

# Taxonomic Identification of Five Rarely Seen Ray Species, In Landing at the Karachi Fish Harbour

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**Abstract:** This paper presents the updated and brief information about five (5) ray species found among catches landed in the Karachi Fish Harbor (KFH) 24.8491° N, 66.9761° E. Surveys were made during February 2015 and March-April 2019 at the KFH, situated at West Wharf, Karachi. During fields, subjected ray species were observed in very small quantities, which have been recognized as rare species of ray fauna seen on the site. Observed species were identified as *Aetobatus ocellatus*, *Gymnura poecilura*, *Himantura uarnak*, *Mobula kuhlii* and *Pastinachus sephen*. *Mobula kuhlii* All five species have been recognized as endangered species and have been listed in IUCN red list of endangered species. Despite the fact, still these species often caught by fishermen and sold in market. Unfortunately, there is no check and balance thus there is an utmost need to take corrective measures to conserve these species by implementing regulations.

**Keywords:** Rays, rare species, KFH, Pakistan, endangered species

## 1. Introduction

Communally elasmobranchs are comprised of a wide range of sharks, skates and rays, which are abundantly found in open seas and these animals, are considered as the most free moving and large animals of oceans. Elasmobranch species are characterized by their slow growth, low maturity rates and their less fecundity (Hoenig and Gruber 1990). Despite of being the evolutionary successive species of the oceans, some of these are also considered as the most threatened species just because of the access and activities of humans in their natural habitat as well as climatic changes occurring worldwide making some of their species as the most declined species with respect to their low reproductive rates just because of the primarily over fishing in their peak breeding seasons causing the high mortality rate which directly affect their occurrence in their natural ecosystem (Compagno 1973; Anderson and Hafiz 2002; Fahmi 2010; Hoenig and Gruber 1990, Compagno 2005; Musick 2005; Cavicchioli *et. al.*, 2019).

If we consider the ray species they are characterized by the large body which comprises of enlarged and flat pectoral fins which continues to head. They belongs from the order Rajiformes or Batoidae which have both eyes on their dorsal surface of the body whereas they mouth and five (5) gill slits are present on the ventral side of the specimen's body. Their tail is narrow which is sometimes as long as their body's length whereas in some species of rays, the tail is double of their body length, the anal fins are totally absent in all the species of Rajiformes (Bigelow and Schroeder. 1953). Rays are the species which are found worldwide most commonly in the tropical, subtropical and in the temperate waters. All the species of rays have whip like tail and mostly the tails are with the venomous spine which can harm to the humans

as well. The distinguish between female specimen and male specimen can be done easily as the males have cigar like claspers on the ventral side of their body which are used for the matting purpose whereas the females have an opening which is used for the same purpose as well as for giving birth to their young babies. Sometimes the rays crush their prey before eating by the help of their sharp teeth (Stehmann 1981; Compagno and Ebert 2007). In ecosystem, ray species plays an important role because they are the main part of marine food chains as they consumes the mollusks including snails, oysters and clams, the crustaceans, small fishes and sometimes they also consumes a large amount of planktons present in the open sea in case of the Manta Rays. These species are also economically important being an important trade utility (Moron *et. al.*, 1998; Vidthayanon 2002; White *et. al.*, 2006; Moore *et. al.*, 2012; Bornatowski *et. al.*, 2014).

From Pakistan detailed work on ray's fauna is nor available, however some published work pertaining records of occurrence and taxonomy is available (Psomadakis *et. al.*, 2014).

## 2. Materials and Methods

Species of rays were observed on the collection site which is well known as Karachi Fish Harbour (KFH) located at 24.8491° N, 66.9761° E (Figure 1). In the landing of the elasmobranch catch species of rays seen carrying a wide range of sizes and weight. Specimen were measurements on spot and digital picture were also taken for thorough taxonomic identification which was done by the help of different identification guides, published articles and the online available content in digital libraries about ray species of the world (Bigelow and Schroeder. 1953; Stehmann 1981; Compagno and Ebert 2007; Compagno 2005; Musick 2005; Psomadakis *et. al.*, 2014;

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Cavicchioli *et. al.*, 2019; Froese. and Pauly (2019);  
World Register of Marine Species (2019).

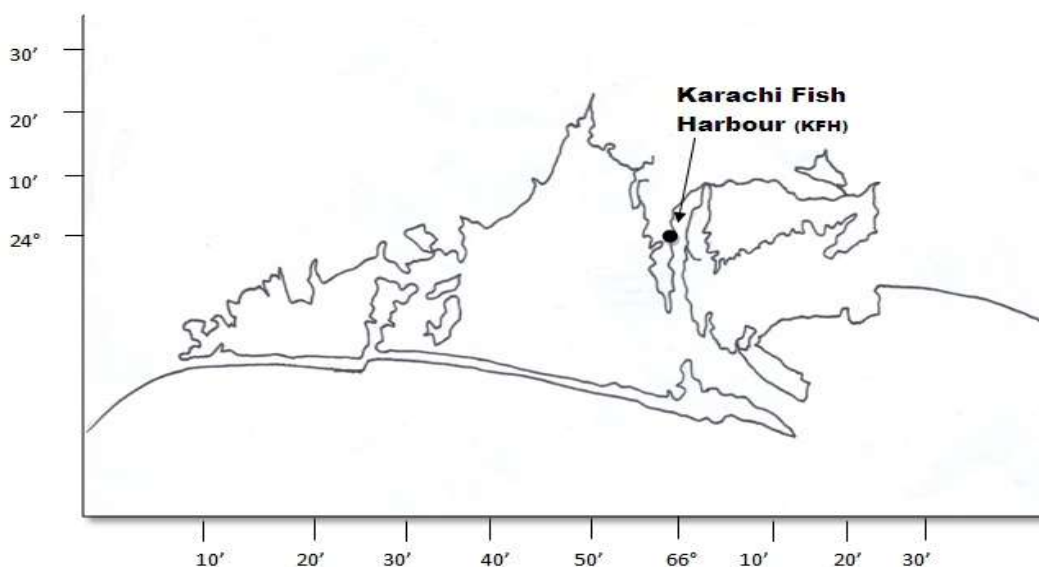


Figure 1: Map is showing visit site (KFH)

### 3. Results

Taxonomic characterization of five (5) rarely seen species was made belonging to families Aetobatidae,

Gymnuridae, Dasyatidae and Myliobatidae which were all observed and examined during the study period between February 2015 and March-April 2019 as mentioned below:

S. No.	Species	Field Observation/ Months	Sex	No. of individuals	Recorded size Minimum-maximum (cm)
1	<i>Aetobatus ocellatus</i>	April 2019	Male	2	146 cm – 152 cm
2	<i>Gymnura poecilura</i>	March, April 2019	Male	2	70 cm – 92 cm
3	<i>Himantura uarnak</i>	March 2019	Male and Female	1+1	93 cm – 143 cm
4	<i>Pastinachus sephen</i>	March 2019	Male and Female	1+1	167 cm – 173 cm
5	<i>Mobula kuhlii</i>	February 2015, 2019	Male and Female	3+1	203 cm – 230 cm

#### Systematic Account

**Kingdom** Animalia  
**Phylum** Chordata  
**Subphylum** Vertebrata  
**Super class** Gnathostomata  
**Class** Chondrichthyes  
**Subclass** Elasmobranchii  
**Super order** Batomorphii  
**Order** Myliobatiformes  
**Family:** **Aetobatidae (Bonaparte, 1835)**  
**Genus:** **Aetobatus (Blainville, 1816)**  
**Species:** ***Aetobatus ocellatus* (Kuhl, 1823)**

**1. *Aetobatus ocellatus* (Spotted Eagle Ray) (Kuhl, 1823)** (Figure 2. A)

**Synonyms:** *Aetobatus guttatus* (Shaw, 1804), *Stoasodon ocellatus* (Kuhl, 1823), *Aetobatus punctatus* (Miklukho-Maclay & Macleay, 1886), *Pteromylaeus punctatus* (Miklukho-Maclay & MacLeay, 1886), *Aetobatus punctatus* (Miklukho-Maclay & MacLeay, 1886).

It is considered as the normal sized ray fish which has moderately long snout. Their skin is smooth. Body of these species are dark greenish grey to almost blackish from the dorsal side which is variably white spotted whereas the ventral side of the body is always white in color. The teeth are arranged in a single row in both jaws. Their tail is very long with the presence of stinging spine on it which can cause harm to humans as well (Kapoor *et. al.*, 2002; White *et al.*, 2010; Psomadakis *et. al.*, 2015).

**Remarks:** Species is listed in the IUCN red list of threatened species (Kyne *et. al.*, 2016). Reports of occurrence from Pakistan are available with local name “Mangol, Kutti, Cheel” in Sindhi language whereas FAO name is Ocellated eagle ray. These are caught by bottom trawls and gill nets by the local fishermen. According to the reports, they are found in the coastal waters up to the depth of 60m (White *et. al.*, 2010; Psomadakis *et. al.*, 2015).

**Family:** Gymnuridae (Fowler, 1934)  
**Genus:** *Gymnura* (van Hasselt, 1823)  
**Species:** *Gymnura poecilura* (Shaw, 1804)

## 2. *Gymnura poecilura* (Shaw, 1804) Long tail butterfly ray (Figure 2. B)

**Synonyms:** *Pteroplatea annulata* (Swainson, 1839), *Pteroplatea poecilura* (Shaw, 1804), *Raja poecilura* Shaw, (1804), *Trygon kunsu* (Cuvier, 1829), *Trygon poecilurus* (Shaw, 1804), *Urogymnus poecilura* (Shaw, 1804)

The species of this type of ray have lozenge shaped disc which is at least twice as broad as the length of the body. The dorsal fin is absent in these species whereas the tentacles are also not found on the posterior margin of spiracles. A small venomous spine is present on the tail of these species which has about nine (9) black bands on the starting of the tail. The dorsal side of the body is usually plain on which sometimes pale spots are also found. The ventral side of the body is white to creamy white in colour. (Psomadakis *et. al.*, 2015).

**Remarks:** Species is listed in IUCN red list of threatened species (Bizzarro and White 2006). They are also recorded from the elasmobranch landings from Pakistan Coast which are commonly called as *Bapha*, *Phappa* in local Sindhi language. Their FAO name is established as Long line butterfly ray. According to the records they are caught by the bottom trawls and gill nets and are found in the shallow inshore waters (Psomadakis *et. al.*, 2015).

**Family:** *Dasyatidae* (Jordan & Gilbert, 1879)  
**Genus:** *Himantura* (Müller & Henle, 1837)  
**Species:** *Himantura uarnak* (Gmelin, 1789)

## 3. *Himantura uarnak* (Gmelin, 1789) Honeycomb Stingray (Figure 2. C)

**Synonyms:** *Himantura punctata* (Gunther, 1870), *Dasybatus uarnak* (Gmelin, 1789), *Raja sephen uarnak* Forsskål, 1775, *Raja sephen var. uarnak* Forsskål, 1775, *Raja uarnak* Gmelin, 1789, *Trygon punctata* Günther, 1870, *Trygon uarnak* (Gmelin, 1789)

These species are moderately long species observed which has rhomboidal disc with narrowly rounded apices which are mostly broadly rounded in juveniles. Their snout is broadly triangular and the tip of snout is pointed. The dorsal surface of the body is always covered with small black spots or fine reticulations in the adult specimens. The juveniles are yellowish or brownish in colour with

dense array of small, dark brown spots which has particular spaces in between them. Tail of these species are very long, elongated and slender. The tail is whip like beyond the sting. No cutaneous folds are found on the tails. (Compagno *et. al.*, 1989; Psomadakis *et. al.*, 2015).

**Remarks:** Listed in the IUCN red list (Matsumoto *et. al.*, 2016). The occurrence of *Himantura uarnak* is recorded previously from Pakistan which are locally called as Chitto or Chitta in Sindhi language by the local fishermen whereas their FAO name is Reticulate whip ray. They are also called as the inshore rays according to their habitat as they are found on the soft substrates often intertidal but up to the depth of at least 50m (Psomadakis *et. al.*, 2015).

**Family:** *Dasyatidae* (Jordan & Gilbert, 1879)  
**Genus:** *Pastinachus* (Rüppell, 1829)  
**Species:** *Pastinachus sephen* (Forsskål, 1775)

## 4. *Pastinachus sephen* (Forsskal, 1775) Cow tail ray (Figure 2. D)

**Synonyms:** *Raja sephen* (Forsskal, 1775)

The body of these species have rhomboidal disc with broadly rounded apices. Their snout is also broadly rounded whereas the tip of the snout is blunt. The tail is long but it is less than that of the twice length of the body. One ventral fold is also found on the tail which does not reach the tip of the tail. Upper caudal folds are absent. The dorsal surface of the body is uniformly greyish brown to black in colour. The tip of the tail and tail fold both are black in colour whereas the ventral surface of the body is mostly white. (Psomadakis *et. al.*, 2015).

**Remarks:** Species also listed in IUCN red list of threatened species (Kyne *et. al.*, 2017). The presence of *Pastinachus sephen* on the Pakistan coast is previously confirmed by the scientists which is commonly called as Gadum, Pittan or Papri by the local fishermen. Its FAO name is Cow tail Sting Ray. They are caught by the bottom trawls, gill nets and line gears as well. They are found in coastal waters near the lagoons, reef flats as well as reef faces and estuaries up to the depth of 60m (Psomadakis *et. al.*, 2015).

**Family:** *Myliobatidae* Bonaparte, 1835  
**Genus:** *Mobula* Rafinesque, 1810  
**Species:** *Mobula kuhlii* (Müller & Henle, 1841)

## 5. *Mobula kuhlii* (Muller & Henle, 1841) Shortfin devil ray (Figure 2. E)

**Synonyms:** *Cephaloptera kuhlii* (Muller & Henle, 1841)

The species of this type are recorded as small devil ray with short head bearing the short cephalic fins. Their dorsal fin is often white tipped. The dorsal surface of the body of these species are grey brown to bluish black colour whereas the ventral side of the body is white. They have sub circular spiracles which are located beneath the

disc edge. Their tail is of variable size usually shorter than their disc. The stinging spine is absent on their tails (Psomadakis *et. al.*, 2015).

**Remarks:** This species has also been included in IUCN red list (Bizzarro *et. al.*, 2009). The presence of *Mobula kuhlii* on Pakistan coast is described in the content previously published online as they are commonly called as Karunj in Sindh. They are caught by the local fishermen by the help of driftnets. They are mostly present in the continental coastal areas which does not extends into the epipelagic zone and in the off oceanic islands (Psomadakis *et. al.*, 2015).

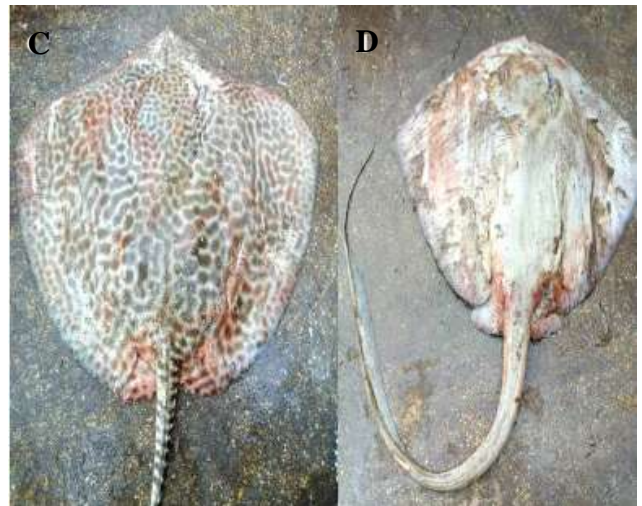
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**Figure 2.** Observed species: **A-***Aetobatus ocellatus*, **B-***Gymnura poecilura*, **C-***Himantura uarnak*, **D-***Pastinachus sephen*, **E-***Mobula kuhlii*.

