Banded Barracuda. Barracuda is famous as the tigers of the marine water due to its aggressive behavior during preying. The torpedo shape elongate rounded body provides speed and acceleration and it is often found in the tropical and sub tropical water up to depth of 200 meter near coral reefs and in estuaries. This is a schooling species and attacks its prey with sharp teeth in an ambush and bite on the body to crush its prey (Porter and Motta, 2004). Some studies show that this fish species found in coral reefs (Aburto-Oropeza and Balart, 2001).

Locally it called as Safaid kund, meat of this fish considered high delicacy as compare to other Barracuda species which has high commercial value and contributes significantly to the fishermen economy. 29 Barracuda species inhabit in the world (Eschmeyr and Fog, 2013), eight of which found in the Pakistani waters, (Psomadakis *et al.*, 2015). Very few work on feeding habit of this fish were reported (Hosseini *et al.* 2009; Mohanraj and Prabhu 2012).

Feeding habits of fish significantly effects growth, survival reproduction and mortality (Wootton 1990; Fagbenro *et al.*, 2001), and indicate the trophic relationship in an ecosystem (Pauly and Christensen, 2000).

Comprehensive study has been reported by various scientists on the feeding habit of various fish i.e Moffet and Hunt (1943), Khan (1947), Hynes (1950), Karim and Hossain (1972), Doha (1974), Dewan and Saha (1979), Jhingran (1983), Bhuiyan and Haque (1984), Bhuiyan and Islam (1990) Hossain *et al.* (1991), Bhuiyan *et al.* (1997, 1998, 1999). Fish food classified into three groups (a) major food (b) rare food and (c) emergency food. In the present study, attention given on the main food.

No work has been done on the major food item of Pick handle barracuda, thus the aim of the study to categorize the major food item of Pick handle barracuda and to examine the seasonal difference in the utilization of food item and to estimate variation in food utilization from March 2017 to February 2018 whereas no fish was recorded in the month of August and November.

### MATERIALS AND METHODS

Karachi fish harbor is the major landing place for all kind of fish where 433 specimens of this fish size ranging 89-128 cm of both sexes were observed out of them 72 specimens which has food in the stomach from March 2017 to February 2018. Food content of the stomach was examined and frequency of each species was calculated through numerical method.

The food in stomach was identified upto species /family level on percentage of frequency based occurrence (Hynes, 1950; Hyslop, 1980; Bowen, 1983) using the formula as followed

$$F = 100ni / n$$

Where:

F: frequency of occurrence of the food item in the sample;

ni: number of item in the stomachs in which the particular item is found;

n: total number of item in the stomachs in which the food is found .

### RESULTS AND DISCUSSION

Assessment of the stomach content showed that Clupeidae, mostly *Sardinella gibbosa* were found with the highest rate i.e., 36.81%, Whereas, Synodontidae and Pomacentridae showed the lowest rate i.e., 0.69% each. (Fig. 1)

#### **Fish:**

Most dominant diet was fish found in high quantity throughout the year which percentage was 91.66. Highest percentage was found in the month of May which was 16.67% and lowest in the month of February which was 2.08%. Most dominant family was Clupeidae with 36.81%, mostly consisting on *Sardinella gibbosa* (Table 1) (Fig. 2).

#### **Cephalopod:**

Second dominant group of this food stuff comprising squids (*Urotenthis duvaucelii*) which was 5.56 % of the total diet not found regularly only observed from February to April. (Table 1)

#### **Crustacean:**

Third dominated group of the food stuff, including two shrimp species (*Penaeus indicus* and *Parapenaeopsis stylifera*) with percentage of 2.78, only observed in the month of December. (Table 1)

Body of a living organism needs energy for different life function which comes from food which found in environment where this creature lives. The food found in the stomach shows the region where the living creature seeks and indicates environment of its behavior. Carnivorous fish need at least 45% of protein in their food, without which they become seriously malnourished.

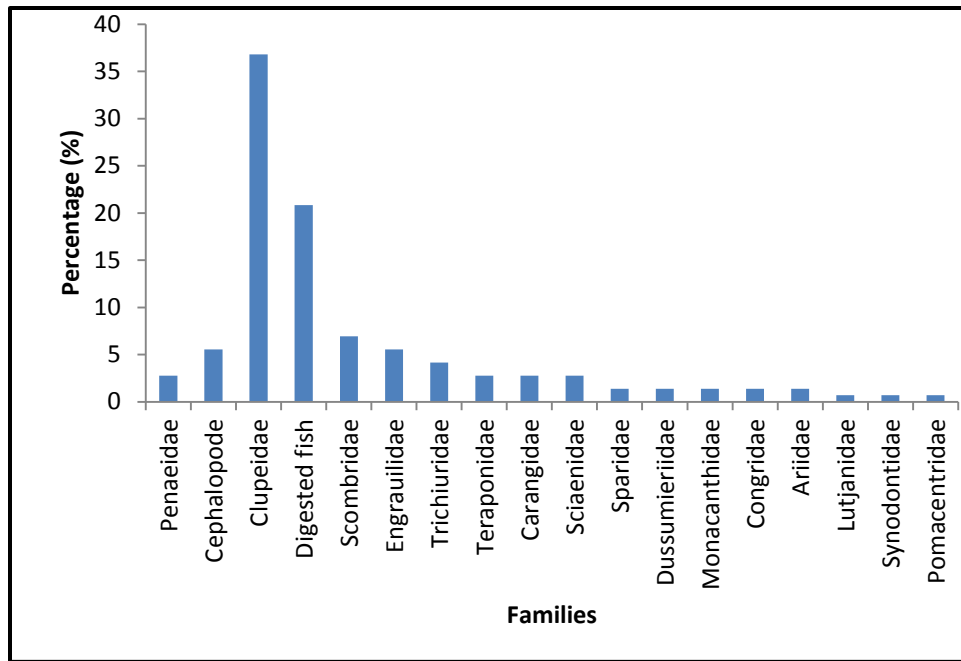


Fig. 1. showing the comprehensive variation of food stuff in percentage found in the stomach of *S. jello* which is prescribed in quite precisely family.

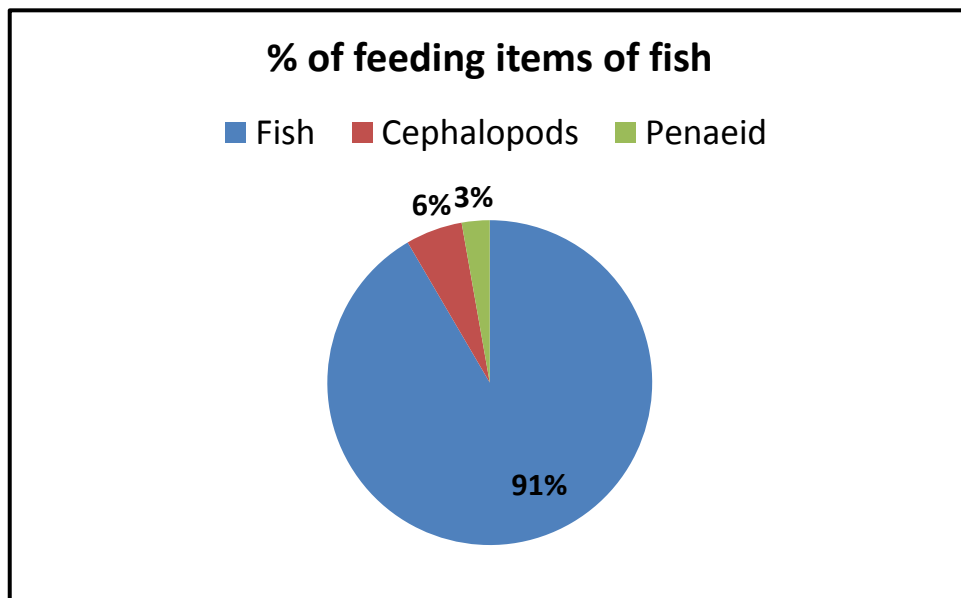


Fig. 2. Percentage of feeding items of fish *S. jello*.

A one year estimation of stomach contain indicated that Pick handle Barracuda is a carnivorous fish and ferocious predators who attacks its prey on any sizeable fish that they come across. This fish smash the prey with speed and acceleration and either through camouflage or in an ambush (Ramachandran *et al.*, 2006). Skolow (1998) described that in juvenile stage the fish feeds on planktons before reaching carnivorous behavior at the time of maturity and feeds on cephalopods, crustacean, shellfish and other fishes. In the West Indian Ocean Blaber (2000) describe in his study that cephalopods, lobster, and other invertebrate are the main item found in the stomach which is a sign of differences compared with similar study in other areas. The variation of food in each month is due to change in the variety of food taking place at different seasons of the year. The jaw structure thus mimics scissor mechanics where cutting power are stronger near the jaw joint. The large palatoquadrate cartilage that likely absorbs effect and bite forces during the hunt its relative position within the palatine bone is indicated. Lot of sharp edged teeth in two rows, outer row of small but sharp teeth and inner of long, dagger like teeth to firmly snatch its prey , fang like unequal teeth all of dissimilar sizes, locate in sockets in their upper jaw.(Fig. 3)

During stomach study of *S. jello* in Gulf of Mannar, India Mohanraj and Prabhu (2012) described 88.6% fishes followed by 11.4% cephalopod whereas according to our study there was 91.66 fishes followed by cephalopod 5.66% found in the stomach of this fish so the present study are almost similar that fish was the major food item in the stomach but variety of food in our study is different compare to others area which could be the different living environment (Fig. 4).



Fig. 3. Jaw of *Sphyræna jello*





Fig. 4. Food item in different months of *Sphyraena jello*

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