INT. J. BIOL. BIOTECH., 23 (3): 428-502, 2026. DOI:https://doi.org/10.65014/ijbb.v23iii.01

A REVIEW OF FISHES AND FISHERIES OF CLUPEIFORM FISHES FROM PAKISTAN

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Received: June 10, 2026; Accepted: July 10, 2026

ABSTRACT

The order Clupeiform is represented by species such as sardine, anchovy, shad, wolf-herring, and gizzard-shad, which are commercially exploited mainly by small-scale fisheries in freshwater, estuarine, coastal, and offshore waters of Pakistan. This order is represented by six families in Pakistan, including families including Chirocentridae, Dorosomatidae, Dussumieriidae, Ehiravidae, Engraulidae, and Pristigasteridae. In all, 68 clupeiform species belonging to 19 genera are reported from Pakistan, of which four species, including *Nematalosa resticularia* Nelson and McCarthy 1995, *Ilisha compressa* Randall 1994, *I. obfuscata* Wongratana 1983, and *Thryssa whiteheadi* Wongratana 1983, are new records. Members of the order Clupeiformes contributed substantially to the total landings of Pakistan, as its annual landings fluctuated between 12,222 m. tons in 1983 and 166,235 m. tons in 1993, contributing between 4.23 % in 1983 and 33.31% in 1993. Species of the Order Clupeiformes are consumed locally as well as exported, and are also the most important source of raw material for the fishmeal industry. Hilsa shad (*Tenualosa Ilisha)* are considered to be highly valued migratory fish species in Pakistan, which are primarily inhabitants of the River Indus and its tributaries in its lower reaches. Its aannual catch during the year 1953 was close to 13,000 m. tons, which decreased to 2,700 m. tons in 1962. The changes in the annual shad landings are mainly attributed to the construction of barrages on the River Indus, which resulted in an obstruction of migration patterns. A major decrease in the landings of shad was observed during 2000 and 2012, during which annual landings of shad remained much less than 300 m. tons, which is attributed to the low flow of freshwater, uncontrolled fishing, use of efficient nylon and other plastic fishing nets, motorized fishing boats, and mass-scale catch of undersized (juveniles) in the lower reaches of Kotri Barrage. Sardinellas, which are represented by 9 species in Pakistan, are also an important component of the fishery of Pakistan, with their contribution to total landings of Pakistan ranging from 1% in 1971 to as high as 28 % in 1978. However, it was around 10 % of the total fish landing of Pakistan. The paper provides details of all species known from Pakistan, as well as information about the fishery and other information about gizzard shad, river shad, kelee shad, white sardine, anchovies, and wolf-herrings.

Keywords: Clupeiformes, *Nematalosa resticularia, Ilisha compressa* Randall 1994, *I. obfuscates, Thryssa whiteheadi,* gizzard shads, Ilishas, sardinellas, wolf-herrings, shads, anchovies.

INTRODUCTION

The fish belonging to the Order Clupeiformes are small, silvery, schooling, and pelagic fishes that support highly significant commercial fisheries and ecosystems at national and global levels. This group includes species such as sardine, anchovy, shad, wolf-herring, and gizzard-shad, which are commercially exploited mainly by small-scale fisheries in freshwater, estuarine, coastal, and offshore waters. Species of the Order Clupeiformes are consumed locally and support a substantial export industry. It is also the most important source of raw material for the fishmeal industry.

Information about clupeiform fishes from Pakistan is limited, and usually, these fishes are included in the list of described species occurring in Pakistan (Ahmad, 1988; Ahmad *et al.*, 1973; Anonymous,1955; Bianchi, 1985; Hoda, 1985, 1988; Hussain, 2003; Jalil and Khaliluddin, 1972, 1981; Majid *et al*., 1992; and Psomadakis *et al.,* 2015). Various aspects of biology, length-weight relationship, population dynamics, and stock assessments of the members of this group of fishes are limited to few commercially important species (Abbas, 2000; Abilgaard *et al*., 1994; Ahmad and Abbas, 1999a, 1999b, 1999c, 2000; Ahmed *et al*., 1999; Ahsanullah, 1965, 1966a, 1966b; Bhanbhro *et al*., 2024; Bhuiyan, 1954; Bhuiyan and Talbot (1968); Elahi et al., 2013; Hashmi and Khan, 2003; Hoda, 1976, 1979, 1982, 1983; Hussain and Sufi, 1961; Jafri, 1988, 1991, 1994a, 1994b, 2004; Jafri *et al*., 1999, 2000; Khatoon and Hussain, 1998, 2005; Mahmood and Ayub, 2005; Moazzam *et al*., 2004; Narejo *et al*., 1997, 1998, 1999, 2000;

Panhwar and Liu, 2013; Panhwar *et al*., 2012, 2013a, 2013b; Panhwar and Siddiqui, 2005, and Waryani *et al*., 2010). The present paper provides a review of clupeiform fish species reported from Pakistan.

MATERIAL AND METHODS

Published scientific literature was examined for the records of the Order Clupeiformes from the Pakistan coast. In addition, specimens of the clupeiform collected between January 2003 and May 2026 from the Karachi Fish Harbour were photographed, and measurements were recorded before preservation in 5% neutralized formalin. The species are alphabetically arranged in this paper. Data on commercial landings of these fish used in this paper were obtained from Anonymous (2012) and from the archives of the Marine Fisheries Department, Karachi, and the Department of Coastal Development and Fisheries, Balochistan.

RESULTS AND DISCUSSION

Members of the Order Clupeiformes are found in fresh and marine waters, including continental shelf areas, whereas some clupeiform fishes are also found abundantly in the Indus Delta, bay, and lagoons along the Pakistan coast. In all, 68 species belonging to 19 genera are reported from Pakistan, which are alphabetically arranged and detailed in this paper.

Order Clupeiformes (Herrings)

The order Clupeiformes is an important group of fish that is globally represented by eleven families; however, in Pakistan, it is represented by six families, including Chirocentridae, Dorosomatidae, Dussumieriidae, Ehiravidae, Engraulidae, and Pristigasteridae.

Family Chirocentridae (Wolf-herrings)
Genus ***Chirocentrus*** Cuvier 1816
Chirocentrus dorab (Fabricius 1775)
(Fig. 1)

Fig. 1. *Chirocentrus dorab*

This species is commonly known as black-edged or dorab wolf-herring. This species is known as “Gairi” or “Lapari” in the Province of Sindh and “Pashant” in the Province of Balochistan. It was reported from Sindh by Misra (1959), Sorley (1932), and Whitehead (1984b; 1985), from Bhambhore by Ahmed and Abbas (1999), and Anonymous (1955), from Indus estuary and creeks by Khan (1960) and Niazi (1976), from Karachi by Anonymous (1955) and Misra (1959) from Balochistan by Day (1889), Whitehead (1984b; 1985), and Zugmayer (1913), from Gwadar by Abildgaard and Khan (1994), and Abildgaard *et al*. (1994) and from Makran byAnonymous (1955) and Misra (1959). Ahmad (1988), Ahmad and Niazi (1988), Ali (2002), Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1987, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Majid *et al* (1992), Psomadakis *et al.* (2015), Qureshi (1952, 1957), and Siddiqi (1956) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea dorab* from Jeddah, Saudi Arabia, and Yemen, Red Sea by Fabricius in Niebuhr (ex Forsskål) (1775). Its types are not known (Frickle *et al*., 2026).

It is a moderate-sized species with an elongate, highly compressed body. Its mouth is large, oblique, and the lower jaw projects in front of the upper jaw, which has 2 forward-pointing canine teeth at the symphysis. This species can be distinguished from *C. nudus* in having shorter pectoral-fin- 11 to 13% in the standard length (13 to 18% in *C. nudus*), and subequal to distance from centre of pupil to rear edge of opercle (distinctly greater than the distance from the centre of pupil to the rear edge of the opercle in *C. nudus*) and dorsal fin and anal fin blackish distally (dorsal fin and front part of anal fin entirely pale in *C. nudus*).

This species is known from the Indo-Pacific area, including the Persian Gulf, Oman, the Red Sea, South Africa, Madagascar, Seychelles, Mascarenes, India, Sri Lanka, Bangladesh, Myanmar, Indonesia, Philippines, China, southern Japan, Australia, Solomon Islands, New Caledonia, and Tonga (Froese and Pauly, 2026; Heemstra, 2022)

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 15 November 2008 (65 cm TL)
- 1 specimen collected on board R/V Dr. Fridtjof Nansen from offshore waters of Pakistan on 9 October 2010 (66 cm TL)
- 1 specimen from offshore Sindh Coast on board a tuna gillnet vessel on 30 April 2014 (61 cm TL).

Chirocentrus nudus Swainson, 1839
(Fig. 2)

Fig. 2. *Chirocentrus nudus*

This species is commonly known as whitefin wolf-herring. This species is known as “Gairi” or “Lapari” in the Province of Sindh and “Pashant” in the Province of Balochistan. It was reported from Sindh by Whitehead (1984b; 1985), from Karachi by Niazi (2001), from Korangi Creek by RETA (2003), and from Balochistan by Whitehead (1984b; 1985). Ahmad and Niazi (1988), Heemstra (2022), Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1988), Hussain (2003), Majid *et al* (1992), and Psomadakis *et al.* (2015) reported it from the Pakistan coast without specifying a location. It was originally described by Swainson (1839); however, no type locality or types are known (Frickle *et al*., 2026).

It is characteristically almost similar to *C. dorab* except that its head and body are silvery, dark blue dorsally, and its fins are entirely pale. This species can be distinguished from *C. dorab* in having longer pectoral-fin-13–18% in the standard length (11–13% in C. *dorab*), distinctly greater than the distance from the centre of pupil to the rear edge of the opercle (subequal to distance from centre of pupil to rear edge of opercle in *C. dorab*) and dorsal fin and anal fin entirely pale (dorsal fin and front part of anal fin blackish distally in *C. dorab*).

This species is known from the Indo-Pacific area, including Mozambique, Kenya, the Red Sea, the Persian Gulf, Pakistan, India, Thailand, Indonesia, the Gulf of Carpentaria (Australia), and New Guinea (Froese and Pauly, 2026; Heemstra, 2022).

Materials Examined

- 1 specimen collected on board R/V Firdous from offshore waters of Pakistan on 13 November 2009 (61 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 11 October 2010 (56 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 8 November 2013 (45 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 7 May 2014 (53 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 12 July 2023 (58 cm TL)

Family Dorosomatidae (Gizzard shads and sardinellas)
Genus ***Amblygaster*** Bleeker 1849
Amblygaster leiogaster (Valenciennes, 1847)

This species is commonly known as smooth-belly sardinella. This species is known as "Chacco" in the Province of Sindh and "Leejar" or "Pasali" in the Province of Balochistan. Whitehead (1985), Froese and Pauly (2026), Hoda (1988), and Whitehead and Wongratana (1984a) reported it from the Pakistan coast without specifying a location.

Its body is moderately slender and fusiform, with rather rounded. The belly scutes are not prominent. Its body is blue dorsally and has silvery flanks. There are a few vertical striae on the scales. It lacks spots, but the dorsal fin is usually dusky. This species can be distinguished from *A. sirm* by the absence of spots along the flank and by having fewer (31-35) lower gill rakers (33–43 in *A. sirm*).

This species is known from the Indo-Pacific area, including Tanzania (Zanzibar), Mauritius, across the north Indian Ocean rim to Indonesia, southern Japan, New Guinea, and northwestern Australia. Whitehead and Wongratana (1984a) have shown questionable distribution of this species in Pakistani waters (Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- None.

Amblygaster sirm (Walbaum, 1792)

This species is commonly known as spotted sardinella. This species is called "Chacco" in the Province of Sindh and "Leejar" or "Pasali" in the Province of Balochistan. It was reported from Khobar Creek and Paitiani Creek by Mirza and Baquer (1994) as *Clupea sirm*. Froese and Pauly (2026), Hoda (1985, 1988), and Whitehead (1985) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea herengus sirm* from the Red Sea by Walbaum (1792); however, its types are known (Frickle *et al*., 2026).

Its body is moderately slender and fusiform, with rather rounded. The belly scutes are not prominent. Its body is dark blue dorsally, and silvery flanks and a distinctive series of 10 to 20 golden spots. This species can be distinguished from *A. leiogaster* by the presence of 10-20 golden spots along the flank and by having more (33 to 43) lower gill rakers (31 to 35in *A. leiogaster*).

This species is known from the Indo-Pacific area, including the Red Sea, Mozambique, Madagascar, Comoros, Seychelles, Mauritius, and Réunion to the Philippines, southern Japan, Australia, New Caledonia, and Fiji (Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- None.

Genus ***Anodontostoma*** Bleeker, 1849
Anodontostoma chacunda (Hamilton, 1822)
(Fig. 3)

This species is commonly known as Chacunda gizzard-shad. This species is known as "Dhaddi palli" in the Province of Sindh and "Goi" in the Province of Balochistan. It was reported from Sindh by Ahmad *et al* (1973), Anonymous (1953), Misra (1959), Murray (1880), Sorley (1932), Whitehead (1985), and Whitehead and Wongratana (1984a), from Karachi by Anonymous (1955, 1999), Jenkins (1910), Misra (1959), Niazi (2001) and Whitehead (1973), from Korangi Creek by Khatoon and Hussain (2005), and RETA (2003), from Sindh creeks by

Niazi (1976), from Balochistan by Anonymous (1953), Whitehead (1973, 1985), and Whitehead and Wongratana (1984a), and from Makran by Anonymous (1955), Misra (1959), and Qureshi (1952). Ahmad (1988), Ali-Khan (1976), Bianchi (1985), Froese and Pauly (2026), Hoda (1988), Hussain (2003), Jalil and Khalil (1972, 1981), Jayaram (1981, 1999), Kesteven (1950), Khan (1994), Majid *et al* (1992), Psomadakis *et al.* (2015) and Qureshi (1957) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupanodon chacunda* from the Ganges River estuary, India, by Hamilton (1822); however, its type is not known (Frickle *et al*., 2026). Anonymous (1999), Jenkins (1910), Kesteven (1950), Murray (1880), and Sorley (1932) listed this species as *Chatoessus chacunda,* whereas Ali-Khan (1976) reported it as *Dorosoma chacunda*.

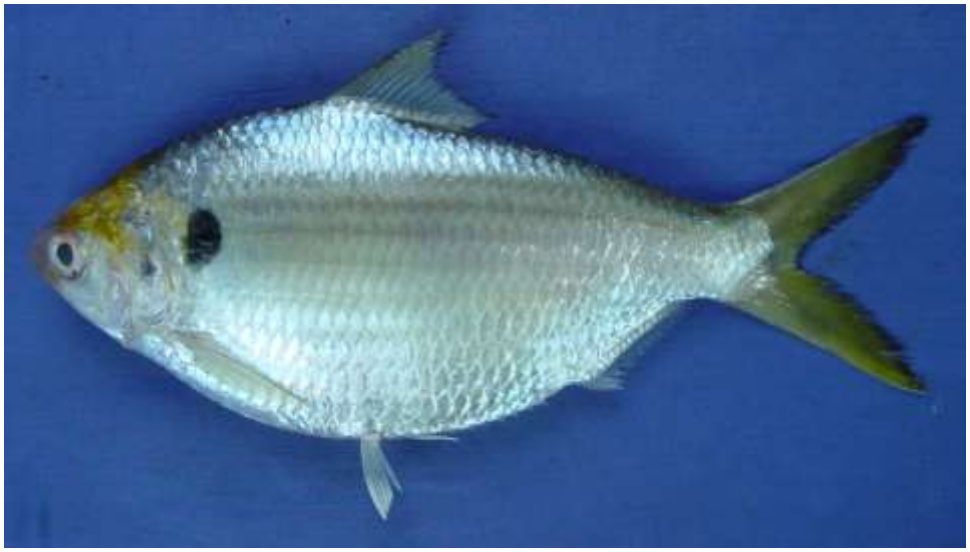


Fig. 3. *Anodontostoma chacunda*

This moderate -sized species has a very deep and compressed body and has its last dorsal-fin ray not filamentous. Its lower jaw has strongly flared edges, and its 2nd supramaxilla is splint-like. Its predorsal scales are in a distinct median series. Its body is dark iridescent blue dorsally, its flanks are silvery, and the top of its head has bronze tinges. There is a large black spot present behind the gill cover. This species can be distinguished from members of the genus *Nematalosa* as it does not have the last dorsal ray greatly produced or filamentous, and has predorsal scales in a median series (last dorsal-fin ray greatly produced and filamentous and having predorsal scales in pairs and overlapping one another in midline in the genus *Nematalosa*)

This species is known from the Indo-Pacific area, including the Persian Gulf, Iran, Pakistan, India, Sri Lanka, the Bay of Bengal, the Andaman Sea, the Gulf of Thailand, Indonesia, the Philippines, the Caroline Islands, Australia, and Vanuatu (Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 29 September 2009 (14 cm TL)
- 1 specimen collected on board R/V Firdous from offshore waters of Pakistan on 13 November 2009 (17 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 12 April 2013 (17 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 7 April 2014 (15 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 14 December 2016 (16.6 cm TL)

Genus ***Escualosa*** Whitley,1940
Escualosa thoracata (Valenciennes, 1847)
(Fig. 4)

This species is commonly known as the white sardine. This species is known as "Mithoo" in the Province of Sindh and "Kashuk", or "Kasha" in the Province of Balochistan. It was reported from Sindh by Aitken (1907), Anonymous (1955), Qureshi (1957), and Sorley (1932), from Dabbo Creek, and Kahi Creek by Mirza and Baquer (1994), from Indus creeks by Niazi (1976), from Karachi by Anonymous (1955, 2001), Fowler (1941), Jenkins (1910), and Niazi (2001), from Leth Nullah by Ahmad *et al.* (1985) and Niazi and Moazzam (1999) from Makran by Anonymous (1955) and Qureshi (1952), and from Miani Hor by Ajazuddin and Ahmed (2002). Ahmad (1988), Anderson (2022a), Anonymous (2001), Bianchi (1985), Froese and Pauly (2026), GBIF (2026), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Misra (1959), Psomadakis *et al.* (2015), Siddiqui (1956), Whitehead (1973, 1985), Whitehead and Wongratana (1984a) reported it from the Pakistan coast without specifying a location. It was originally described as *Kowala thoracata* from Pondicherry, India, by Valenciennes (1847). Sorley (1932) reported this species as *Clupea kluenzi* whereas Aitken (1907), Anonymous (1955), Jenkins (1910) and Sorley (1932) listed it as *Clupea lile* and Fowler (1941), Hussain (2003), Jalil and Khalil (1972, 1981), Misra (1959), Qureshi (1952, 1957) and Siddiqui (1956) referred it as *Kowala coval*. Regan (1922) called it *Kowala thoracata* and *Meletta lile*.

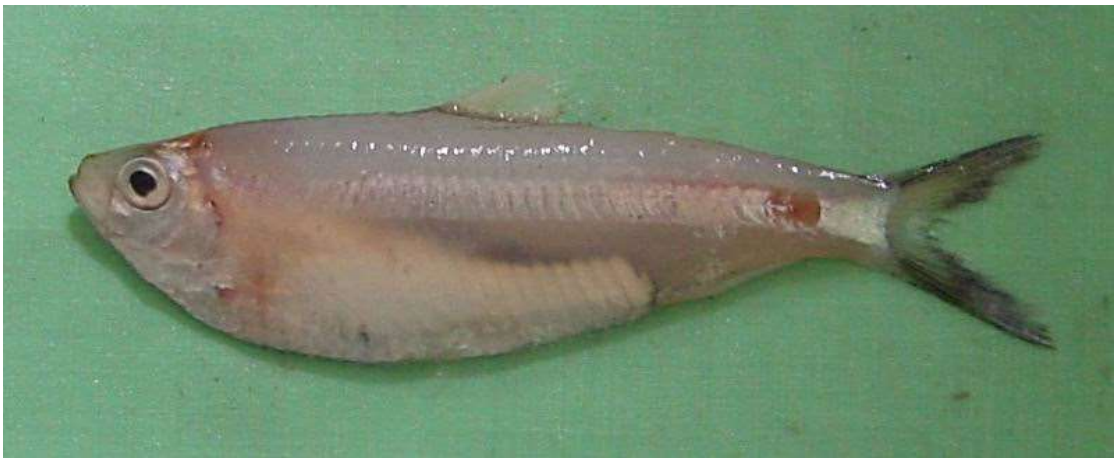


Fig. 4. *Escualosa thoracata*.

It is a small-sized sardine that has a strongly compressed and moderately deep body and a strongly keeled abdomen. The rear margin of its gill cavity is evenly rounded. Its 2nd supramaxilla is rectangular, and the rear portion of the maxilla is enlarged. Its body is whitish and has a broad, bright silver stripe along the midbody.

This species is known from the Indo-West Pacific, including the Arabian Sea (Oman, Pakistan to India); Sri Lanka, Myanmar, Thailand, Indonesia, the Philippines, Papua New Guinea, and Australia (Froese and Pauly, 2026; Anderson, 2022a). Its juveniles may enter the rivers and estuaries and may return to sea.

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 28 September 2009 (9 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 20 February 2013(12 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 17 April 2013 (11 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 11 March 2023 (7 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 14 January 2024 (8 cm TL)

Genus ***Gonialosa*** Regan, 1917
Gonialosa manmina (Hamilton, 1822)

This species is called the Ganges River gizzard shad. This species is known as "Palli" in the Province of Sindh and "Chauchi" or "Pharanda" in the Province of Punjab. It was reported from Sindh by Anonymous (1953), Day (1878, 1889), Fowler (1941), Mirza (2003), Misra (1959), and Sandhu *et al*. (2021), from the River Indus by Day (1878, 1889), Indus estuary by Niazi (1976), from Karachi by Misra (1959), from Balochistan by Anonymous

(1953), Mirza (2003), and Sandhu *et al*. (2021), from Makran by Misra (1959) and Qureshi (1952), and from Punjab by Rafique (2000). Anonymous (1955), Datta Munshi and Srivastava (1988), Jayaram (1981, 1999), Kesteven (1950), Mirza and Alam (1994), Mirza and Bhatti (1999), Misra (1959), Qureshi (1957), and Siddiqi (1956) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupanodon manmina* from freshwater tributaries of the Ganges River in India by Hamilton (1822); however, no type is known (Frickle *et al*., 2026). Kesteven (1950) reported this species as *Chatoesus manmina*.

Anonymous (1955), Day (1878, 1889), Qureshi (1957) and Siddiqi (1956) mentioned its occurrence in the River Indus, whereas Anonymous (1953), Qureshi (1952), and Misra (1959) recorded it from Sindh and Makran coasts however, according to Whitehead (1985), no specimens seem to known from the River Indus or from coastal waters. It is a riverine gizzard shad, and its records from Pakistan appear to be based on misidentification.

Its body is fairly deep and somewhat compressed. Its mouth is inferior, and the upper jaw is slender at the tip and distinctly turned down, whereas the second supra-maxilla is very small.

This species is known from Asian rivers and associated water bodies of Sri Lanka, India (Ganges and other rivers of Orissa, Uttar Pradesh, Bengal, Assam), and Bangladesh (Froese and Pauly, 2026).

Materials Examined

- None.

Genus ***Gudusia*** Fowler, 1911
Gudusia chapra (Hamilton, 1822)
(Fig. 5)

Fig. 5. *Gudusia chapra.*

This species is called the Indian river shad. This species is known as “Palli”, “Palla” or “Palri” in the Province of Sindh, “Palwar” in Balochistan, and “Chauchi”, “Pharanda”, “Banta”, “Palla”, “Patri”, “Pasi”, or “Banta Chanchi” in the Province of Punjab. It was reported from Sindh by Aitken (1907), Day (1878, 1889), Fowler (1941), Lone (1983), Mirza (1970, 2003), Mirza and Sharif (1996), Misra (1959), Rafique (2000), Regan (1917), Sandhu *et al*. (2021), and Sorley (1932), from Bubak Village, Manchar Lake, Dadu District by Ahmad and Khan (1974) and Ahmad *et al*. (1976), from Chotiari Reservoir, District Sanghar by Leghari *et al*. (1999), from Dadu by Ahmad (1963b), from Haleji Lake by Baqai *et al.* (1974) and Rafique (2009), from Hyderabad by Ahmad (1963e), and Ali and Jafri (1986), from Jhangi Sir by Ahmed *et al*. (1999), from Kandhot, Gouspur, Kashmore, Jacobabad District by Ahmad *et al*. (1976), from Kinjhar Lake by Narejo *et al*. (2000), Siddiqui *et al.* (1973) and Sufi (1957), from Larkana by Ahmad (1963g), from Manchar Lake by Ahmad *et al.* (1976), Jafri (2004), Jafri *et al*. (1999), Prashad and Mukerji (1930) and Sufi (1962), from Manjhand (backward cannel of the River Indus) by Waryani *et al.* (2010), from Nara Game Reserve by Khan (2004), from Nathan Sahib Dak Bunglow by UBC (1996) from Sakrand (Nawabshah District) by Ahmad and Khan (1974) and Ahmad *et al*. (1976), from Sanghar by Ahmad

(1963j), from Serachi Dhand, Sakrand by Ahmad and Khan (1974), from South-West hills by Mirza (1975), from Sukker by Anonymous (1993), from Thatta by Ahmad (1963m), from Balochistan by Lone (1983), and Mirza (2003), from Las Bela by Mirza (1970b, 1972), Mirza and Ahmed (2004), Mirza and Omar (1984), Mirza and Sharif (1996), Sandhu *et al*. (2021) and Zugmayer (1913), from Porali River by Mirza *et al*. (2002), from South-southeastern Balochistan and adjoining areas by Mirza (1974, 1975), from Punjab by Anonymous (2002), Lone (1983), Mirza (1970, 2003), Mirza and Alam (2002), Mirza and Sharif (1996), Rafique (2000), and Sandhu *et al*. (2021), from Bahawalnagar by Ahmad (1963a), from Chasma Lake by Mirza and Bakr (1988), from Chiniot, Jhang District by Ahmad *et al*. (1976), from Failsalabad by Ahmad (1963h), from Gujranwala by Ahmad (1963c), from Gujrat by Ahmad (1963d), from Haro River by Razaq and Mirza (1992), from Jhang by Ahmad (1963f) and Sheri and Saied (1977), from Jinnah Barrage by Mirza and Jan (1993), and Rafique *et al*. (2003), from Lahore by Ahmad (1943), Ahmad *et al*. (1976), Anonymous (1999), Hora (1919), and Mirza (1970, 1982), from Muzaffargarh by Lincoln (1930), from Magasson drain Muzaffargarh District by Ahmad *et al*. (1976), from Multan by Ahmad (1963i), from Rawalpindi, Islamabad and Wah area by Akhtar *et al.* (1990), from River Chenab between Khanki and Qadirabad by Javed *et al*. (1997), from River Chenab in Jhang by Afzal *et al.* (1995), from River Chenab in Multan District by Khan *et al*. (1991) and Mahmood and Salam (1997), from River Jehlum at Bhera and Boonga by Mirza and Ahmad (1987) from Sargodha by Ahmad (1963k); from Sailkot by Ahmad (1963l) from Taunsa, D. G. Khan District by Ahmad *et al*. (1976), from Wazirabada, Qadirabad Colony, Gujranwala District by Ahmad *et al*. (1976), Khyber Pakhtunkhwa by Lone (1983), Mirza (2003), Mirza and Sharif (1996), Sandhu *et al*. (2021), from Charsadda by Butt (1992), from Dera Ismail Khan, Chasma Barrage, Indus River by Ahmad *et al*. (1976) and Butt and Nawaz (1977, 1978), by Dera Ismail Khan by Butt (1986), and from River Indus, Kabul and Soan Rivers by Mirza (1997). Ahmad (1963n), Ahmad *et al* (1980), Datta Munshi and Srivastava (1988), Iqbal (1993c), Jayaram (1981, 1999), Mirza (1972), Mirza and Alam (1994). Mirza and Bhatti (1999), Qureshi (1965), Sheri and Saied (1975); Indus plain and adjoining hills (Mirza, 1974, 1975); Mangla Lake (Mirza *et al* (1989; Rafique and Qureshi, 1997); plains of Pakistan (Mirza, 1990; Mirza and Omar, 1984); Kashmir (Rafique, 2000); Indus Balochistan (Rafique, 2000); northern mountane and submountane regions of Pakistan (Mirza, 1976) and Psomadakis *et al.* (2015) reported it from the Pakistan coast without specifying a location. Misra (1959) reported it from the freshwaters of Sindh. Sorley (1932) and Day (1876) from Sindh; however, it is unclear whether these reports pertain to coastal waters or an estuarine area. Ahmad *et al.* (1984) and Moazzam and Niazi (1999) did not report it from the estuarine area of Pakistan. Anonymous (1999), Day (1878a; 1889), Hora (1919), Lincoln (1930), Sorely (1932) and Zugmayer (1913) reported this species as *Clupea chapra* wheeras Ahmad (1943, 1963a, 1963b, 1963c, 1963d, 1963e, 1963f, 1963g, 1963i, 1963j, 1963ab, 1963l, 1963m, 1963n, 1963o), Ahmad and Khan (1974), Ahmad *et al* (1976, 1980), Ahmed *et al.* (1999), Ali and Jafri (1984), Baqai *et al.* (1974), Butt and Nawaz (1977, 1978), Mirza (1972, 1974, 1975), Mirza and Ahmad (1987), Qureshi (1965), Sheri and Saied (1975, 1977b), Siddiqui *et al.* (1973) and Sufi (1957, 1962) listed it as *Gadusia chapra.*

The body of this species is fairly deep, with 26 to 29 scutes along the belly. The depressed tip of the dorsal fin extends vertically behind the anal fin origin. This species resembles *G. variegata*, which is much deeper and has more scutes (29 or 30 in *G. variegata*). The depressed tip of the dorsal fin does not reach vertical from the anal fin origin in *G. variegata*, and the hind margin of the scales is toothed.

This species is known from the rivers of Pakistan, India, Bangladesh, and Nepal (Whitehead, 1985; Frickle *et al*., 2026; Froese and Pauly, 2026).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 11 June 2005(11 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 9 December 2009 (8 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 22 February 2010 (10 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 24 January 2011(9 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 30 May 2013 (12 cm TL)

Gudusia variegata (Day, 1869)

This species is called the Burmese river shad. This species is known as “Palli”, “Palla” or “Palri” in the Province of Sindh, “Palwar” in Balochistan, and “Chauchi”, “Pharanda”, “Banta”, “Palla”, “Patri”, “Pasi”, or “Banta Chanchi” in the Province of Punjab. It was reported from Sindh by Narejo and Jafri (1997), and Sorley (1932).

Datta Munshi and Srivastava (1988), and Mirza and Bhatti (1999) reported it from Pakistan without specifying a location. Its type locality is Irrawaddy and its branches, Myanmar (Day, 1870). Day (1870) and Sorely (1932) reported this species as *Clupea variegata* Datta Munshi and Srivastava (1988).

Its body is deep and has 29 or 30 scutes along the belly. It resembles *G. chapra,* which is slenderer, has fewer scutes (26 to 29), the depressed dorsal fin tip surpassing the anal fin origin, and the hind border of the scales is smooth.

This species is known from the rivers of Myanmar, including the River Irrawaddy (Whitehead, 1985). Although this species was reported from Pakistan by Datta Munshi and Srivastava (1988), Mirza and Bhatti (1999), Narejo and Jafri (1997), and Sorley (1932), it is known only from Myanmar; therefore, its records from Pakistan are likely due to misidentification.

Materials Examined

- None

Genus ***Herklotsichthys*** Whitley, 1951
Herklotsichthys quadrimaculatus (Ruppell, 1837)
(Fig. 6)

This species is commonly known as the blue-stripe herring. This species is known as "Mithoi" in the Province of Sindh and "Beechum" in Balochistan. It was reported from Sindh by Misra (1959), and from Sindh creeks by Niazi (1976); Ahmad (1988), Froese and Pauly (2026), Hoda (1985, 1988), Psomadakis *et al.* (2015), Whitehead (1985), and Whitehead and Wongratana (1984a) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea quadrimaculata* from the Bay of Massawa, Eritrea, Red Sea by Rüppell (1837). Misra (1959) reported this species as *Harengula punctata,* whereas Ahmad (1988) and Niazi (1976) listed it as *Herklotsichthys punctata.*

The body of this species is slender. There are 3 to 8 frontoparietal striae on each side of the top of the head. Palatine or pterygoid teeth are absent in this species. The body of this species is dark blue dorsally, with a bright blue narrow stripe beneath, and the flanks are silvery. The blue stripe is preceded by 2 golden spots on the operculum.

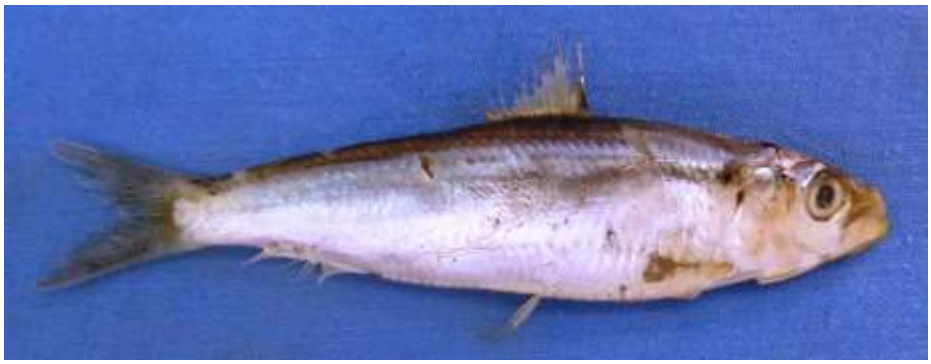


Fig. 6. *Herklotsichthys quadrimaculatus.*

This species is known from the Indo-West Pacific, including the Red Sea to South Africa, East Africa, Persian Gulf, Socotra (Yemen), Seychelles, Madagascar and western Mascarenes (La Réunion, Mauritius) east to the Philippines, Samoa and Tonga, north to southern Japan and Ogasawara Islands, south to Australia, and New It is Lessepsian species which is now found in eastern Mediterranean. Also introduced into Hawaii, apparently by accident, and now abundant (Williams and Clarke, 1983).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 1 September 2018 (17 cm TL)

– 1 specimen collected from Karachi Fish Harbour on 11 March 2020 (19 cm TL).

Genus ***Hilsa*** Regan,1917
Hilsa kelee (Cuvier, 1829)
(Fig. 7)

This species is commonly known as the kelee shad. This species is known as "Palli" in the Province of Sindh, and "Kolgar", and "Bar-rug" (juvenile) in Balochistan. It was reported from Sindh by Anonymous (1955), Day (1878, 1889), Fowler (1941), Misra (1959), Whitehead (1985), and Whitehead and Wongratana (1984a), from Karachi by Anonymous (1955), Misra (1959), and Moazzam *et al.* (2004), from Korangi Creek by RETA (2003), from Leth Nullah by Ahmad *et al*. (1975) and Niazi and Moazzam (1999), from Sindh creeks by Niazi (1976), from Balochistan by Moazzam *et al.* (2004), Qureshi (1952), Whitehead (1985), Whitehead and Wongratana (1984a), and Zugmayer (1913), from Makran by Anonymous (1955), and Misra (1959), and from Miani Hor by Ajazuddin and Ahmed (2002). Ahmad (1988), Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Majid *et al* (1992), Panhwar and Siddiqui (2005), Psomadakis *et al.* (2015), Qureshi (1957), and Whitehead (1973) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea kelee* from Vishakhapatnam, India, by Cuvier (1829); however, its type is not known (Frickle *et al*., 2026). Anonymous (1955), Day (1889), Hoda (1985), and Qureshi (1952, 1957) listed it as *Hilsa kanagurta,* and Day (1878, 1889) and Zugmayer (1913) referred to it as C*lupea kanagurta*. Fowler (1941), Hoda (1985), and Jalil and Khalil (1972, 1981) reported this species as *Macrura kelee*.

Fig. 7. *Hilsa kelee*

It is a deep-bodied fish that is strongly compressed. The top of its head has numerous frontoparietal striae. Its upper jaw has a median notch. Its body is bluish green dorsally, and its sides are silvery. There is a distinct black spot behind the gill cover, which is often followed by 3–10 spots along the flanks.

This species is known from the Indo-West Pacific area, including all coasts of the Indian Ocean, from the Gulf of Oman and Gulf of Aden south to Durban and Madagascar, across the Bay of Bengal, the Gulf of Thailand, and the Java Sea, and north to Hong Kong and east to Papua New Guinea (Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

– 1 specimen collected from Karachi Fish Harbour on 19 January 2011(14 cm TL)
– 1 specimen collected from Karachi Fish Harbour on 26 March 2013 (23 cm TL)
– 1 specimen collected from Karachi Fish Harbour on 11 April 2013 (20 cm TL)
– 1 specimen collected from Karachi Fish Harbour on 21 April 2014 (24 cm TL)
– 1 specimen collected from Karachi Fish Harbour on 21 November 2016 (19 cm TL)

Genus ***Nematalosa*** Regan, 1917
Nematalosa arabica Regan, 1917
(Fig. 8)

This species is commonly known as the Arabian gizzard-shad. This species is known as “Dhaddi palli” in the Province of Sindh and “Goi” in the Province of Balochistan. Anderson (2022a), Psomadakis *et al.* (2015), and Whitehead (1985) reported it from the Pakistan coast without specifying a location. It was originally described from Muscat, Oman, by Regan (1917

It is a medium-sized marine gizzard shad that has an oval body. The abdomen is fully scuted with 17 to 21 prepelvic, 10 to 15 postpelvic scutes, and a pelvic scute with ascending arms. Anterior arm of pre-operculum with a fleshy triangular area above, not covered by the third infra-orbital bone. Its back and flanks are silvery. There are 7–9 narrow bronze stripes dorsally. A black spot is often present on the shoulder. Its caudal-fin tips have a narrow black edge. This is the only species of the genus *Nematalosa* in the region whose rear margin of scales is without fringes.

Fig. 8. *Nematalosa arabica*

This species is found in the western Indian Ocean, including the Gulf of Aden, the Gulf of Oman, and Pakistan, but it is not known from the Red Sea or the Persian Gulf (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 22 February 2010 (16 cm TL)

Nematalosa nasus **(**Bloch, 1795)
(Fig. 9)

This species is commonly known as Bloch’s gizzard-shad. This species is known as “Dhaddi palli” in the Province of Sindh and “Goi” in the Province of Balochistan. This species is reported from Sindh by Ahmad *et al* (1973), Anonymous (1955, 1999), Misra (1959), Murray (1880), Regan (1917a), Whitehead (1973, 1985); and Whitehead and Wongratana (1984a), from Bhanbhore by Ahmed and Abbas (1999a, 2000), from Karachi by Ahmad *et al.* (1973), Anonymous (1999), Hureau (1991), Hussain (1979), Jenkins (1910), Misra (1959), and Niazi (2001), Kharo Chan by Ahmed *et al*. (1999), from Korangi Creek by Ahmed and Abbas (1999c, 2000), Khantoon and Hussain (2005), and RETA (2003), from Leth Nullah by Ahmad *et al.* (1985), and Niazi and Moazzam (1999), from off Indus Swatch by Anonymous (1999), from Tidal Link Canal, Badin District by Jafri *et al*. (2000), from Balochistan by Whitehead (1985), Whitehead and Wongratana (1984a), and Zugmayer (1913), and from Makran by Ahmad *et al.* (1973), and Qureshi (1952). Ahmad (1988), Anderson (2022a), Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Jayaram (1981, 1999), Majid *et al.*

(1992), Psomadakis *et al.* (2015), and Qureshi (1957) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea nasus* from Malabar, India, by Bloch (1795). Anonymous (1999) and Zugmayer (1913) reported this species as *Chatoessus nasus,* whereas Murray (1880) listed it as *Chaetosus altus*.

It is a medium-sized marine gizzard shad that has an oval body. The area above the anteroventral arm of the preopercle is scarcely separate from the suborbital bone series (no fleshy gap). The 3rd infraorbital bone is expanded. It lacks supraorbital grooves. This species can be distinguished from *N. arabica* in having a rear margin of scales with fringes (rear margin of scales without fringes in *N. arabica*). It can be distinguished from *N. resticularia* in having a dorsal fin with 11–12 branched rays and in having 8-9 pre-pectoral scutes (the dorsal fin has 11–12 branched rays and has 8-9 pre-pectoral scutes in *N. resticularia*). It can also be distinguished from *N. persara* in having 16–18 branched rays in the anal fin and 6 pre-pectoral scutes (18–20 branched rays in the anal fin and 7 pre-pectoral scutes in *N. persara*).

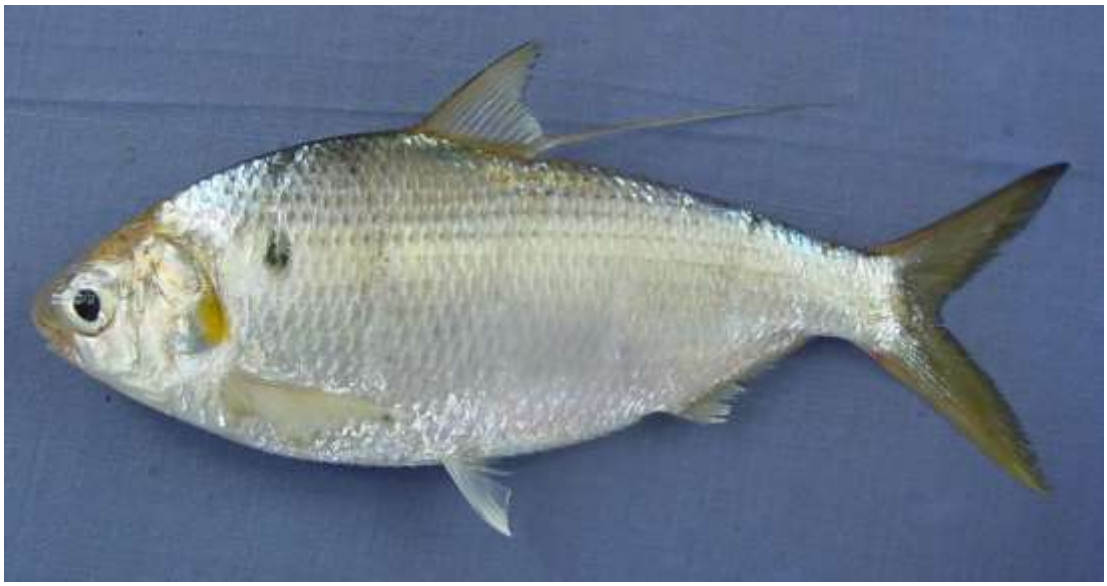


Fig. 9. *Nematalosa nasus*

This species is known from the Indo-West Pacific area from the Gulf of Aden, the Persian Gulf (Bahrain, Iran, Saudi Arabia), Arabian Sea, Pakistan, India, Sri Lanka, Bay of Bengal, Andaman Islands, Gulf of Thailand, South China Sea, the Philippines, Hong Kong, Japan, and Korea (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 8 October 2009 (13 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 8 October 2010 (12 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 25 July 2013 (20 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 17 January 2015 (16 cm TL).

Nematalosa persara Nelson and McCarthy, 1995
(Fig. 10)

This species is commonly known as the Persian gizzard-shad. This species is known as “Dhaddi palli” in the Province of Sindh and “Goi” in the Province of Balochistan. Anderson (2022a), Eagderi *et. al*. (2026), Froese and Pauly (2026), and Nelson and McCarthy (1995) reported it from the Pakistan coast without specifying a location. It was originally described from Road Bay, Saudi Arabia, by Nelson and McCarthy (1995).

Fig. 10. *Nematalosa persara*

It is a medium-sized marine gizzard shad that has an oval body. Its abdomen is fully scuted with 7 pre-pelvic scutes. Its third infraorbital bone is expanded, with a vertical anterior edge, and covers most of the cheek. The rear edge of the scales has minute denticles. This species is dark dorsally and has paler flanks. There is a dark spot on the shoulder. This species can be distinguished from *N. arabica* in having a rear margin of scales with fringes (rear margin of scales without fringes in *N. arabica*). It can be distinguished from *N. resticularia* in having a dorsal fin with 11–12 branched rays and in having 8-9 pre-pectoral scutes (the dorsal fin has 11–12 branched rays and has 8-9 pre-pectoral scutes in *N. resticularia*). It can also be distinguished from *N. nasus in* having 18–20 branched rays in the anal fin and 7 pre-pectoral scutes (16–18 branched rays in the anal fin and 6 pre-pectoral scutes in *N. nasus)*.

This species is known from the Western Indian Ocean, including the Persian Gulf and northern Arabian Sea, to Pakistan (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 11 October 2010 (16 cm TL).

Nematalosa resticularia Nelson and McCarthy 1995
(Fig. 10)

This species is commonly known as the Gulf gizzard-shad. This species is known as “Dhaddi palli” in the Province of Sindh and “Goi” in the Province of Balochistan. It is a new record from Pakistan. It was originally described from Tarut Island, Saudi Arabia, by Nelson and McCarthy (1995).

It is a medium-sized marine gizzard shad that has an oval body. Its abdomen is fully scuted with 7-9 pre-pelvic scutes. The third infraorbital bone is expanded and covers most of the cheek. The supra-orbital grooves are lacking. It has 2–4 unbranched, 15–22 branched anal-fin rays. The rear edge of its scales has minute denticles. This species is dark dorsally and has paler flanks. There is a dark spot on the shoulder. This species can be distinguished from *N. arabica* in having a rear margin of scales with fringes (rear margin of scales without fringes in *N. arabica*). It can be distinguished from *N. nasus* and *N. persara* in having a dorsal fin with 11–12 branched rays and in having 8 to 9 pre-pectoral scutes (dorsal fin has 13–14 branched rays and has 6-7 pre-pectoral scutes in *N. nasus* and *N. persara*). The intestinal diverticula in this species are also larger and fewer than those in *N. persara* and *N. nasus.*

Fig. 10. *Nematalosa resticularia*

This species is known from the Western Indian Ocean, including Somalia, the Persian Gulf (Saudi Arabia and Iran), and the northern Arabian Sea (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 8 January 2019 (18 cm TL)

Genus ***Sardinella*** Valenciennes, 1847
Sardinella albella (Valenciennes, 1847)
(Fig. 11)

Fig. 11. *Sardinella albella*

This species is commonly known as the white sardinella. This species is known as "Chaco", "Tarli", or "Luar" in the Province of Sindh and "Lujar" or "Leejar" in the Province of Balochistan. Records of its occurrence in Pakistan are published by Farzana *et al.* (2012). Since then, Psomadakis *et al.* (2015) reported it from the Pakistan coast without specifying a location.

The body of this species is compressed and may be discontinuous, from slender to moderately deep. Its abdomen is keeled with 29 to 33 scutes.

This species is known from the Indo-West Pacific area, including the Red Sea, the Persian Gulf, and East Africa, South Africa, Madagascar, the Arabian Sea (India, Pakistan), the Bay of Bengal (Bangladesh, Myanmar), Gulf of Thailand, Indonesia, the Philippines, Taiwan, to Papua New Guinea and northern Australia (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 14 September 2011 (15 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 17 July 2013 (18 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 1 November 2013 (20 cm TL)

Sardinella atricauda (Günther, 1868)

This species is commonly known as the Bleeker's blacktip sardinella. This species is known as "Chaco", "Tarli", or "Luar" in the Province of Sindh and "Lujar" or "Leejar" in the Province of Balochistan. Reported from Sindh by Anonymous (1999), however, records of its occurrence from Pakistan are based on misidentification (Farzana *et al.*, 2012).

This species characteristically has numerous perforations on the posterior part of the scales.

This species is known from the western Pacific, including the Java Sea in Indonesia (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- None

Sardinella brachysoma Bleeker, 1852
(Fig. 12)

Fig. 12. *Sardinella brachysoma*

This species is commonly known as the deepbody sardinella. This species is known as "Chaco", "Tarli", or "Luar" in the Province of Sindh and "Lujar" or "Leejar" in the Province of Balochistan. Reported by Hussain (2003) from the Pakistan coast without specifying a location, however, Froese and Pauly (2026) showed the distribution of *Sardinella brachysoma* extending into Pakistani waters and beyond; however, it requires further verification to ascertain its distribution in Pakistani waters.

This species is reported from the Indo-West Pacific area, including Madagascar, India, Indonesia, and northern Australia, but may be widely distributed (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a). No specimen of this species was examined during the present study.

Materials Examined

- None

Sardinella fimbriata (Valenciennes, 1847)

This species is commonly known as the fringescale sardinella. This species is known as "Chaco", "Tarli", or "Luar" in the Province of Sindh and "Lujar" or "Leejar" in the Province of Balochistan. Records of its occurrence in Pakistan are published by Farzana *et al.* (2012).

This species is almost similar to *S. albella* but can be differentiated by having a less deep body, the rear of the margin of its scales with a distinctly produced centre, and scale perforations mostly confined to the centre of the rear margin, as well as having 27-47 gill rakers on the upper arch (deeper body, rear of margin of scales with slight or no produced centre, and with dense perforations over nearly entire rear margin and have having 20-36 gill rakers on the upper arch in *S. albella*).

It is known from the Indo-West Pacific area, including Kuwait, to southern India and the Bay of Bengal to the Philippines and Papua New Guinea (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- None

Sardinella gibbosa (Bleeker, 1849)
(Fig. 13)

This species is commonly known as the goldstripe sardinella. This species is known as “Chaco”, “Kich-uk”, “Tarli”, or “Luar” in the Province of Sindh and “Lujar” or “Leejar” in the Province of Balochistan. Records of its occurrence in Pakistan are published by Farzana *et al.* (2012). Since then, Psomadakis *et al.* (2015) reported it from the Pakistan coast without specifying a location.

Fig. 13. *Sardinella gibbosa*

This species is known from the Indo-West Pacific area, including the Persian Gulf, East African coasts, South Africa, Madagascar, eastward to Indonesia, north to Taiwan, China, Korea, and Australia (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 18 April 2013 (20 cm TL).

Sardinella dayi Regan, 1917

This species is commonly known as the Day’s sardinella. This species is known as “Chaco”, “Tarli”, or “Luar” in the Province of Sindh and “Lujar” or “Leejar” in the Province of Balochistan. This species is reported from Pakistan as *Sardinella jussieui* by Hoda (1985, 1988) and Farzana *et al.* (2012). This species was originally described from Karwar, Karnataka, India by Regan (1917). This species is generally considered a synonym of *Sardinella jussieui* (Whitehead 1985); however, Hata and Motomura (2019d, 2021) consider *Sardinella dayi* as a valid species, which is known from the Indian Ocean (Karnataka to Tamil Nadu, India, and Sri Lanka whereas Mauritian sardinella (*Sardinella jussieui)* is considered to be found in the Western Indian Ocean (off Madagascar and Mauritius).

Sardinella dayi is distinguished from all other congeners by having the pelvic fin with eight rays, scales with centrally discontinuous vertical striae (Whitehead 1985; Munroe et al. 1999; Stern *et al*. 2016; Hata and Motomura 2019a, 2019b, 2019c). *Sardinella dayi* is distributed on the southern coast of India from Karnataka State to Tamil Nadu State and Sri Lanka (Fowler 1924; Chan 1965; Hata and Motomura, 2019d; Talwar and Kacker 1984; Whitehead 1985; Bijukumar and Sushama 2000; Mishra and Krishnan 2003), whereas *Sardinella jussieui* is distributed off Madagascar and Mauritius (Hata and Motomura, 2019d; Sauvage 1891; Whitehead 1985).

Materials Examined

- None

Sardinella longiceps Valenciennes, 1847
(Fig. 14)

This species is called the Indian oíl sardine. This species is known as “Chaco”, “Tarli”, or “Luar” in the Province of Sindh and “Lujar” or “Leejar” in the Province of Balochistan. Records of its occurrence in Pakistan are published by Farzana *et al.* (2012). Kesteven (1950) and Psomadakis *et al.* (2015) also reported it from the Pakistan coast without specifying a location.

This species is known from the Indian Ocean, including Djibouti, Egypt, Somalia, Mombasa, Seychelles, Bahrain, India, Iran, Kuwait, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, United Arab Emirates, Yemen, Andaman Island, Java, Bali Straits, and the Philippines (Anderson, 2022a; Frickle *et al*., 2026; Froese and Pauly, 2026; Jayaprakash, 2007; Jayaprakash and Pillai, 2000, Rohit *et al*., 2018).

Fig. 14. *Sardinella longiceps*

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 18 April 2013 (20 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 16 July 2013 (22 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 17 July 2013 (19 cm TL)

Sardinella melanura (Cuvier, 1829)
(Fig. 15)

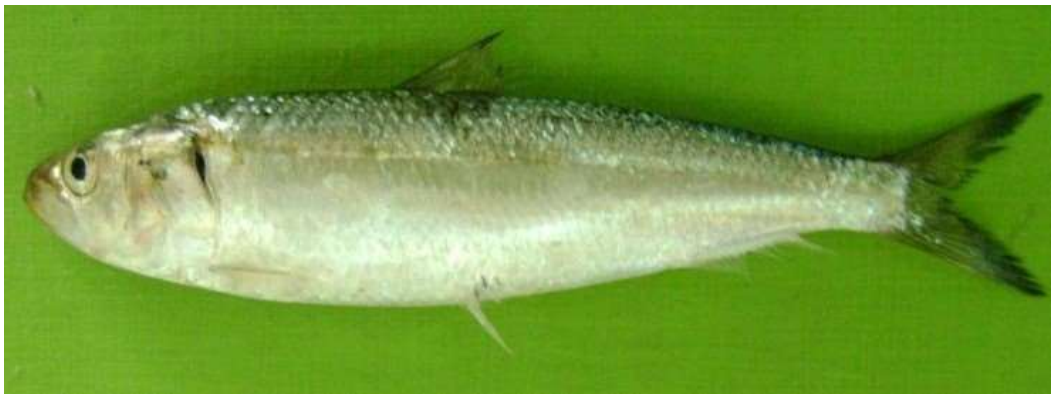


Fig. 15. *Sardinella melanura*

This species is commonly known as the blacktip sardinella. This species is known as “Chaco”, “Tarli”, or “Luar” in the Province of Sindh and “Lujar” or “Leejar” in the Province of Balochistan. Records of its occurrence in Pakistan are published by Farzana *et al.* (2012). Since then, Psomadakis *et al.* (2015) also reported it from the Pakistan coast without specifying a location.

This species is known from the Indo-Pacific area including Gulf of Aden, East Africa, Kenya, Madagascar, Seychelles, Mauritius, Réunion, Arabian Sea, India, Pakistan, eastern Indonesia, Japan, Australia, New Caledonia,

Santa Cruz Islands, Penghu Islands, Tonga, New Caledonia, and Samoa Islands (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 28 October 2009 (16 cm TL)

Sardinella sindensis (Day, 1878)
(Fig. 16)

Fig. 16. *Sardinella sindensis*

This species is commonly known as the Sindh sardinella. This species is known as "Chaco", "Tarli", or "Luar" in the Province of Sindh and "Lujar" or "Leejar" in the Province of Balochistan. Records of its occurrence in Pakistan are published by Farzana *et al.* (2012). Since then, Psomadakis *et al.* (2015) also reported it from the Pakistan coast without specifying a location.

This species is known from the Western Indian Ocean, including the Gulf of Aden, the Gulf of Oman, the Persian Gulf, the Arabian Sea, Pakistan, and the West Coast of India (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 14 January 2008 (11 cm TL)
- 1 specimen collected on board R/V Dr. Fridtjof Nansen from offshore waters of Pakistan on 27 October 2010 (12 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 12 July 2013 (18 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 25 May 2014 (19 cm TL)

Genus ***Spratelloides*** Bleeker, 1851
Spratelloides delicatulus (Bennett, 1832)

This species is commonly known as the delicate round herring. This species is known as "Khasa", "Mitho", "Halwa", or "Chi-chiri" in the Province of Sindh, and "Dang-lo" or "Ada-san" in Balochistan. Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1988), Hussain (2003), Psomadakis *et al.* (2015), Whitehead (1985), and Whitehead and Wongratana (1984a) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea delicatula* from Mauritius by Bennett (1832).

Its body is elongate and cylindrical with a rounded abdomen, which is without pre-pelvic or post-pelvic scutes, but has a W-shaped pelvic scute. Its premaxillae are triangular. Its maxilla is toothless, and the rear part of the 2nd supramaxilla is symmetrical and paddle-shaped. The vertical striae on its scales are continuous (not interrupted in the centre), and the rear margin of the scales is smooth. Its body is bluish green dorsally, and it has silvery flanks but

lacks a bright band along the midbody. This species can be distinguished from *S. gracilis* in lacking asilver band at midbody, in having a toothless maxilla, its rear part of 22nd supramaxilla more or less symmetrical (lower part larger than upper) and striae on scales meeting at centre (a bright silver band at midbody from gill cover to caudal fin base, maxilla toothed, rear part of 22nd supramaxilla asymmetrical and some striae on scales not meeting at the centre in *S. gracilis*).

It is widely distributed in the Indo-Pacific area from the Red Sea, South Africa, Madagascar, Comoros, Seychelles, Réunion, Mauritius, Chagos, the Gulf of Oman, Oman, the Arabian Sea, Indonesia, Japan, the Philippines, Marshall Islands, Australia, New Caledonia, Society Islands, and the Chesterfield Islands. Samoa and Hawaii (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- None

Spratelloides gracilis (Temminck and Schlegel, 1846)
(Fig. 17)

Fig. 17. *Spratelloides gracilis*

This species is commonly known as the silverstripe round herring. This species is known as “Khasa”, “Mitho”, “Halwa”, or “Chi-chiri” in the Province of Sindh, and “Dang-lo” or “Ada-san” in Balochistan. It was reported from Karachi by Niazi (2001). Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Psomadakis *et al.* (2015), Whitehead (1985), and Whitehead and Wongratana (1984a) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea gracilis* from the southeast coast of Nagasaki, Japan, by Temminck and Schlegel (1846). Its holotype is not known; however, the lectotype (RMNH 3260a) is housed in Rijksmuseum van Natuulijke Histoire, Leiden, Netherlands (Frickle *et al*., 2026). Hoda (1985), Hussain (2003), and Jalil and Khalil (1972, 1981) reported this species as *Spratelloides japonicus*.

Its body is elongate and cylindrical with a rounded abdomen, which is without pre-pelvic or post-pelvic scutes, but has a W-shaped pelvic scute. Its pre-maxillae are triangular. Its maxilla is toothed. The rear part of its 2nd supramaxilla is asymmetrical. This species can be distinguished from *S. delicatulus* in having a bright silver band at midbody from gill cover to caudal fin base, in having a toothed maxilla, its rear part of 2nd supramaxilla asymmetrical (lower part larger than upper) and some striae on scales not meeting at centre (no silver band at midbody, maxilla toothless, rear part of 22nd supramaxilla more or less symmetrical and striae on scales meeting at the centre in *S. delicatulus*).

It is widespread in the Indo-Pacific region, from the Red Sea, East Africa, Zanzibar, Chagos, Oman, India, Korea, Japan, the Philippines, Australia, Lord Howe Island, Samoa, the Kiribati Islands, the Tuamotu Islands, and Hawaii (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 21 April 2010 (7 cm TL)

Genus ***Tenualosa*** Fowler, 1934
Tenualosa ilisha (Hamilton, 1822)
(Fig. 18)

This species is called the hilsa shad. This species is known as "Palla", or "Pall-o" in the Province of Sindh, and "Palwar" or "Tikki palwar" in Balochistan. It was reported from Sindh by Ahmad (1952), Aitken (1907), Ali (1928), Anonymous (1955, 1999), Day (1878, 1889), Fowler (1941), Hora (1928), Jafri (1991; 1994a-b), Khan (1962), Lone (1983), Mirza (1972, 1990, 2003), Mirza and Omar (1984); Misra (1959), Punwani (1935), Qureshi (1950, 1951, 1954), Rafique (2000), Sandhu *et al.* (2021), Sorley (1932) and WWF-Pakistan (2008), from between Sukkur and Arabian Sea by Qureshi (1954), from Dadu by Ahmad (1963b), from Goni by Bhuiyan (1954), Qureshi (1968), from Ghulam Mohammad Barrage, Kotri by Husain and Sufi (1962a), from Hala by Ahmad (1952), from Hyderabad by Ahmad (1952, 1963e), Bhuiyan (1954), Hussain and Sufi (1961, 1962b), and Qureshi (1954, 1968), from Indus creeks by Niazi (1976), from Indus delta by Ahmad *et al.* (1985), Khan (1960), Mahmood *et al,* (1999), Niazi (1976), Niazi and Moazzam (1999), RETA (2004), and Qureshi (1954, 1968), from River Indus by Ahmad (1952), Coad (1996), Bhuiyan and Talbot (1968), Jones (1959), Mirza and Bhatti (1993), Mujib (1985), Naik (1968), Narejo *et al.* (1999), Qureshi (1965, 1968), and Talwar and Jhingran (1991), from Indus Basin by Rafique (2000), from Indus plain and adjoining hills by Mirza (1974, 1975, 1994), from Indus River by . from Indus River at Sonda, Thatta by Ahmad and Khan (1974), from River Indus below Sukkur by Husain and Sufi (1962b), from Jamshoro by Jaferi (1994a-b) and Qureshi (1968), from Kalri lake by Jafri et al. (1999) and Qureshi (1968), from Karachi by Ahmad (1952), Anonymous (1999), Jaferi (1994), SMNH (1999), and Misra (1959), from Keti Bundar by Jafri (1994a), from Kotri by Hussain and Sufi (1962a), Jafri (1994a), Narejo *et al.* (1998), and Punwani (1935), from Larkana by Ahmad (1952, 1963g), and Qureshi (1968), from Leth Nullah by Ahmad *et al.* (1985) and Niazi and Moazzam (1999), from Lowr Indus Basin by Hussain (1973), from Manchar Lake by Ali (1928), Prashad and Mukerji (1930), and Qureshi (1968), from Nawabshah by Ahmad (1952) and Qureshi (1968), from Sindh creeks by Niazi (1976), from South-West hills by Mirza (1975) from Sukker by Ahmad (1952), Hussain and Sufi (1961, 1962b), Punwani (1935) and Qureshi (1968), from Thatta by Ahmad (1952; 1963m), Ahmad *et al.* (1976), Bhuiyan (1954), and Qureshi (1954, 1968), from Tidal Link Canal, Badin District by Jafri (2004) and Jafri *et al.* (2000), from Balochistan by Ahmad *et al.* (1976), Jafri (1991), Lone (1983), Mirza (2003), Mirza and Omar (1984, Sandhu *et al.* (2021), and Zugmayer (1913), from Gwader by Anonymous (1999), from Mekran coast by Ahmad (1952), Jafri (1994a), Mirza (1972), Misra (1959), and Qureshi (1952), from Indus Balochistan by Rafique (2000), from Ormara by Anonymous (1999), from Porali River by Coad (1996), and Mirza et al. (2002), from South-southeastern Balochistan and adjoining areas by Mirza (1974, 1975), from Punjab by Hussain and Sufi (1961) and from Multan by Aitken (1907), Jafri (1994), Mirza and Bhatti (1993), and Qureshi (1968). Ahmad (1963n, 1963o, 1979, 1988), Ahmad and Niazi (1988), Ali (2002), Ali-Khan (1976), Anderson (2022a), Bianchi (1985), Datta Munshi and Srivastava (1988), Hoda (1985, 1987, 1988), Hussain (2003), Iqbal (1993c), Jayaram (1981, 1999), Jafri and Melvin (1988). Jalil and Khalil (1972, 1981), Kesteven (1950), Majid *et al.* (1992), Mirza and Alam (1994), Mirza and Bhatti (1999), Panhwar and Siddiqui (2005), Pillay and Rosa (1963), Psomadakis *et al*. (2015), Qureshi (1957, 1968), Sheri and Saied (1975), Whitehead (1985), and Whitehead and Wongratana (1984a) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupanodon ilisha* from Ganges estuaries, Patua, Goyakarra, Calcutta, and Dhasa, India, by Hamilton (1822). Aitken (1907), Ali (1928), Anonymous (1999), Day (1878, 1889), Kesteven (1950), Sorley (1932) and Zugmayer (1913) reported this species as *Clupea ilisha* whereas Ahmad (1952, 1963b, 1963e, 1963g, 1963m, 1963n, 1963o), Ahmad and Khan (1974), Ali-Khan (1976), Anonymous (1955), Bhuiyan (1954), Datta Munshi and Srivastava (1988), Hoda (1985, 1987), Hora (1928), Husain (1973), Husain and Sufi (1961, 1962a, 1962b), Bhuiyan and Talbot (1968), Jalil and Khalil (1972, 1981), Jayaram (1981), Jone (1959), Khan (1960), Lone (1983), Mirza (1972, 1974, 1990), Misra (1959), Mujib (1985), Naik (1968) Pillay and Rosa (1963), Prashad and Mukerji (1930), Punwani (1935), Qureshi (1950, 1952, 1954, 1957, 1965, 1968) and Siddiqui (1956) listed it as *Hilsa ilisha* and Talwar and Jhingran (1991), Whitehead (1973) referred it as *Hilsa (Teniualosa) ilisha*. Miza (1975), on the other hand, listed this species as *Macrura (=Hilsa) ilisha,* and Ahmad *et al* (1976) and Fowler (1941) referred to it as *Macrura ilisha*. RETA (2002) reported it as *Ilisha tenulosa*.

It is a moderately large fish with a moderately deep and compressed body. It is blue-green dorsally, shading to silvery on the sides and ventrally. There is a dark blotch behind the gill opening, followed by 3 to 6 dark spots, and the caudal fin is edged with blackish It can be distinguished from its congener *Teniualosa toli* in having a head length of 28‑32% in the standard length (25‑27% in *T. toli*), caudal fin 25‑31% in the standard length (31‑34% in *T.*

toli), 3‑6 black spots on flanks (no spots on flanks in *T. toli*), lateral line scales 44‑47 (37-42 in *T. toli*), higher gill raker counts 150‑275 (60‑100 in *T. toli*).

This species is known from the Indian Ocean, including the Persian Gulf (Kuwait, Iraq, Iran), Arabian Sea (Pakistan, India, Sri Lanka), Bay of Bengal (Bangladesh, Myanmar), Myanmar, Thailand, Malaysia, and Vietnam (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a). It is an anadromous, ascending rivers up to 1 200 km from the sea in Iraq, Iran, Pakistan, India, Nepal, Bangladesh, and Myanmar. According to the IUCN Red List, it is considered Near Threatened in the Persian Gulf.

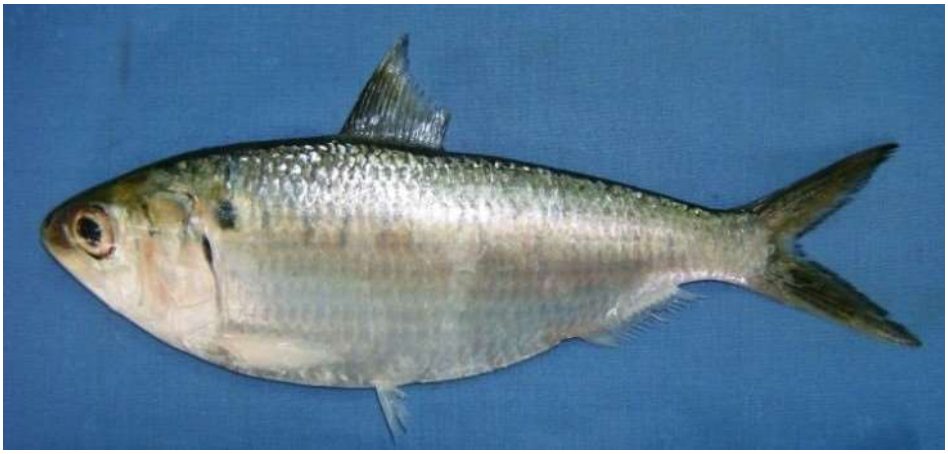


Fig. 18. *Tenualosa ilisha*

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 17 May 2013 (24 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 26 July 2013 (22 cm TL)
- 1 specimen collected from the River Indus at Kotri on 09 September 2015 (25 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 16 October 2015 (17 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 15 November 2016 (19 cm TL)

Tenualosa toli (Valenciennes, 1847)
(Fig. 19)

Fig. 19. *Tenualosa toli*

This species is commonly known as the hilsa shad. This species is known as “Palla”, or “Pall-o” in the Province of Sindh, and “Palwar” in Balochistan. It was reported from Sindh by Anonymous (1953), Misra (1959), Qureshi (1950), Sorely (1932), from Indus Estuary by Khan (1960), from Karachi by Misra (1959), from Leth Nullah by

Ahmad *et al.* (1985) and Niazi and Moazzam (1999), from Sindh creeks by Niazi (1976). from Balochistan by Anonymous (1953), from Makran by Anonymous (1953), and Misra (1959) and Qureshi (1952). Ahmad (1988), Ahmad and Niazi (1988), Ali (2002), Anonymous (1955), Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Jayaram (1981, 1999), Khan (1960), Kesteven (1950), Majid *et al.* (1992), Psomadakis *et al.* (2015), Qureshi (1957), Siddiqi (1956) and Whitehead and Wongratana (1984a) reported it from the Pakistan coast without specifying a location. It was originally described as *Alaisa toli* from Pondicherry, India, by Valenciennes (1847). Anonymous (1953, 1955), Jalil and Khalil (1972, 1981), Jayaram (1981), Hoda (1985), Khan (1960), Qureshi (1952, 1957) and Siddiqi (1956) reported this species as *Hilsa toli* whereas Kesteven (1950), Qureshi (1950) and Sorely (1932) referred it as *Clupea toli* and Misra (1959) listed it as *Hilsa sinensis*.

It is a moderately sized fish with a deep and compressed body. Its colour is blue-green on the back, silvery on the flanks. A diffuse dark mark may be present behind the gill opening, but no other spots on the flank. It can be distinguished from its congener *Teniualosa ilisha* in having a head length of 25‑27% in the standard length (28‑32% in *T. ilisha*), caudal fin 31‑34 % in the standard length (25‑31% in *T. ilisha*), no spots on flanks (3‑6 black spots on flanks in *T. ilisha*), 37-42 lateral line scales (44‑47 in *T. ilisha*), lower gill raker counts 60‑100 (150‑275 in *T. ilisha*).

This species is known from the Indo-West Pacific area, including Mascarenes (Mauritius) and the Persian Gulf, Pakistan, India, the Andaman Sea, the Gulf of Thailand, Indonesia, the Java Sea, the South China Sea, and the Cambodian Mekong near the Vietnam border (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 13 January 2005 (23 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 16 March 2005 (26 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 18 April 2007 (25 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 6 May 2009 (23 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 14 September 2011 (27 cm TL)

Family Dussumieriidae (Round herrings)
Genus ***Dussumieria*** Valenciennes, 1847
Dussumieria acuta Valenciennes, 1847
(Fig.20)

This species is commonly known as the rainbow sardine. This species is known as “Mo-yari”, “Har-luar”, or “Chaaco” in the Province of Sindh, and “Pasali” or “Chaaco” in the Province of Balochistan. It was reported from Sindh by Anonymous (1955), Day (1878, 1889), Fowler (1941), Misra (1953), Sorley (1932), Whitehead (1973; 1985), and Whitehead and Wongratana (1984a), from Karachi by Anonymous (1955), Misra (1959), and Niazi (2001), from Sindh creeks by Niazi (1976), from Balochistan by Whitehead (1973; 1985), Whitehead and Wongratana (1984a), and Zugmayer (1913) and from Makran by Anonymous (1955), Misra (1959) and Qureshi (1952). Anonymous (1999), Bianchi (1985), Froese and Pauly (2026), GBIF (2026), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Kesteven (1950), Majid *et al.* (1992), Psomadakis *et al.* (2015), Qureshi (1957), Siddiqi (1956) reported it from the Pakistan coast without specifying a location. It was initially described from Coromandel, India, by Valenciennes (1847).

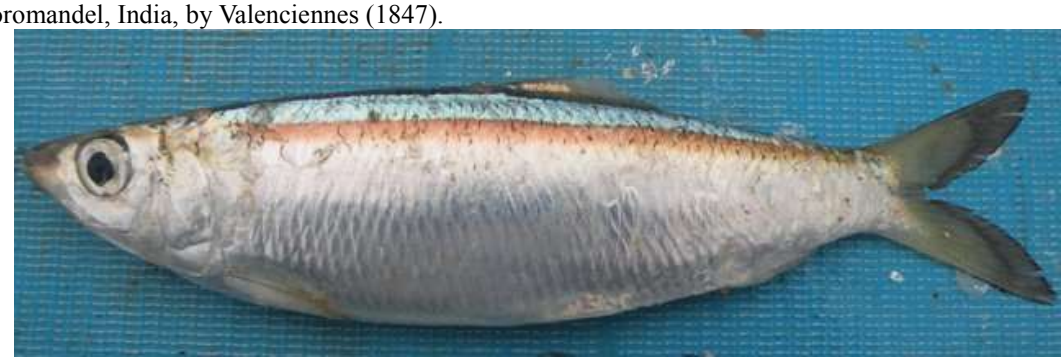


Fig. 20. *Dussumieria acuta*.

Its body is slender and compressed. Its pre-maxilla is rectangular. Its pelvic scute is flat and W-shaped. Its isthmus is evenly tapering, without anterior lateral projections. The rear margin of its scales has numerous tiny striae radiating ~½ the length of the scale height. Its body is iridescent blue dorsally, with a bright golden stripe below and flanks silvery; the rear margin of scales in the dorsal-most 3 rows with black marking. Its caudal-fin margin is broadly dark. This species can be distinguished from its congener *D. elopsoides* in having a body depth of ~22‑29% of the standard length (~16‑22% in *D. elopsoides*) and in having a rear margin of body scales with minute horizontal striae (rear margin of scales without striae in *D. elopsoides*).

This species is known from the Indo-West Pacific area, including East Africa, Mozambique, Madagascar, the Gulf of Aden, Oman, the Persian Gulf, the Arabian Sea, east to the Bay of Bengal to Myanmar, Singapore, Indonesia, Vietnam, the Philippines, and Taiwan (Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 11 December 2008 (17 cm TL)
- 1 specimen collected on board R/V Firdous from offshore waters of Pakistan on 3 November 2009 (18 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 1 November 2013 (16 cm TL
- 1 specimen collected from Karachi Fish Harbour on 1 November 2017 (15 cm TL).
-

Dussumieria elopsoides Bleeker, 1849

(Fig. 21)

Fig. 21. *Dussumieria elopsoides*

This species is commonly known as the slender rainbow sardine. This species is known as “Mo-yari”, “Har-luar”, or “Chaaco” in the Province of Sindh, and “Pasali”, or “Chaaco” in the Province of Balochistan. It was reported from Manora Channel by Khan and Waqar (1981). Bianchi (1985), Froese and Pauly (2026), Hussain (2003), Jalil and Khaliluddin (1972, 1981), Psomadakis *et al.* (2015), Whitehead (1984, 1985), and Whitehead and Wongratana (1985) reported it from the Pakistan coast without specifying a location. It was initially described from Madura Straits near Kammal, Surabaya, Jakarta, and Samarang, etc. Java, Indonesia, by Bleeker (1849). . Hussain (2003), Jalil and Khaliluddin (1972, 1981), and Khan and Waqar (1981) reported this species as *Dussumeria hesselti*.

Its body is slender and compressed. Its pre-maxilla is rectangular. Pelvic fins are located under the middle of the dorsal fin. Its pelvic scute is flat and W-shaped. Its isthmus is evenly tapering, without anterior lateral projections. The rear margin of its scales is without striae. Its body is blue dorsally, with a golden stripe below, flanks silvery; the caudal-fin margin has a dark band. This species can be distinguished from its congener *D. acuta* in having a body depth of ~16‑22% of the standard length (~22‑29% in *D. acuta*) and in having a rear margin of body scales without striae (rear margin of scales with minute horizontal striae in *D. acuta*).

This species is known from the Indo-West Pacific area, including the Red Sea to South Africa, Madagascar, the Persian Gulf, Arabian Sea, Bay of Bengal, across the eastern Indian Ocean, South China Sea, Australia, and the Solomon Islands and Tonga (Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 1 March 2009 (17 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 16 October 2010 (16 cm TL)
- 1 specimen collected on board R/V Dr. Fridtjof Nansen from offshore waters of Pakistan on 27 October 2010 (16 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 1 November 2015 (17 cm TL).

Family Ehiravidae (River sprats)
Genus ***Dayella*** Talwar and Whitehead, 1971
Dayella malabarica (Day, 1873)

This species is commonly known as Day's round herring. This species is known as "Har-luar", or "Chaaco" in the Province of Sindh, and "Pasali", or "Chaaco" in the Province of Balochistan. It was reported from Sindh by Sandhu *et al*. (2021). Hoda (1985) reported it from the Pakistan coast without specifying a location. It was originally described as *Spratelloides malabaricus* from sea-ascending rivers in Malabar, India, by Day (1873). Hoda (1985) reported this species as *Stolephorus malabaricus*. Although Hoda (1985) reported this species as *Stolephorus malabaricus* (Day), the name was mistakenly applied to *Spratelloides malabaricus,* which is a synonym of this species.

This species is known from southwestern India (Malabar, Kerala) and is known to ascend rivers (Froese and Pauly, 2026). Although reported from Pakistan, their records seem to be based on misidentification.

Materials Examined

- None.

Family Engraulididae (Anchovies)
Genus ***Coilia*** Gray, 1830
Coilia borneensis Bleeker, 1852

This species is commonly known as the Bornean grenadier anchovy. This species is known as "Poonchar-karari", or "Poonchaari" in the Province of Sindh, and "Dumbi-padni" in Balochistan. Hoda (1985, 1988), Hussain (2003), and Jalil and Khalil (1972, 1981) reported it from the Pakistan coast without specifying a location. It was originally described from Bandjarmasin, Borneo, Indonesia, by Bleeker (1852).

Its body is long, tapering, and its abdomen is rounded anterior to pelvic fins. Its caudal fin is very small and pointed. Dorsally, it is brownish and has silvery flanks, but otherwise has no distinctive colour patterns. This species can be differentiated from all its congeners reported from Pakistan in having 10-14 pectoral fin rays (all other species have 6 pectoral fin rays).

This species is known from the Western Central Pacific area, including Indonesia and Thailand (Frickle *et al*., 2026; Froese and Pauly, 2026). Although reported from Pakistan by Hoda (1985, 1988), Hussain (2003), and Jalil and Khalil (1972, 1981), according to Whitehead et al. (1988), this species is known only from Indonesian waters. Froese and Pauly (2026) pointed out that Indian records probably belong to *Coilia reynaldi*. Pakistani specimens may also be the same species.

Materials Examined

- None

Coilia dussumieri Valenciennes, 1848
(Fig. 22)

This species is commonly known as the goldspotted grenadier anchovy. This species is known as "Poonchar-karari", or "Poonchaari" in the Province of Sindh, and "Dumbi-padni" in Balochistan. This species was reported from Sindh by Misra (1959), Punwani (1935), and Sorley (1932), from Bhanbore and Korangi Creek by Abbas (2000) and Ahmed and Abbas (1999a, 2000), from Hajamro Creek, Sisa Creek, Dabbo Creek, and Paitiani Creek by

Mirza and Baquer (1994), from Karachi by Misra (1959) and Niazi (2001), from Sindh creeks by Anonymous (1955) and Niazi (1976)), from Miani Hor by Ahmed and Abbas (1999b, 2000), and Makran by Misra (1959) and Qureshi (1952). Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Jayaram (1981, 1999), Kesteven (1950), Majid *et al.* (1992), Psomadakis *et al.* (2015), Qureshi (1957), and Siddiqi (1956) reported it from the Pakistan coast without specifying a location. It was originally described from Mumbai, India, by Valenciennes (1848).

Its body is tapering, with a belly rounded before pelvic fins, with 12 to 15 keeled scutes from just behind the pectoral fin base to the anus. Its pectoral fin has 6 long and filamentous, reaching posteriorly at least to the anal-fin origin and 9 to 11 branched fin rays. Its dorsal-fin origin is above or slightly behind pelvic-fin insertions. Its body is brown dorsally, and its flanks are silvery. Its flanks and abdomen have longitudinal rows of golden or pearly spots (light organs, with a pocket for luminous material and a silvery reflector below) below scales, also along the isthmus, along the border of the lower jaw, and a few on the cheek and gill cover. This species can be differentiated from *C. borneensis* in having 6 pectoral fin rays (10-14 pectoral fin rays in *C. borneensis*). All other species of *Coilia* occurring in Pakistan lack longitudinal rows of golden or pearly spots or light organs on the flanks and abdomen.

Fig. 22. *Coilia dussumieri*

This species is known from the Indian Ocean, including Pakistan, India, Myanmar, the Andaman Islands, Thailand, Malaysia, Indonesia, and Vietnam (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022b).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 23 October 2009 (13 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 9 October 2010 (12 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 15 April 2013 (17 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 26 April 2014 (21 cm TL)

Coilia neglecta Whitehead, 1967

This species is commonly known as the neglected grenadier anchovy. This species is known as “Poonchar-karari”, or “Poonchaari” in the Province of Sindh, and “Dumbi-padni” in Balochistan. This species was reported from Karachi by Anonymous (1993), Froese and Pauly (2026), Whitehead (1967, 1973), Whitehead and Wongratana (1984b), and Whitehead *et al.* (1988). Anderson (2022b), Bianchi (1985), Hussain (2003), Psomadakis *et al.* (2015), Whitehead and Wongratana (1984b), and Whitehead *et al.* (1988) reported it from the Pakistan coast without specifying a location. It was originally described from the Arabian Sea (21°23'N, 69°46'E), Anton Bruun cruise 4B, station, 211A by Whitehead (1967).

The body of this fish is long and tapering, with a rounded abdomen anterior to the pelvic fins. Its pectoral-fin rays are 6 unbranched, long and filamentous, reaching posteriorly at least to vertical through the anal-fin origin, and 9–11 branched rays. Its body is brown dorsally, flanks silvery; anal-fin margin black, and there are no light organs. This species can be differentiated from *C. borneensis* in having 6 pectoral fin rays (10-14 pectoral fin rays in *C. borneensis*). *C. dussumieri* has golden or pearly spots or light organs on the flanks and abdomen (light organs lacking in *C. neglecta*). This species can be differentiated from *C. borneensis* in having 6 pectoral fin rays (10-14 pectoral fin rays in *C. borneensis*), gill rakers 29 or 30 in *C. ramcarati* (23 to 27 gill rakers in *C. neglecta*).
This species is known from the Indo-Pacific area, including Pakistan, India, Sri Lanka, the Bay of Bengal, Myanmar, the Andaman Sea, Thailand, Malaysia, Singapore, Indonesia, and Vietnam (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022b).

Materials Examined

- None

Coilia ramcarati (Hamilton, 1822)

This species is commonly known as the Ramcarat grenadier anchovy. This species is known as "Poonchar-karari", or "Poonchaari" in the Province of Sindh, and "Dumbi-padni" in Balochistan. This species was reported from Karachi by Anonymous (1999). Jayaram (1981, 1999), and Whitehead (1973) reported it from the Pakistan coast without specifying a location. It was originally described as *Mystus ramcarati* from the Botanical Garden of Kolkata, the Ganges River Estuary by Hamilton (1822). Anonymous (1999) reported this species as *Engraulis hamiltonii*.

This species has a tapering body with a rounded belly before the pelvic fins. Its pectoral fin has 6 long filaments, and the branched fin rays are much shorter than those of the pelvic fin. Its pelvic fin has 8 to 9 rays. Its body is brown dorsally, flanks silvery; anal-fin margin black, and there are no light organs. This species can be differentiated from *C. borneensis* in having 6 pectoral fin rays (10-14 pectoral fin rays in *C. borneensis*), *C. dussumieri* has golden or pearly spots or light organs on the flanks and abdomen (light organs lacking in *C. neglecta*), and gill rakers 29 or 30 in *C. ramcarati* (23-27 gill rakers in *C. neglecta*).

This species is known from the Indian Ocean, including the Bay of Bengal (India) and Bangladesh, to Myanmar (Frickle *et al*., 2026; Froese and Pauly, 2026). Since this species occurs only in the Bay of Bengal, its reports from Pakistan may be based on misidentification.

Materials Examined

- None

Genus ***Encrasicholina*** Fowler, 1938

Encrasicholina devisi (Whitley, 1940)

(Fig. 23)

Fig.23. *Encrasicholina devisi*

This species is commonly known as the Devis' anchovy. This species is known as "Khasa", "Mitho", "Halwa", or "Chi-chiri" in the Province of Sindh, and "Dang-lo" or "Ada-san" in Balochistan. Whitehead *et al* (1988) and

Whitehead and Wongratana (1984b) reported it from the Pakistan coast without specifying a location. It was originally described as *Amentum devisi* from Norman mouth, Gulf of Carpentaria, Queensland, Australia by Whitley (1940). Its holotype (AMS IB.609) is housed in the Australian Museum, Sydney, Australia (Frickle *et al*., 2026). Whitehead and Wongratana (1984b) reported this species as *Stolephorus devisi*.

It is a small-sized anchovy with a long fusiform body and a forked caudal fin. Its body is bluish grey dorsally, with a golden hue. There is a bright silvery band on the flanks, with a thin blue line above it. It closely resembles *Encrasicholina heteroloba*, which has only 2 unbranched dorsal and anal fin rays, a dull silver/grey band on the flank, and a beige back. Other species of *Encrasicholina* have a fleshy urohyal plate and a blunt maxilla tip that does not project beyond the second supra-maxilla. It can be distinguished from species of *Stolephorus* that have a long isthmus reaching to the margin of the branchial membrane.

It is known to be widely distributed in the Indo-Pacific: area, including Northern Indian Ocean, the Gulf of Aden, the Persian Gulf, Pakistan, India, Andaman Islands, Indonesia, Thailand, the Philippines, southern China, Taiwan, Caroline Islands, Australia, Fiji, Samoa, Tonga (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022b).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 11 January 2011 (12 cm TL)

Encrasicholina heteroloba (Ruppell, 1837)
(Fig. 24)

Fig. 24. *Encrasicholina heteroloba*

This species is commonly known as the shorthead anchovy. This species is known as “Khasa”, “Mitho”, “Halwa”, or “Chi-chiri” in the Province of Sindh, and “Dang-lo” or “Ada-san” in Balochistan. Hoda (1988) and Whitehead and Wongratana (1984b) reported it from the Pakistan coast without specifying a location. It was originally described as *Engraulis heteroloba* from Massawa, Eritrea, Red Sea by Ruppell (1837).

It is a small-sized anchovy that has a nearly cylindrical body and a rounded abdomen. Its colour is pale cream-coloured and has a dull silver-grey band on the flank, with a distinct blue upper edge, whereas its dorsum is beige.

This species has a very widespread distribution in the Indo-Pacific area, including the Red Sea, East Africa, Madagascar, Bay of Bengal, Gulf of Thailand, Indonesia, Japan, Australia, Palau, Caroline Islands, Kosrae, and Samoa (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022b). Although it was reported by Hoda (1988) and Whitehead and Wongratana (1984b) as *Stolephorus heterolobus,* Whitehead *et al* (1988) doubted its presence in the northern Arabian Sea.

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 7 April 2017 (13 cm TL)

Encrasicholina punctifer Fowler, 1938
(Fig. 25)

Fig. 25. *Encrasicholina punctifer*

This species is commonly known as the buccaneer anchovy. This species is known as "Khasa", "Mitho", "Halwa", or "Chi-chiri" in the Province of Sindh, and "Dang-lo" or "Ada-san" in Balochistan. Anderson (2022b), Froese and Pauly (2026), Hoda (1985, 1988), Hussain and Kidwai (1994), Aftab and Ali-Khan (1992), Ali-Khan and Aftab (1993), and Ali-Khan *et al.* (2001), Whitehead and Wongratana (1984b), and Whitehead *et al* (1988) reported it from the Pakistan coast without specifying a location. It was originally described from Fare Bay, Huaheine Island, Society Islands by Fowler (1938). Its holotype (ANSP 68308) is housed in the Academy of Natural Sciences, Philadelphia, USA (Frickle *et al*., 2026). Aftab and Ali-Khan (1992), Ali-Khan and Aftab (1993), and Ali-Khan *et al* (2001) have described larvae of *Stolephorus zollingeri* from Pakistani waters. This species was originally described as *Engraulis zollingeri* from Makasar, Sulawesi, Indonesia by Bleeker (1849). According to Whitehead *et al.* (1988) *Stolephorus zollingeri* (as reported by Weber and deBeaufort, 1913) is a synonym of *Encrasicholina punctifer.* In the absence of detailed information, it is presumed that larvae reported from Pakistan by Aftab and Ali-Khan (1992), Ali-Khan and Aftab (1993), and Ali-Khan *et al* (2001) belonged to this species.

It is a small-sized anchovy that has a nearly cylindrical body with a rounded abdomen. The colour of its body is pale cream, and it has a bright silver lateral stripe along its flanks.

This species is very widespread in the Indo-Pacific area, including the Persian Gulf, the Red Sea, South Africa, Pakistan, India, Myanmar, the Gulf of Thailand, Indonesia, the Philippines, Japan, Australia, and Tahiti and Hawaii (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022b).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 19 October 2022 (11 cm TL)

Genus ***Setipinna*** Swainson, 1839

Setipinna breviceps (Cantor, 1849)

This species is commonly known as the shorthead hairfin anchovy. This species is known as "Karari", "Karadi", or "Padan" in the Province of Sindh, and "Padni" in Balochistan. Qureshi (1957) reported it from the Pakistan coast without specifying a location. It was originally described as *Engraulis breviceps* from Penang, Malaysia, by Cantor (1849).

This species is known from the Western Central Pacific in the river mouths of Indonesia, Malaysia, and Myanmar (Frickle *et al*., 2026; Froese and Pauly, 2026). Although reported by Qureshi (1957) from Pakistan, according to Whitehead *et al* (1988), this species is known only from the eastern Indian Ocean and the western central Pacific area; therefore, its identification from Pakistan may be based on misidentification.

Materials Examined

- None

Setipinna taty (Valenciennes, 1848)

This species is commonly known as the scaly hairfin anchovy. This species is known as "Karari", "Karadi", or "Padan" in the Province of Sindh, and "Padni" in Balochistan. It was reported from Sindh by Sorley (1932) as *Engraulis taty*. It was originally described as *Engraulis taty* from Pondicherry, India, by Valenciennes (1848).

This species is known from the Western Central Pacific and Indian Ocean area, including the Bay of Bengal, Gulf of Thailand, Malaysia, Indonesia, the Philippines, and Papua New Guinea (Frickle *et al*., 2026; Froese and Pauly, 2026). Although it was reported from Sindh by Sorley (1932), according to Froese and Pauly (2026) and Whitehead *et al*. (1988), this species is known from the east coast of India and the Indo-Malayan archipelago; therefore, its identification from Pakistan may be based on misidentification.

Materials Examined

- None

Genus ***Stolephorus*** Lacepède, 1803
Stolephorus bengalensis (Dutt and Babu Rao, 1959)
(Fig. 26)

This species is commonly known as the Hardenberg's anchovy. This species is known as "Khasa", "Mitho", "Halwa", or "Chi-chiri" in the Province of Sindh, and "Dang-lo" or "Ada-san" in Balochistan. It was reported from off Pakistan by Hata *et al*. (2019, 2022a) and from Karachi by Hata *et al*. (2022a). It was originally described as *Anchoviella baganensis bengalensis* from Kilakarai, Gulf of Mannar (Kakinada and Waltair, Bay of Bengal), the east coast of India (Dutt and Babu Rao, 1959).

Fig. 26. *Stolephorus bengalensis*

It is distributed in the Indo-West Pacific region, from the Arabian Sea (Pakistan) to the Bay of Bengal (Frickle *et al*., 2026; Froese and Pauly, 2026; Hata *et al*., 2019, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 13 February 2009 (11 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 4 March 2018 (10 cm TL);
-

Stolephorus commersonii Lacepède, 1803
(Fig. 27)

This species is commonly known as the Mauritius anchovy. This species is known as "Khasa", "Mitho", "Halwa", or "Chi-chiri" in the Province of Sindh, and "Dang-lo" or "Ada-san" in Balochistan. Several workers have reported this species from Pakistan, which is now shifted to *S. rex* in this paper. It was originally described, possibly from Mauritius, by Lacepède (1803).

Fig. 27. *Stolephorus commersonii*

This species is very widespread in the Western Pacific, eastward to Hong Kong, Papua New Guinea, Australia, Ponape, the Caroline Islands, Fiji, and the Philippines. In the Indian Ocean, it is known from East Africa, the Gulf of Aden, Zanzibar, Madagascar, and Mauritius (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022b). According to Hata *et al.* (2021), *Stolephorus commersonnii* is considered endemic in Mauritius. The species reported from other areas may belong to *Stolephorus rex* Jordan and Seale 1926.

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 2 October 2009 (11 cm TL)

Stolephorus indicus (van Hasselt, 1823)
(Fig. 28)

Fig. 28. *Stolephorus indicus*

This species is commonly known as the Indian anchovy. This species is known as "Khasa", "Mitho", "Halwa", or "Chi-chiri" in the Province of Sindh, and "Dang-lo" or "Ada-san" in Balochistan. It was originally described from Sindh by Murray (1880), from Dabbo Creek, Pitani Creek, and Khai Creek by Mirza and Baquer (1994), and from Sindh creeks by Niazi (1976). Ahmad (1988), Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Jayaram (1981), Majid *et al.* (1992), Psomadakis *et al.* (2015), Qureshi (1957), Whitehead and Wongratana (1984b), and Whitehead *et al.* (1988) reported it from the Pakistan coast without specifying a location. It was originally described as *Engraulis indica* from Vishakhapatnam, India, and Java, Indonesia, by van Hasselt (1823). Jalil and Khalil (1972, 1981) and Qureshi (1957) reported this species as *Anchoviella indica,* whereas Murray (1880) listed it as *Engraulis brownii*.

It was very widespread in Western Pacific and Indian Ocean including the East Africa, South Africa, Madagascar, and Mauritius, the Persian Gulf, the Red Sea, the Arabian Sea, Pakistan, India, Myanmar, Thailand, Indonesia, Hong Kong, Australia, Caroline Islands, Mariana Islands, New Caledonia, Samoa, and Tahiti (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022b).

Materials Examined

- 1 specimen collected on board R/V Firdous from offshore waters of Pakistan on 5 November 2009 (7 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 17 November 2009 (8 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 15 April 2013 (8 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 24 April 2017 (8 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 25 September 2023 (7 cm TL)

Stolephorus rex Jordan and Seale 1926

This species is commonly known as the Commerson's anchovy. This species is known as "Khasa", "Mitho", "Halwa", or "Chi-chiri" in the Province of Sindh, and "Dang-lo" or "Ada-san" in Balochistan. It was reported from Sindh by Misra (1959), from Karachi by Niazi (2001), from Khobar Creek, Hajamoro Creek, and Sisa Creek by Mirza and Baquer (1994), from Sindh creeks by Niazi (1976), and from Balochistan by Zugmayer (1913). Ahmad (1988), Ali-Khan (1976), Bianchi (1985), Froese and Pauly 2026), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Psomadakis *et al.* (2015), Whitehead and Wongratana (1984b), and Whitehead *et al.* (1988) reported it from the Pakistan coast without specifying a location. It was originally described by Jordan and Seale (1926) from Kannur, Malabar, Kerala, India. All records from Pakistan are made as *S. commersonii,* except Jalil and Khalil (1972, 1981), Misra (1959), who reported this species as *Anchoviella commersonii,* whereas Zugmayer (1913) listed it as *Engraulis commersonianus,* and Ali-Khan (1976) referred to it as *Amentum commersonii*.

This species is known from the Indo-West Pacific, from India to Indonesia and the Philippines (Hata *et al*., 2021). There seem to be issues in the identification of the members of the genus *Stolephorus;* therefore, there is a need for immediate revision of the species of this commonly occurring fish group.

Materials Examined

- None

Stolephorus tri (Bleeker, 1852)

This species is commonly known as the spined anchovy. This species is known as "Khasa", "Mitho", "Halwa", or "Chi-chiri" in the Province of Sindh, and "Dang-lo" or "Ada-san" in Balochistan. It is reported from Sindh by Misra (1959). Qureshi (1957) and Whitehead *et al* (1988) reported it from the Pakistan coast without specifying a location. It was originally described as *Engraulis tri* from Sampit, Jakarta, Java, Indonesia by Bleeker (1852). Whitehead *et al.* (1988) reported this species as *Stolephorus insularis* Hardenberg, 1933.

This species is known from the Indian Ocean, including Singapore, Malaysia, and Indonesia (Hata *et al.,* 2020). Although Misra (1959), Qureshi (1957), and Whitehead *et al.* (1988) reported this species from the Arabian Sea, according to Whitehead *et al.* (1988) and Hata *et al.* (2020), this species is known only from the western Pacific and eastern Indian Ocean.

Materials Examined

- None

Genus ***Thryssa*** Cuvier 1829

According to Hata *et al.* (2022b), the Indo-West Pacific anchovy genus *Thrissina* Jordan and Seale, 1925, is treated as *Thryssa* Cuvier, 1829 (e.g., Whitehead *et al.* 1988; Wongratana *et al.* 1999). However, Kottelat (2013) pointed out that *Thryssa* in Cuvier (1829) was an incorrect spelling of *Thrissa* Cuvier, 1816, an unnecessary replacement name for *Mystus* Lacepède, 1803, but preoccupied by *Thrissa* Rafinesque, 1815, which was in turn an unnecessary replacement name for *Clupanodon* Lacepède, 1803. Kottelat (2013) recommended that *Thrissina* Jordan and Seale, 1925, should be applied to the genus previously regarded as *Thryssa*. Frickle *et al*. (2026), however, opined that *Thryssa* Cuvier 1829 is a senior synonym of *Thrissina* Jordan and Seale 1925 when *Thryssa setirostris* (Broussonet 1782) is considered congeneric with the other species of the genus. Froese and Pauly (2026) used two genera; however, Anderson (2022b) did not make a separation into two genera. In the present paper, all species belonging to *Thrissina* and *Thryssa* are not separately identified but treated as belonging to the genus *Thryssa*, as treated by Frickle *et al*. (2006).

Thryssa baelama (Fabricius, 1775)

This species is commonly known as the false baelama anchovy. This species is known as "Karari", "Karadi", or "Padan" in the Province of Sindh, and "Padni" in Balochistan. Hoda (1985, 1988), Qureshi (1957), and Whitehead *et al* (1988) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea baelama* from Jeddah, Saudi Arabia, by Fabricius (1795).

Its body is not strongly compressed, and its belly is rounded before the pelvic fins. Its maxilla is short, reaching just beyond the front border of the pre-operculum, and has a pointed tip. Its pectoral-fin tip does not reach the pelvic-fin base, and the tip of the adpressed pelvic fin reaches well past vertical at the dorsal-fin origin. The colour of its body is dark brown to olive dorsally. The top of the head is golden, and the flanks are silvery.

This species is known from the Indo-Pacific area, including the Red Sea, East Africa, Gulf of Aden, Socotra (Yemen), Madagascar, Seychelles, Mauritius, Sri Lanka, Andaman Islands, Indonesia, the Philippines, Japan, Mariana Islands, Caroline Islands, Australia, New Caledonia, Fiji, Tonga, and Samoa (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022b).

Materials Examined

- None

Thryssa dayi Wongratana, 1983
(Fig. 29)

Fig. 29. *Thryssa dayi*

This species is commonly known as the Day's thryssa. This species is known as "Karari", "Karadi", or "Padan" in the Province of Sindh, and "Padni" in Balochistan. It was reported from Karachi by Anonymous (1993). Froese and Pauly (2026), Anderson (2022b), Psomadakis *et al.* (2015), Whitehead *et al.* (1988), and Wongratana (1983) reported it from the Pakistan coast without specifying a location. It was originally described as *Thryssa (Scutengraulis) dayi* from Bombay, India, by Wongratana (1983).

Its body is not strongly compressed, and its belly is rounded before the pelvic fins. The tip of its snout is approximately at the level of the upper rim of its eyes. Its maxilla is long, reaching the pectoral-fin base, and the 1st supramaxilla is minute and oval. The colour of its body is dark blue dorsally, and it has a pair of dark lines on the back. The gill arches are pinkish orange, and the inside of the gill cover is yellow or golden.

This species is known from the Arabian Sea, including Pakistan and India (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022b).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 2 December 2015 (25 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 18 April 2019 (23 cm TL)

Thryssa dussumieri (Valenciennes, 1848)
(Fig. 30)

This species is commonly known as Dussumier's thryssa. This species is known as "Karari", "Karadi", or "Padan" in the Province of Sindh, and "Padni" in Balochistan. It was reported from Sindh by Misra (1959), from Paradise Point, Karachi, by Moazzam and Rizvi (1980), from Sindh creeks by Niazi (1976), from Balochistan by Zugmayer (1913), and from Gwader by Abildgaard *et al*. (1994). Ahmad (1988), Anderson (2022b), Anonymous

(1999), Froese and Pauly (2026), Hoda (1976, 1979, 1985, 1988), Hussain (2003), Jayaram (1999), Khan (1994), Majid *et al.* (1992), Psomadakis *et al.* (2015), Talwar and Jhingran (1991), Whitehead (1973), Whitehead and Wongratana (1984a), Whitehead *et al.* (1988) reported it from the Pakistan coast without specifying a location. It was originally described as *Engraulis dussumieri* by Valenciennes (1848). Misra (1959) reported this species as *Thrissocles dussumieri,* and Zugmayer (1913) referred to it as *Engraulis dussumieri.*

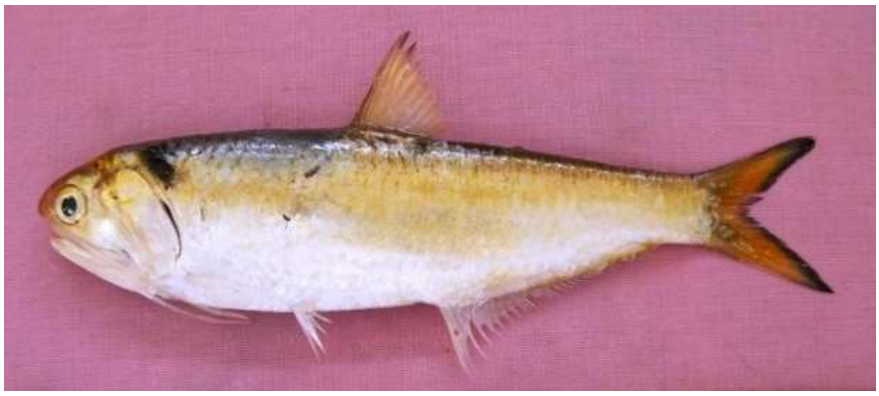


Fig. 30. *Thryssa dussumieri*

It is a small-sized anchovy with a laterally compressed body. Its maxilla is very long, reaching well beyond the middle of the pectoral fin to as far as the pelvic-fin base, whereas the 1st supramaxilla is absent, and the lower jaw is slender. Its body is pale brown dorsally and silvery below. There is a dark blotch behind the upper edge of the gill opening, usually joining to form a saddle across the nape. All fins have a yellow tinge.

This species is known from the Indo-West Pacific area, including Pakistan and India, Myanmar, Malaysia, Indonesia, Vietnam, and Taiwan (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022b).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 2 June 2009 (12 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 14 May 2014 (13 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 20 March 2019 (14 cm TL)
- 1 specimen collected on board R/V Dr. Fridtjof Nansen from offshore waters of Pakistan on 11 October 2010 (14 cm TL).

Thryssa hamiltonii (Gray, 1835)
(Fig. 31)

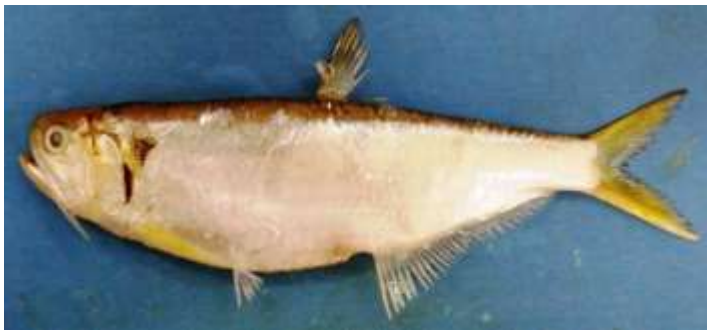


Fig. 31. *Thryssa hamiltonii*

This species is commonly known as Hamilton's thryssa. This species is known as "Karari", "Karadi", or "Padan" in the Province of Sindh, and "Padni" in Balochistan. It was reported from Sindh Day (1878, 1889), Fowler

(1941), Murray (1880), and Sorley (1932), from Bhambhore by Ahmed and Abbas (1999a, 2000), from Karachi by Misra (1959), and Niazi (2001), from Korangi Creek by Ahmed and Abbas (1999c, 2000), from Niazi (1976), from Paradise Point, Karachi by Moazzam and Rizvi (1980), from Sindh creeks by Anonymous (1955), and Niazi (1976), from Makran by Misra (1959) and Qureshi (1952), and from Miani Hor by Ahmed and Abbas (1999b, 2000). Ahmad (1988), Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1988), Hussain (2003), Jayaram (1981, 1999), Majid *et al.* (1992), Psomadakis *et al.* (2015), Qureshi (1957), Siddiqi (1956), Whitehead (1973), Whitehead and Wongratana (1984b), and Whitehead *et al.* (1988) reported it from the Pakistan coast without specifying a location. It was originally described as *Thrissa hamiltonii* from Parengipettai, Tamil Nadu State, India, by Gray (1835). Day (1878, 1889), Murray (1880), and Sorley (1932) reported this species as *Engraulis hamiltoni,* whereas Anonymous (1955), Fowler (1941), Misra (1959), Qureshi (1952, 1957), and Siddiqi (1956) listed it as *Thrissocles hamiltoni*.

It is a small-sized anchovy with a laterally compressed body. Its maxilla length is moderate, and its posterior tip is slightly beyond the posterior margin of the opercle, reaching just beyond the rear edge of the inter-opercle, but not to the pectoral-fin base. Its body is olive-grey dorsally, with pigment lines on its back, and silvery white below. The head has faint golden tints, especially on the maxilla and opercle. A distinct black blotch is present behind the upper part of the gill opening; no saddle-like blotch on the nape. Its dorsal, caudal, pectoral, and pelvic fins are yellowish, whereas the anal fin is hyaline white.

This species is known from the Indo-Pacific area, including the Persian Gulf, Pakistan, India, Myanmar, the Andaman Sea, Indonesia, the Philippines, Taiwan, Japan, New Guinea, and Australia (Anderson, 2022b; Frickle *et al*., 2026; Froese and Pauly, 2026; Hata *et al*., 2022b).

Materials Examined

- 1 specimen collected on board R/V Dr. Fridtjof Nansen from offshore waters of Pakistan on 4 November 2010 (15 cm TL).
- 1 specimen collected from Karachi Fish Harbour on 15 April 2013 (16 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 20 March 2018 (18 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 11 June 2020 (17 cm TL).

Thryssa kammalensis (Bleeker, 1849)

This species is commonly known as the Kammal thryssa. This species is known as "Karari", "Karadi", or "Padan" in the Province of Sindh, and "Padni" in Balochistan. Jayaram (1981) reported it from the Pakistan coast without specifying a location. It was originally described as Engraulis *kammalensis* from Madura Strait near Kammal and Surabaya, Java, Indonesia by Bleeker (1849).

Its body is compressed. Its maxilla is moderate, reaching posteriorly just to the gill opening. The striae on the scales are moderately reticulate. Its colour is a prominent but diffuse dark saddle on the nape.

This species is known from the Western Pacific area, including Thailand, Malaysia, Singapore, Indonesia, Hong Kong, and Korea (Frickle *et al*., 2026; Froese and Pauly, 2026). Froese and Pauly (2026), and Whitehead *et al*. (1988) pointed out that records of this species from India (thus, possibly Pakistan) refer to the rather similar *Thryssa kammalensoides*.

Materials Examined

- None

Thryssa malabarica (Bloch, 1795)
(Fig. 32)

This species is commonly known as the Malabar thryssa. This species is known as "Karari", "Karadi", or "Padan" in the Province of Sindh, and "Padni" in Balochistan. It was reported from Sindh by Aitken (1907), Day (1878, 1889), Misra (1959), Fowler (1941), Punwani (1935), and Weber and De Beaufort (1913), from Karachi by Misra (1959), Niazi (2001) and Whitehead (1973), from Khobar Creek by Mirza and Baquer (1994), from Sindh creeks by Anonymous (1955) and Niazi (1976), from Makran by Misra (1959), and from off Sonmiani Bay by Anonymous (2001) and GBIF (2026). Ahmad (1988), Anonymous (1955), Bianchi (1985), Froese and Pauly (2026), GBIF (2026), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Jayaram (1981, 1999), Psomadakis *et al.* (2015), Qureshi (1957), Talwar and Jhingran (1991), Whitehead and Wongratana (1984b), and Whitehead *et al.* (1988) reported it from the Pakistan coast without specifying a location. It was originally described

as *Clupea malabarica* from Tranquebar, India, by Bloch (1795). Aitken (1907), Day (1878, 1889), Punwani (1935), and Weber and De Beaufort (1913) referred to it as *Engraulis malabarica,* and Anonymous (1955), Fowler (1941), Jalil and Khalil (1972, 1981), Misra (1959), and Qureshi (1957) listed it as *Thrissocles malabaricus*. Gopinath *et al.* (2025) considered this species to be a synonym of *Thryssa cuvierii* (Swainson 1839).

This is a small-sized but deep-bodied fish with a laterally compressed body. The tip of the snout is about the level of the upper rim of the eye. Its maxilla is moderate, reaching to or just beyond the rear edge of the inter-opercle. There is a dark stippling on the maxilla, cheek, gill cover, and the paired fins. The inside of its gill cover is golden yellow, and gill arches are pinkish orange. Its anal fin is yellow proximally and white distally.

Fig. 32. *Thryssa malabarica*

This species is known from the Indian Ocean, including Pakistan, India, Sri Lanka, and the Bay of Bengal (Anderson, 2022b; Frickle *et al*., 2026; Froese and Pauly, 2026).

Materials Examined

- 1 specimen collected on board R/V Firdous from offshore waters of Pakistan on 5 November 2009 (23 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 26 February 2013 (18 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 24 February 2014 (20 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 18 November 2014 (22 cm TL).
-

Thryssa mystax (Bloch and Schneider, 1801)
(Fig. 33)

This species is commonly known as the moustached thryssa. This species is known as “Karari”, “Karadi”, or “Padan” in the Province of Sindh, and “Padni” in Balochistan. It was reported from Sindh by Misra (1959), and Sorley (1932), from Karachi by Hoda (1983), Niazi (2001), and Whitehead and Wongratana (1984b), from Dabbo, Pitiani and Khuddi Creeks by Mirza and Baquer (1994), Karachi Fish Harbour (Hoda, 1982), from Kharo Chan and Jhangi Sir by Ahmed *et al*. (1999), from Paradise Point, Karachi by Moazzam and Rizvi (1980), from Sindh creeks by Niazi (1976), from Tidal Link Canal, Badin District by Jafri (2004), and Jafri *et al*. (2000), from Makran by Hoda (1983), and from Miani Hor by Ajazuddin and Ahmed (2002). Ahmad (1988), Anderson (2022b), Bianchi (1985), Hoda (1985, 1987, 1988), Hussain (2003), Jafri *et al.* (2000), Jalil and Khalil (1972, 1981), Jayaram (1981, 1999), Majid *et al.* (1992), Psomadakis *et al.* (2015), Qureshi (1957) and Whitehead and Wongratana (1984b) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea mystax* from Malabar, India, by Bloch and Schneider (1801). Froese and Pauly (2026) and Whitehead et al (1988) have shown a

questionable distribution of this species in Pakistani waters. Jalil and Khalil (1972, 1981), Misra (1959), and Qureshi (1957) as *Thrissocles mystax,* whereas Sorley (1932) as *Engraulis mystax*.

Fig. 33. *Thryssa mystax*

Its body is compressed, with the tip of the snout level with the eye centre. Its maxilla is long, nearly reaching the pectoral-fin base, and the 1st supramaxilla is minute and oval. Its body is brown or bluish dorsally, and its flanks are silvery. There is a dark blotch of wavy lines behind the upper edge of the gill cover, and the gill cavity is pale orange, whereas the dorsal-fin tip and caudal-fin margin are black.

This species is found in the Indo-Pacific area, including the Persian Gulf, Pakistan, India, Myanmar, the Gulf of Thailand, Vietnam, Indonesia, and the Philippines (Anderson, 2022b; Froese and Pauly, 2026).

Materials Examined

- 1 specimen collected on board R/V Firdous from offshore waters of Pakistan on 5 November 2009 (23 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 26 February 2013 (21 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 11 October 2017 (19 cm TL)

Thryssa mystica (Hata, Lavoué, Psomadakis, Osmany, and Motomura, 2025)
(Fig. 34)

Fig. 34. *Thryssa mystica*

This species is commonly known as the mystique thryssa. This species is known as “Karari”, “Karadi”, or “Padan” in the Province of Sindh, and “Padni” in Balochistan. It was reported from off Nathiagali Beach, Karachi, West Wharf Fish Market, south of Karachi, west-northwest of the mouth of Korangi Creek, to the mouth of Pitiani Creek, 20 km south of Paitiani Creek, 3 to 4 km west of the mouth of Turshinian Creek, 6 km south of the mouth of Hajamro Creek, south of Hajambro Creek estuary, and the west edge of Sonmiani Bay by Hata *et al*. (2026). It was originally described from the Sindh Coast by Hata *et al*. (2026).

Its body is strongly compressed laterally, with a dorsal profile of head and body gently elevated from snout tip to dorsal-fin origin, gradually lowering to the uppermost point of caudal-fin base. Its snout tip is rounded and approximately at the level of the upper margin of the eye. Its maxilla is moderate, its posterior tip is extended

slightly beyond the posterior margin of the opercle, but not reaching the pectoral-fin insertion, and the 1st supramaxilla is small and oval. The body of this species is uniformly silver, whereas the dorsum is light brown. There is a black blotch present behind the upper part of the gill opening. The posterior part of its operculum is reddish. The rays and fin membranes of dorsal, pectoral, pelvic, and anal fins are white and translucent, respectively. The outer margins of pelvic and anal fins are white. Its caudal fin is yellowish-white.

This species closely resembles *Thryssa katana* and *T. malabarica* in having a moderate maxilla (extending posteriorly beyond the posterior margin of the opercle, but not reaching the pectoral-fin insertion), a pair of dark longitudinal lines on the dorsum, a black blotch behind the upper part of the gill opening, the snout tip above the level of the eye center, and small conical teeth on both jaws. However, it differs from *T. katana* and *T. malabarica* in having fewer longitudinal series scale rows (38–42 vs. 40 or more) and a greater number of branched anal-fin rays (usually 36–40 vs. 38 or less). It also differs from *T. katana* by a shorter pelvic fin and from *T. malabarica* in having greater numbers of gill rakers on each gill arch and a narrower body.

This species is known from the northern Indian Ocean from the Persian Gulf, Pakistan, India, and Sri Lanka (Hata *et al*. 2022b).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 11 February 2019 (21 cm TL)

Thryssa purava (Hamilton, 1822)

This species is commonly known as the oblique-jaw thryssa. This species is known as “Karari”, “Karadi”, or “Padan” in the Province of Sindh, and “Padni” in Balochistan. It was reported from Sindh by Anonymous (1955, 1999), Day (1878, 1889), Fowler (1941), Misra (1959), Murray (1880), and Whitehead (1973), from Karachi by Anonymous (1955), Fowler (1941), Gunther (1868[a]), Misra (1959), and Whitehead (1973), from Korangi Creek and Sindh creeks by Niazi (1976), from Balochistan by Zugmayer (1913), from Makran by Anonymous (1955), Misra (1959) and Qureshi (1952). Ahmad (1988), Anonymous (1955), Hoda (1985, 1988), Hussain (2003), Jayaram (1981, 1999), Kesteven (1950), Qureshi (1957), Siddiqi (1956), and Weber and DeBeaufort (1913) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea purava* from the Ganges estuaries by Hamilton (1822). Whitehead *et al.* (1988) have shown questionable distribution of this species in Pakistani waters. Anonymous (1999), Day (1878, 1889), Gunther (1868), Kesteven (1950), Murray (1880), Weber and DeBeaufort (1913) and Zugmayer (1913) reported this species as Engraulis purava whereas Anonymous (1955), Fowler (1941), Misra (1959), Qureshi (1952, 1957) and Siddiqi (1956) listed it as as *Thrissocles purava*.

Its body is compressed, with the tip of the snout slightly above horizontal through the middle of the eyes. Its mouth is oblique. Its maxilla is moderate, reaching beyond the gill cover but not to the pectoral-fin base, and the 1st supramaxilla is minute and oval. Its body is brown dorsally, with a faint dark line along the back, and its flanks are silvery. There is an indistinct dark blotch behind the upper end of the gill cover.

This species is known from the Indian Ocean, including India, Sri Lanka, Bangladesh, and Myanmar (Anderson, 2022b; Frickle *et al*., 2026; Froese and Pauly, 2026.

Materials Examined

- None

Thryssa serena (Hata and Motomura, 2020)
(Fig. 35)

This species is commonly known as the Arabian thryssa. This species is known as “Karari”, “Karadi”, or “Padan” in the Province of Sindh, and “Padni” in Balochistan. It was reported from Jhangi Sir, Bhanbhore, Kharo Chan, and Keti Bunder by Ahmed *et al*. (1999), from Karachi by Anonymous (1999). and Niazi (2001), from Khobar Creek, Hajamro Creek, Sisa Creek, Dabbo Creek, and Pitiani Creek by Mirza and Baquer (1994), and from Miani Hor by Ajazuddin and Ahmed (2002). Ahmad (1988), Anderson (2022b), Anonymous (1999), Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1988), Hussain (2003), Hussain and Kidwai (1994), Majid *et al.* (1992), Psomadakis *et al.* (2015), Whitehead (1973), Whitehead and Wongratana (1984b), and Whitehead *et al.* (1988) reported it from the Pakistan coast without specifying a location. All these records are made as *T. vitirostris*; however, based on Hata and Motomura (2020), these are now treated as *T. serena.* It was originally described as

Thrissina serena from south of Jiwani, the southwestern part of Pakistan (24°54′N, 61°51′E), collected on board RV Anton Bruun (1963 Cruises) by Hata and Motomura (2020).

Fig. 35 *Thryssa serena*

The body of this species is strongly compressed laterally, with the dorsal profile of head and body gently elevated from snout tip to dorsal-fin origin, and gently lowering to the uppermost point of the caudal-fin base. Its snout tip is rounded, located slightly above the horizontal level of the eye centre. Its lower jaw is slender, much shorter than the upper jaw, whereas the upper jaw is long, the posterior tip of the maxilla pointed, beyond the anterior-most point of pectoral-fin insertion, not reaching the posterior-most pectoral-fin insertion. There is a dark black blotch behind the upper part of the gill opening, and numerous black melanophores are scattered on the dorsum, dorsal fin, and caudal fin, and the outer margin of the caudal fin is black (colour is based on preserved specimens examined by Hata and Motomura, 2020).

This species differs from all other congeners occurring in Pakistan, except *T. vitrirostris* by having the first supramaxilla minute and maxilla extending posteriorly beyond the first pectoral-fin ray insertion and the anal-fin that has 34 to 37 branched rays, and 20–24 lower gill rakers on the first gill arch. *T. serena* can be distinguished from *T. vitrirostris* by having lower counts of transverse scales (10 vs. 11 to12) and scale rows in longitudinal series (38–41 vs. 41–43). The head length of *T. serena* tends to be greater than that of *T. vitrirostris* (26.2–27.3% in standard length in *T. serena* vs. 24.2–26.8% in *T. vitrirostris*.

This species is known from the Indian Ocean, including the Gulf of Oman and Arabian Sea, and the northwestern coast of India (Frickle *et al*., 2026; Froese and Pauly, 2026; Hata and Motomura, 2020).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 7 October 2009 (21 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 20 March 2018 (13 cm TL).

Thryssa setirostris (Broussonet, 1782)
(Fig. 36)

This species is commonly known as the longjaw thryssa. This species is known as “Karari”, “Karadi”, or “Padan” in the Province of Sindh, and “Padni” in Balochistan. It was reported from Karachi by Niazi (2001), from Paradise Point, Karachi by Moazzam and Rizvi (1980), from Sindh creeks by Niazi (1976), from Gwader by Abildgaard *et al*. (1994), and from Miani Hor by Ajazuddin and Ahmed (2002). Ahmad (1988), Anderson (2022b), Bianchi (1985), Froese and Pauly (2026), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Jayaram (1981), Majid *et a.l* (1992), Psomadakis *et al.* (2015), Whitehead and Wongratana (1984a), and Whitehead *et al* (1988) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea setirostris* from Near Tana Island, Vanuatu by Broussonet (1782). Its holotype is not available (Frickle *et al*., 2026). Jalil and Khalil (1972, 1981) reported this species as *Thrissocles setirostris*.

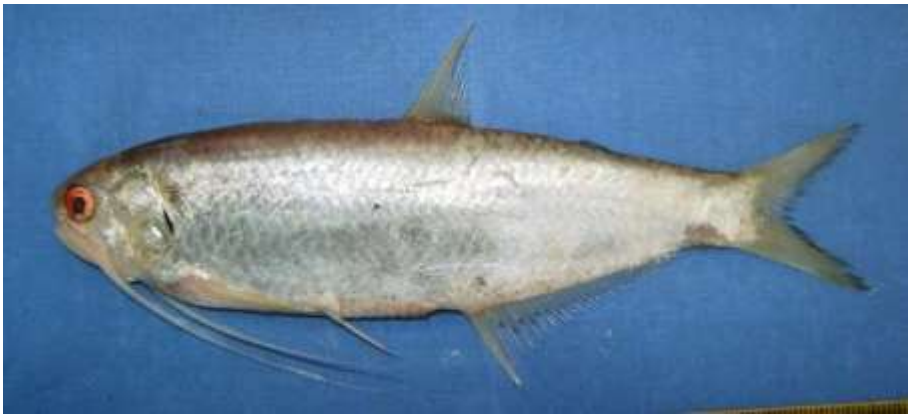


Fig. 36. *Thryssa setirostris*

Its body is fairly compressed, and its snout is bluntly rounded. Its maxilla is extremely long, reaching the pelvic-fin base in small fish, and as far as the anal-fin base in large adults. Its 1st supramaxilla is small. Its body is bluish grey dorsally, and its flanks are silvery. The head has golden tints, and a small black blotch of wavy lines is present behind the gill cover. Its fins are yellow to deep yellow, except pelvic fins, which are usually white.

This species is known from the Indo-West Pacific area, including the Gulf of Oman, Pakistan, India, Myanmar, South Africa, East Africa, the Persian Gulf, Madagascar, Thailand, Indonesia, the Philippines, Taiwan, Australia, New Guinea, the Solomon Islands, and Vanuatu (Anderson, 2022b; Frickle *et al*., 2026; Froese and Pauly, 2026).

Materials Examined

- 1 specimen collected on board R/V Firdous from offshore waters of Pakistan on 5 November 2009 (16 cm TL).
- 1 specimen collected on board R/V Dr. Fridtjof Nansen from offshore waters of Pakistan on 16 October 2010 (17 cm TL).
- 1 specimen collected from Karachi Fish Harbour on 25 June 2013 (15 cm TL)
- 3 specimens collected from Karachi Fish Harbour on 1 November 2013 (15, 17, 17 cm TL).1 specimen collected from Karachi Fish Harbour on 29 October 2014 (14 cm TL)
-

Thryssa supra **(**Hata, Psomadakis, Osmany and Motomura 2021)
(Fig. 37)

Fig. 37. *Thryssa supra*

This species is commonly known as the Pakistan thryssa. This species is known as “Karari”, “Karadi”, or “Padan” in the Province of Sindh, and “Padni” in Balochistan. It was reported from Karachi, Sindh coast by Hata *et al.* (2021). It was originally described as *Thrissina supra* from the Karachi Fish Harbour by Hata *et al*. (2021).

Its body is strongly compressed laterally, and the dorsal profile of head and body is gently elevated from the snout tip to the dorsal-fin origin, gradually lowering to the uppermost point of the caudal-fin base. Its snout tip is rounded, at about the horizontal level of the upper margin of the eye. Its maxilla is long and has a pointed posterior tip, extended slightly beyond the posterior margin of the opercle, but not reaching the pectoral-fin base. The colour of preserved specimens indicates that their heads and bodies are almost uniformly pale brown, whereas the lower lateral surface of the body is whitish-silver. There is a dark blotch behind the upper part of the gill opening. There is a narrow black line running from the upper part of the gill opening to the caudal-fin base. All fins are pale and semi-transparent.

This species can be distinguished from other congeners in having a relatively long upper jaw with the posterior tip slightly beyond the opercle posterior margin, the snout tip above the eye centre level, higher counts of longitudinal scale rows (45–47), transverse scales (12 or 13), total gill rakers on the first gill arches (35–39), and branched anal-fin rays (42–45), a longer snout, and pelvic fin. It also has a shorter pelvic-fin insertion to anal-fin origin distance, and has a distinct paired dark line along the dorsum from the occiput to the caudal-fin base.

This species is known only from Karachi, Sindh Coast, Pakistan (Froese and Pauly, 2026; Frickle *et al.,* 2026; Hata *et al*., 2021).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 21 May 2011 (15 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 17 January 2017 (14 cm TL)

Thryssa vitirostris (Gilchrist and Thompson, 1908)

This species is commonly known as the orange-mouth thryssa. This species is known as “Karari”, “Karadi”, or “Padan” in the Province of Sindh, and “Padni” in Balochistan. Although reported by many workers, according to Hata and Motomura (2020), *T. vitirostris* is known from the Western Indian Ocean, including the east coast of Africa from Kenya to Natal, South Africa, and off Madagascar, and the specimens from the northern Arabian Sea, including Pakistan, belong to *T. serena.* It was originally described as *Engraulis vitirostris* from Inner Harbour, Durban, and Natal, South Africa by Gilchrist and Thompson (1908). All records of *T. vitirostris*, therefore, are treated as *T. serena.*

Its body is compressed, snout bluntly rounded, and its belly has 24 to 30 keeled scutes from the isthmus to the anus. Its maxilla is long, reaching beyond the base of the first pectoral fin ray. Its body is pale blue-brown dorsally, and its flanks are silvery. It has a small dark blotch behind the gill cover. Its gill cavity is bright orange. The fins may have a yellow tinge.

This species is known from the Western Indian Ocean, including the east coast of Africa from Kenya to Natal, South Africa, and off Madagascar (Anderson, 2022b; Frickle *et al*., 2026; Froese and Pauly, 2026).

Materials Examined

- None

Thryssa whiteheadi Wongratana 1983
(Fig. 38)

This species is commonly known as the Whitehead’s anchovy. This species is known as “Karari”, “Karadi”, or “Padan” in the Province of Sindh, and “Padni” in Balochistan. It is reported for the first time from Pakistan. It was originally described from Basra, Iraq, in the Persian Gulf by Wongratana (1983).

Body strongly compressed laterally, greatest depth at dorsal-fin origin. Its head is compressed, and its snout length is much less than its orbit diameter. Its snout tip is rounded, at about the horizontal level of the upper margin of the eye. Its mandible is slender and much shorter than the maxilla. Its maxilla is long, with a pointed posterior tip, slightly beyond the posterior margin of the opercle, but not reaching the pectoral-fin base. Its body is uniformly whitish-silver, dorsum dark. Its snout is semi-transparent and yellowish. There is no dark blotch on the body. All fins are semi-transparent and white. The posterior part of its caudal fin is yellowish, and the anterior margin of the dorsal fin and the dorsal margin of the caudal fin are dusky.

Fig. 38. *Thryssa whiteheadi*

This species is known from the Western Indian Ocean, including the Persian Gulf and the Gulf of Oman (Frickle *et al*., 2026; Froese and Pauly, 2026; Hata *et al*., 2021).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 11 February 2013 (14 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 24 April 2023 (15 cm TL)

Family Pristigasteridae (Pristigasterids)
Genus ***Ilisha*** Richardson, 1846
Ilisha compressa Randall 1994
(Fig. 39)

Fig. 39. *Ilisha compressa*

This species is commonly known as the elongate ilisha. This species is known as “Pha-pant”, or “Palli” in the Province of Sindh, and “Beechum” in Balochistan. It is a new record from Pakistan. It was originally described from the Kuwait Bay, Kuwait, Persian Gulf by Randall (1994).

Its body is slender, and its eyes are large. Its abdomen has 32 or 33 scutes. Its jaws are blackish, and its dorsal fin, anal fin, and pelvic fins are whitish, whereas its pectoral fins are yellow and its caudal fin is yellowish, becoming black towards the margin. It differs from other species of the genus *Ilisha* in lacking a dark band along the sides and having 32 or 33 abdominal scutes.

This species is known from the Indian Ocean, including the Persian Gulf (Frickle *et al.,* 2026; Randall, 1994).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 7 January 2009 (11 cm TL)

Ilisha elongata (Bennett, 1830)
(Fig. 40)

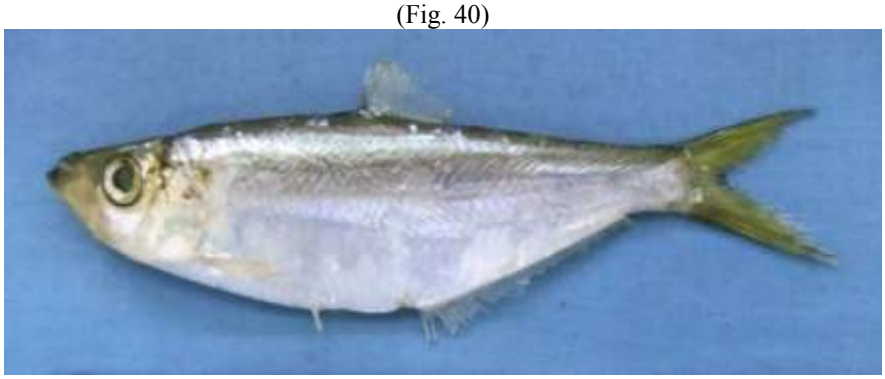


Fig. 40. *Ilisha elongata*

This species is commonly known as the elongate ilisha. This species is known as "Pha-pant", or "Palli" in the Province of Sindh, and "Beechum" in Balochistan. It was reported from Sindh by Anonymous (1955), Day (1876, 1878), Fowler (1941), Whitehead (1985), and Whitehead and Wongratana (1984a), from Karachi by Anonymous (1955), and Punwani (1935), from Korangi creek by Ahmad and Abbas (1999c, 2000), from Sindh creeks by Niazi (1976), from Balochistan by Whitehead (1985), and Whitehead and Wongratana (1984a) and from Makran by Anonymous (1955), and Qureshi (1952). Ahmad (1988), Hoda (1985, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Kesteven (1950), Mahmood and Ayub (2005), Qureshi (1952, 1957), and Siddiqi (1956) reported it from the Pakistan coast without specifying a location. It was originally described as *Alosa elongata* from Sumatra, Indonesia, by Bennett (1830). Ahmad and Abbas (1999c, 2000), Day (1876, 1878), Kesteven (1950), and Punwani (1935) reported this species as *Pellona elongata*.

Its body is slender, and its eyes are large. Its lower jaw is projecting, and its mouth is directed obliquely upward. Its upper jaw reaches at most to the vertical through the centre of the eye. Dorsal fin origin at about the midpoint of body or a little behind; anal fin origin a little behind the dorsal fin base. Its swimbladder has a single long tube passing posteriorly down the right side of the body above the anal-fin base. It has no distinctive colour patterns.

It is widely distributed in the Indo-West Pacific from Kuwait and Pakistan, to the Java Sea, the northern Australian coast to Queensland, and the East China Sea; north to Korea and Japan, and to the Peter the Great Bay in Russian waters (Frickle *et al*., 2026; Froese and Pauly, 2026).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 11 November 2013 (14 cm TL)

Ilisha filigera (Valenciennes, 1847)

This species is commonly known as the Coromandel ilisha. This species is known as "Pha-pant", or "Palli" in the Province of Sindh, and "Beechum" in Balochistan. It was reported from Sindh by Misra (1959) and from the Indus delta by RETA (2003). Hoda (1985, 1988), Hussain (2003), and Jalil and Khalil (1972, 1981) reported it from the Pakistan coast without specifying a location. It was originally described as *Pellona filigera* from Bombay, India, by Valenciennes (1847).

Body moderately slender with large eyes. Its lower jaw projects, and its mouth is directed obliquely upward. Its upper jaw only reaches posteriorly about to the vertical through the anterior margin of the pupil. The shaft of the maxilla is without a distinct lobe or flange between the posterior tip of the premaxilla and the blade of the maxilla. Its swim bladder has a single long tube passing back down the right side of the body above the anal fin base. Its body is dark dorsally, and its flanks are silvery. The distal margins of fins are black.

This species is known from the Indo-West Pacific area, including Mumbai to the eastern coasts of India, to the Andaman Islands, to the South China Sea (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022c).

Materials Examined

- None

Ilisha megaloptera (Swainson, 1839)
(Fig. 41)

This species is commonly known as the bigeye ilisha. This species is known as "Pha-pant", or "Palli" in the Province of Sindh, and "Beechum" in Balochistan. It was reported from Sindh by Whitehead (1973), and Whitehead and Wongratana (1984a), from Karachi by Niazi (2001), from Khobar Creek, Hajmro Creek, Dabbo Creek, Khai Creek, and Khuddi Creek by Mirza and Baquer (1994), from Sindh creeks by Niazi (1976), from Balochistan by Whitehead and Wongratana (1984a), from Sonmiani Bay by Anonymous (1999), and GBIF (2026) and Sonmiani Bay, Western Edge by GBIF (2026). Ahmad (1988), Bianchi (1985), Froese and Pauly (2026), GBIF (2026), Hoda (1985, 1988), Hussain (2003), Jayaram (1981, 1999), Mahmood and Ayub (2005), Majid *et al.* (1992), and Psomadakis *et al.* (2015) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea (Platygaster) megalopterus* by Swainson (1839).

Fig. 41. *Ilisha megaloptera*

Its body is rather deep, and it has large eyes. Its swimbladder has a single long posterior tube passing back down the right side of the body above the anal fin base. Its body is dusky dorsally and has silvery flanks. Its head and snout have a yellow tinge. There is a small black spot behind the upper edge of the eyes, and the dorsal fin and caudal fin are yellowish, with dusky margins.

It is widely distributed in the Indo-West Pacific area from the Arabian Sea (Pakistan and India), the Bay of Bengal, the Andaman Islands, Thailand, the Java Sea, Malaysia, Singapore, and the South China Sea (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022c).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 14 September 2011 (24 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 21 March 2014 (32 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 20 September 2014 (29 cm TL).

Ilisha melastoma (Bloch and Schneider, 1801)
(Fig. 42)

This species is commonly known as the Indian ilisha. This species is known as "Pha-pant", or "Palli" in the Province of Sindh, and "Beechum" in Balochistan. It was reported from Sindh by Sorley (1932) and Whitehead and Wongratana (1984a), from Bhanbhore by Ahmed *et al*. (1999), from Dabbo Creek by Mirza and Baquer (1994), from Karachi by Anonymous (1999), Jenkins (1910a), and Niazi (2001), from Sindh creeks by Anonymous (1955) and Niazi (1976), from Balochistan by Whitehead and Wongratana (1984a), Zugmayer (1913), and from Sonmiani Bay by GBIF (2026). Ahmad (1988), Anderson (2022c), Bianchi (1985), Froese and Pauly (2026), GBIF (2026), Hoda (1985, 1988), Hussain (2003), Jayaram (1981, 1999), Khan (1994), Mahmood and Ayub (2005), Majid *et al.* (1992), Psomadakis *et al.* (2015), Qureshi (1957), and Whitehead (1973) reported it from the Pakistan coast without specifying a location. It was originally described as *Clupea melastoma* from Near Coromandel, Tamil Nadu, India

by Bloch and Schneider (1801). Zugmayer (1913) reported this species as *Pellona indica,* whereas Anonymous (1999) listed it as *Pellona ditchoa,* and Anonymous (1955), Hoda (1985), and Qureshi (1957) as *Ilisha indica.*

Fig. 42. *Ilisha melastoma*

Its body is moderately deep, and it has large eyes. Its lower jaw projects, and its mouth is directed obliquely upward, whereas its upper jaw reaches a vertical through the anterior margin of the eye. Its swimbladder has 2 tubes passing posteriorly into muscles on either side of the haemal spines. The colour of its body is greenish dorsally, and its flanks are silvery. Its dorsal and caudal fins are yellowish, edged with black.

It is known from the Indo-West Pacific area from the Persian Gulf to the Arabian Sea (Pakistan and India), the Bay of Bengal, the Java Sea, Singapore, the Gulf of Thailand, Indonesia, the East China Sea, the South China Sea, and Taiwan (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022c).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 24 February 2014 (18 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 24 February 2014 (19 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 4 March 2014 (20 cm TL)
-

Ilisha obfuscata Wongratana, 1983
(Fig. 43)

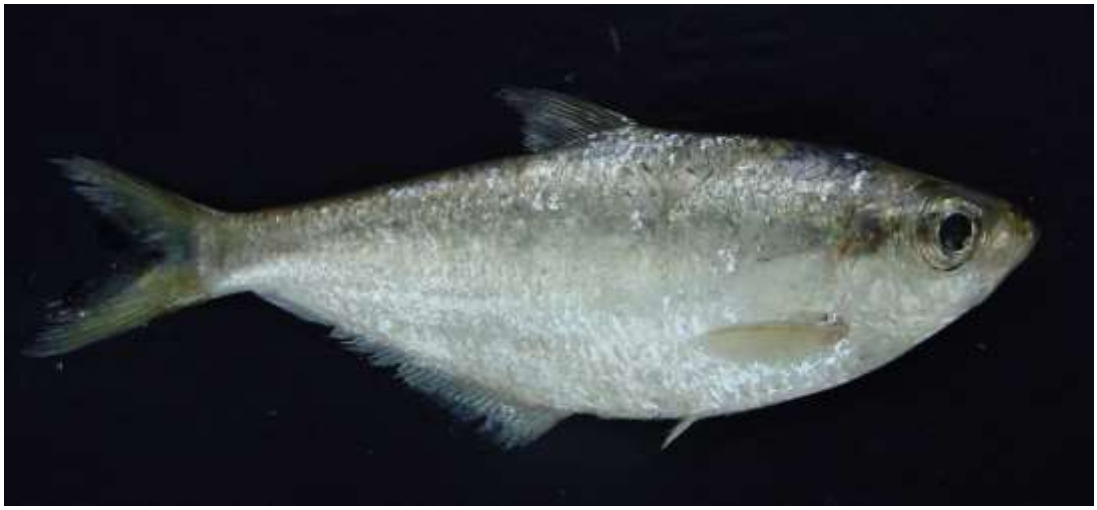


Fig. 43. Ilisha obfuscata

This species is commonly known as the elongate ilisha. This species is known as “Pha-pant”, or “Palli” in the Province of Sindh, and “Beechum” in Balochistan. It is a new record from Pakistan. It was originally described from Mumbai, India, by Wongratana (1983).

Its body is moderately deep and has large eyes, whereas its lower jaw projects. Its swimbladder has 2 very short posterior tubes passing back into the muscles on either side of the haemal spines. This species is closely related to *I. melastoma,* with which it can be distinguished in having 27or 28 sharply-keeled abdominal scutes (21-25 in *I. melastoma*). It can also be distinguished from *I. megaloptera* and *I. filigera,* which have 28-38 abdominal scutes. According to Wongratana (1983), this species is usually confused with *I. melastoma* and is seemingly more abundant than I. *melastoma*.

It is known from the Indo-West Pacific area, including Mumbai and Puducherry, India, in the Northern Indian Ocean (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 25 March 2024 (17 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 11 August 2025 (20 cm TL)

Ilisha sirishai Seshagiri Rao, 1975

This species is commonly known as the lowjaw ilisha. This species is known as “Pha-pant”, or “Palli” in the Province of Sindh, and “Beechum” in Balochistan. It was reported from Karachi by Anonymous (1999). Froese and Pauly (2026), Psomadakis *et al.* (2015), and Whitehead (1985) reported it from the Pakistan coast without specifying a location. It was originally described from Vishakhapatnam, Bay of Bengal, India by Seshagiri Rao (1975).

Its body is moderately slender, and it has large eyes. Its lower jaw is strongly projecting, and its mouth is directed obliquely upward. The shaft of the maxilla has a distinct lobe or flange between the posterior tip of the premaxilla and the blade of the maxilla. Its swim bladder is without a posterior tube (or tubes) passing posteriorly into body muscles. Its body is dark dorsally and has silvery flanks.

This species is known from the Indo-West Pacific area, including the Persian Gulf, Arabian Sea, Bay of Bengal, Andaman Islands, Thailand, and the Gulf of Thailand (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022c).

Materials Examined

- None

Ilisha striatula Wongratana, 1983
(Fig. 44)

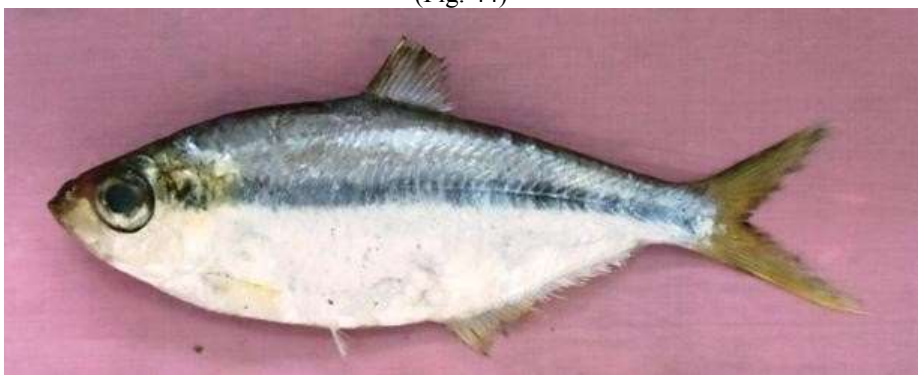


Fig. 44. *Ilisha striatula*

This species is commonly known as the banded ilisha. This species is known as “Pha-pant”, or “Palli” in the Province of Sindh, and “Beechum” in Balochistan. It was reported from Karachi by Whitehead (1985) and Wongratana (1985), from Sonmiani Bay by Wongratana (1983). Anderson (2022c), Frickle *et al.* (2026), Froese and Pauly (2026), Psomadakis *et al.* (2015), and Whitehead (1985) reported it from the Pakistan coast without specifying a location. It was originally described from Pakistan (25°11'N, 66°20'E) by Wongratana (1983).

Its body is moderately slender, and it has large eyes. Its lower jaw is strongly projecting, and its mouth is directed obliquely upward. The vertical striae on scales discontinuous, leaving a wide gap at the centre. Its swimbladder has symmetrical paired post-coelomic prolongations on either side of the anal pterygiophores. Its body is dark greenish dorsally and has silvery flanks. It has a faint dark band between the gill cover and the peduncle.

This species is known from the Indo-West Pacific area, including the Arabian Sea (Pakistan and India) to the northwestern Australia Ocean (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022a).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 10 December 2013 (19 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 20 February 2014 (19 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 22 May 2014 (19 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 23 September 2014 (18 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 30 May 2024 (18 cm TL)
-

Genus ***Opisthopterus*** Gill, 1861
Opisthopterus tardoore (Cuvier, 1829)
(Fig. 45)

This species is called the tardoore. This species is known as "Koor" in the Province of Sindh and "Pootuk" in the Province of Balochistan. This species is reported from Sindh by Anonymous (1953), Day (1878, 1889), Fowler (1941), Misra (1959), Whitehead and Wongratana (1984a), and Whitehead (1985), from Karachi by Misra (1959) and Niazi (2001), Khobar Creek by Mirza and Baquer (1994), from Sindh creeks by Anonymous (1955), and Niazi (1976), from Balochistan by Anonymous (1953), Whitehead and Wongratana (1984a), Whitehead (1985), and Zugmayer (1913), from Makran by Anonymous (1955), Misra (1959), and Qureshi (1952), and from Gwader by Day (1878, 1889), and Fowler (1941). Anonymous (1999), Bianchi (1985), Froese and Pauly (2026), Hoda (1985n\b, 1988), Hussain (2003), Jalil and Khalil (1972, 1981), Kesteven (1950), Majid *et al* (1992), Psomadakis *et al.* (2015), Qureshi (1957) and Siddiqi (1956) reported it from the Pakistan coast without specifying a location. It was originally described as *Pristigaster tardoore* from Vizagapatnam, India, by Cuvier (1829). Anonymous (1953), Day (1878, 1889), and Kesteven (1950) listed this species as *Opisthopterus tartoor,* whereas Zugmayer (1913) reported it as *Opisthopterus tartur* and Qureshi (1957) referred to it as *Opisthopterus tartoore*.

Fig. 45. *Opisthopterus tardoore*

Body elongate and strongly compressed, and the eyes are large, but the belly is convex in front. Its dorsal fin is very small, well behind the midpoint of the body. The colour of its body is dark dorsally, and its flanks are silvery. There is a black spot behind the upper end of the gill opening.

It is known from the Indo-Pacific area, including the Gulf of Oman, Arabian Sea (Pakistan, India), Bay of Bengal, Myanmar, Gulf of Thailand, and Java Sea (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022c).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 3 March 2005 (13 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 24 June 2010 (20 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 20 February 2013 (13 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 11 April 2013 (23 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 25 May 2014 (19 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 14 March 2017 (20 cm TL).
-

Genus ***Pellona*** Valenciennes, 1847
Pellona ditchela Valenciennes, 1847
(Fig. 46)

This species is commonly known as the Indian pellona. This species is known as "Pha-pant", or "Palli" in the Province of Sindh, and "Beechum" in Balochistan. It was reported from Sindh by Whitehead (1973, 1985), and

Whitehead and Wongratana (1984a), from Karachi by Niazi (2001), from Sindh creeks by Niazi (1976), from Balochistan by Whitehead (1985), and Whitehead and Wongratana (1984a), and from Miani Hor by Ajazuddin and Ahmed (2002). Ahmad (1988), Anderson (2022c), Bianchi (1988), Froese and Pauly (2002), Hoda (1985, 1988), Hussain (2003), Majid *et al.* (1992), Jalil and Khalil (1972, 1981), Psomadakis *et al.* (2015), and Qureshi (1957) reported it from the Pakistan coast without specifying a location. It was originally described from Vishakhapatnam, India, by Valenciennes (1847).

Its body is moderately deep, long, and compressed, and it has large eyes. Its lower jaw is projecting, and its mouth is directed obliquely upward. There are vertical striae on scales slightly overlapping each other at the centre. Its swim bladder is without posterior tubes. Its body is pale brown with a greenish tinge dorsally, and the flanks are gold, becoming silver ventrally. The head is also gold, with a dusky snout and chin. There is a faint humeral spot present behind the upper end of the gill opening.

Fig. 46. *Pellona ditchela*

This species is known to be widely distributed in the Indo-Pacific area, including Madagascar, South Africa, the Gulf of Oman, Pakistan and India, the Bay of Bengal, Andaman Islands, Indonesia, the Philippines, Arafura Sea, Australia, and New Guinea (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022c).

Materials Examined

- 1 specimen collected from Karachi Fish Harbour on 25 March 2013 (18 cm TL)
- 1 specimen collected from Karachi Fish Harbour on 19 July 2013 (15 cm TL)

Genus ***Raconda*** Gray, 1831

Raconda russeliana Gray, 1831

This species is commonly known as the raconda. This species is known as “Koor” in the Province of Sindh and “Pootuk” in the Province of Balochistan. This species is reported from Sindh by Misra (1959) and Sorley (1932); Jalil and Khalil (1972, 1981) and Hoda (1985, 1988) reported it from the Pakistan coast without specifying a location. It was originally described from Sangar Roads, India, by Gray (1831).

The body of this species is elongate and greatly compressed, with a strongly convex lower profile bearing a sharp keel. Its dorsal fin and pelvic fins are absent. Its body is silvery, and there is a dark spot present behind the gill opening.

It is known from the Indo-West Pacific area from the east coast of India, Bangladesh, Myanmar, the Gulf of Thailand, to Singapore, and the Java Sea (Frickle *et al*., 2026; Froese and Pauly, 2026; Anderson, 2022c).

Materials Examined

- None

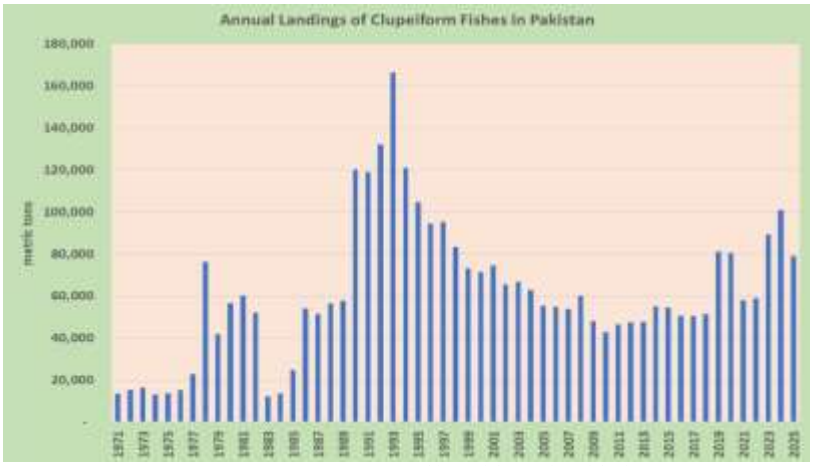
CONCLUSION

Fishes belonging to the order Clupeiformes are commercially harvested mainly by small-scale fisheries in freshwater, estuarine, coastal, and offshore waters of Pakistan. This order is represented by six families in Pakistan, including Chirocentridae, Dorosomatidae, Dussumieriidae, Ehiravidae, Engraulidae, and Pristigasteridae. Family Chirocentridae, which includes wolf herrings, is represented by 1 genus and two species. Gizzard shads and

sardinellas are included in the family Dorosomatidae, which is represented by 11 genera and 26 species in Pakistan. This family includes hilsa shad, toli shad, kelee shads, sardinellas, gizzard shads, white sardines, and many other commercially important species. The family Dussumieriidae includes round herrings and is represented in Pakistan by 1 genus and 2 species. Family Ehiravidae includes the river sprat, which is represented in Pakistan by 1 genus and 1 freshwater species. Anchovies are included in the Family Engraulididae, which is represented in Pakistan by 5 genera and 28 species, including important groups such as thryssas. Family Pristigasteridae includes Pristigasterids, which are represented by 4 genera and 9 species, including important species like ilisha, and pellona. In all, 68 clupeiform species belonging to 19 genera are known from Pakistan. Of these, *Nematalosa resticularia* Nelson and McCarthy 1995, *Ilisha obfuscata* Wongratana, 1983, *Ilisha compressa* Randall, 1994 and *Thryssa whiteheadi* Wongratana, 1983 are reported for the first time from the Pakistan coast. It may be added that the presence of Gulf herring (*Herklotsichthys lossei*), and humped anchovy (*Thryssa polybranchialis*) is possible in Pakistan, which requires further investigations.

Commercial Landings

Annual landings of clupeiform fishes of Pakistan from 1971 to 2025 are presented in Fig. 47, which indicates that their annual landings fluctuated between 12,222 m. tons in 1983 and 166,235 m. tons in 1993 (Anonymous, 2012, updated). The data further indicate a trimodal distribution, with a smaller mode in 1977 and 1981, with a highest level of 76,178 m. tons in 1978. The highest modal distribution was observed during 1989 and 1998, with a highest level of 166,235 m. tons in 1993. The third mode was observed during 2019 and is still continuing in 2025 with a highest level of 100,964 m. tons in 2024.



(Source: archives of the Marine Fisheries Department).

Fig. 47. Annual landings of the Clupeiformes in Pakistan

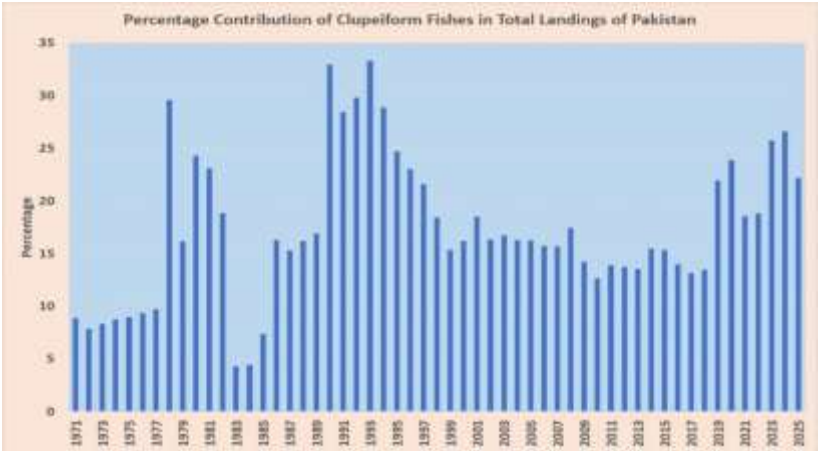
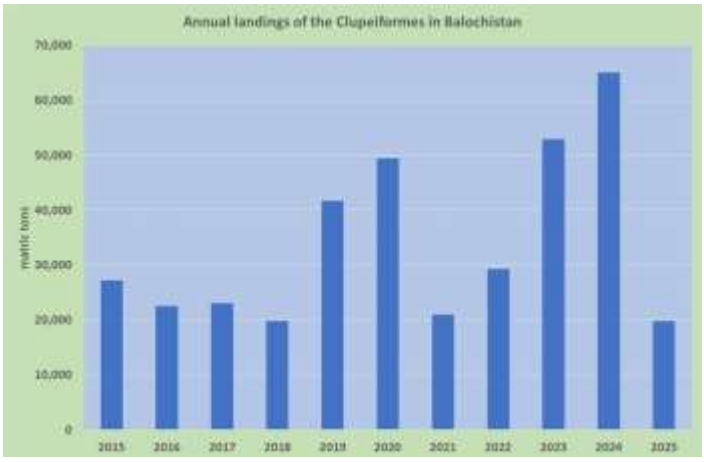


Fig. 48. Percentage contribution of Clupeiformes in the total landings of Pakistan

Members of the order Clupeiformes contributed substantially to the total landings of Pakistan (Fig. 48). Their contribution ranged between 4.23 % in 1983 and 33.31% in 1993. In 1971, its contribution to total landings was only 8.84 % and has fluctuated since then. In recent years, its percentage contribution was 26.61 % in 2024 and 22.19 in 2025.



(Source: the Department of Fisheries, Government of Balochistan)

Fig. 49. Annual landings of all the Clupeiformes in Balochistan

Annual landings of clupeiform fish from the Balochistan coast for the last eleven years are presented in Fig. 49, which indicates that annual landings of clupeiform fish fluctuated between 19,774 m. tons in 2018 and 65,091 m. tons during 2024. A major increase in the landings of these fish observed during 2023 and 2024 is attributed to the operation of several seining fishing vessels in Sonmiani Bay, which used to land their catch at landings centres in Balochistan, mainly Ormara. Annual landings of species of clupeiform fish are presented in Fig. 50, which indicates that wolf herrings are the least dominating fish species with a maximum landing of 1,243m. tons in 2016 and 2,720 m. tons in 2018. The landings of Sardinallas in Balochistan were reported to range between 10,563m. tons in 2018 and 31,118 m. tons in 2020, whereas miscellaneous clupeiform were 5,642 m. tons in 2016 and 49,937 m. tons in 2024. An unprecedented increase in the landings of miscellaneous clupeiform was observed during 2023 and 2024, which can be attributed to the operation of several seining fishing vessels in Sonmiani Bay, which used to land their catch at landings centres in Balochistan. An increase in the landings of sardinellas was observed during 2019 and 2020, which was on account of the start of a monofilament gillnet fishery in some bays along the Balochistan coast during this period. The landings of shads are not reported from the Balochistan coast for the last many decades, which is attributed to the overexploitation of toli shads in the waters of Balochistan before the 1990s.

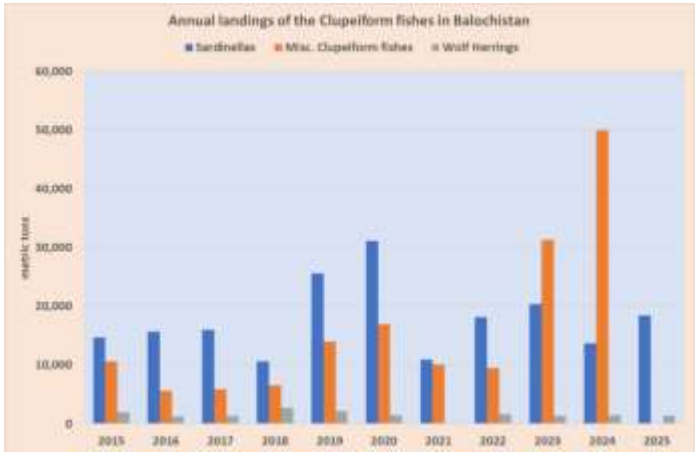


Fig. 49. Annual landings of the Clupeiform Fishes in Balochistan (data obtained from the Department of Fisheries, Government of Balochistan)

Data on annual landings of clupeiform fish from various fishing centres along the Sindh coast are not available; however, annual landing data for various centres along the Balochistan coast are presented in Tables I to III with a summary in Fig. 50. The data indicate that during 2025, Ormara was observed to be the main landing centre of Balochistan for Clupeiform fishes (26,505 m. tons), followed by Pushukan (3,699 m. tons), whereas in Jiwani, a minimum quantity of Clupeiform fishes (1,307 m. tons) was landed.

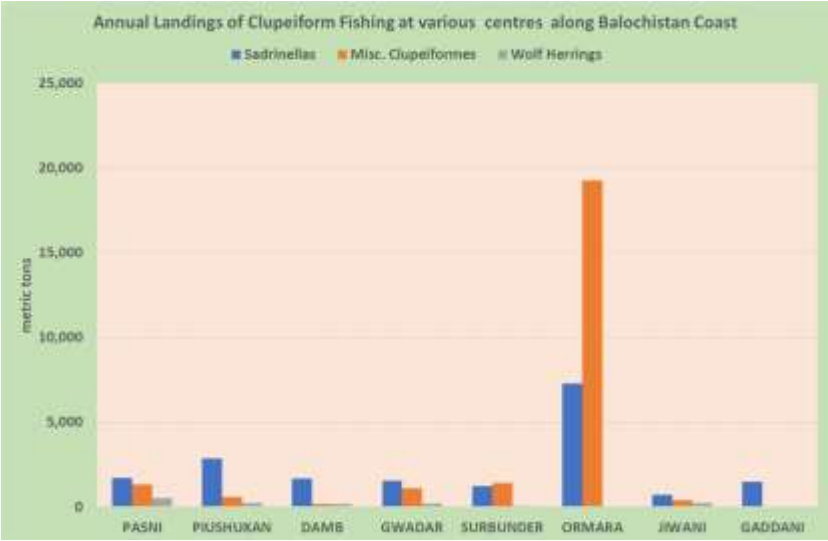


Fig.50. Annual landings of the Clupeiform fishes for the year 2024 at different fish landing centers along the coast of Balochistan (data obtained from the Department of Fisheries, Government of Balochistan)

The analysis of the data for the last eleven years indicates that for sardinellas, Ormara is the main landing centre along the coast of Balochistan (5,281 m. tons), followed by Damb (2,769 m. tons), whereas the lowest annual landings of sardinellas were recorded from Jiwani (924 m. tons). In the case of miscellaneous Clupeiform fishes, Ormara is the main landing centre (7,065 m. tons), followed by Jiwani (4,354 m. tons), whereas the lowest landings were reported from Pushukan (345 m. tons). The landings of wolf herrings were observed to be highest in Gwadar (428 m. tons), followed by Pasni (335 m. tons), whereas the lowest landings of wolf herrings were reported from Gadani (112 m. tons). The spatial differences observed in landings of various species categories at different landing centres are attributed mainly to the main fishing activity being conducted in the area, target species, and the use of that centre for landing of the catch from other areas of Balochistan.

Table 1. Annual Landings Data of the Sardinellas of Various Landing Centers of Balochistan.

YEAR	PASNI	PIUSHUKAN	DAMB	GWADAR	SURBUNDER	ORMARA	JIWANI	GADDANI	TOTAL
2015	1,083	635	3,170	1,730	4,204	1,593	560	1,680	14,655
2016	1,054	603	6,802	2,631	2,617	514	508	923	15,652
2017	1,088	626	6,821	2,697	2,721	537	528	960	15,978
2018	1,818	1,151	1,112	1,967	1,992	867	791	865	10,563
2019	2,846	2,708	1,710	2,475	2,892	10,378	731	1,866	25,606
2020	3,463	1,689	2,347	1,580	3,158	17,174	630	1,077	31,118
2021	669	1,637	1,347	1,233	160	4,133	690	1,053	10,922
2022	2,329	2,573	1,657	1,354	1,064	5,171	2,690	1,326	18,164
2023	2,167	1,246	1,115	1,318	3,467	8,903	690	1,430	20,336
2024	2,180	1,632	2,716	2,118	730	1,547	1,649	1,125	13,697
2025	1,700	2,852	1,660	1,522	1227	7,274	692	1,485	18,412

Table 2. Annual Landings Data of the miscellaneous Clupeiformes of Various Landing Centers of Balochistan.

YEAR	PASNI	PIUSHUKAN	DAMB	GWADAR	SURBUNDER	ORMARA	JIWANI	GADDANI	TOTAL
2015	1,295	127	2,913	683	2,908	839	85	1,719	10,569
2016	864	197	276	1,267	1,848	646	161	383	5,642
2017	922	205	290	1,279	1,883	673	166	401	5,819
2018	1,225	187	426	1,320	1,945	799	188	401	6,491
2019	395	504	427	682	2,355	6,345	0	3,259	13,967
2020	214	350	162	516	1,483	12,360	174	1,633	16,892
2021	110	353	162	424	2,067	6,742	158	28	10,044
2022	823	536	160	556	2,247	3,866	458	816	9,462
2023	788	186	425	613	1,937	26,188	158	961	31,256
2024	785	569	554	1,424	166	33	45,967	439	49,937
2025	1,326	582	170	1,075	1,422	19,226	382	34	24,217

Table 3. Annual Landings Data of the Wolf Herrings of Various Landing Centers of Balochistan

YEAR	PASNI	PIUSHUKAN	DAMB	GWADAR	SURBUNDER	ORMARA	JIWANI	GADDANI	TOTAL
2015	231	133	295	867	77	128	127	86	1,944
2016	321	53	0	371	92	118	193	95	1,243
2017	325	53	0	392	93	122	200	99	1,284
2018	465	66	315	728	196	453	261	236	2,720
2019	227	191	300	445	451	42	242	254	2,152
2020	313	87	142	388	236	44	170	44	1,424
2021	419	145	145	416	68	69	192	14	1.468
2022	235	215	141	529	53	249	192	17	1,631
2023	331	60	319	352	33	27	192	33	1,347
2024	320	316	224	46	200	14	9	333	1,462
2025	497	235	164	176	63	6	233	16	1390

SHADS (*TENUALOSA SPP.*)

River shads are considered to be highly valued fish species in Pakistan, which are primarily inhabitants of the River Indus and its tributaries in its lower reaches. Migration of *Tenualosa ilisha* from the sea to the Indus River is believed to start from January and continues until July (Bhuiyan and Talbot 1968; Talbot, 1970). According to Karim and Bindra (2016), there are two peak migration periods, one in January to February and the other between April and July. Before the construction of the Sukkur Barrage in 1932, the river shad was reported to travel a distance of more than 1,000 km up to Multan (Aitkin 1907). After the construction of the Sukkur Barrage, hilsa migration was restricted to the Sukkur Barrage (Qureshi 1968) since this barrage did not have any fish passes or ladders (Hussain and Sufi, 1961, 1962a, 1962b). Kotri and Guddu barrages, which were constructed later in 1956 and 1962, have fish passes to facilitate hilsa migration. Fish passes in the Kotri Barrage were considered to be not well designed to facilitate the migration of river shad. Therefore, after 1956, the migration of river shad has been restricted up to Kotri Barrage below Jamshoro, which is about 300 km from the sea. This resulted in the loss of a major spawning area of the river shad in the Indus River (Bhuiyan and Talbot 1968). During the early stage of migration (January–February) of river shad, there is almost no adequate quantity of water available in the downstream Kotri for shad to migrate upstream. The migration of the river shad during the summer monsoon (April–July), results in the start of shad fishing downstream of Kotri Barrage from Jamshoro to Keti Bunder.

Annual catch of shads during the last eight decades indicates that in the 1950s, the annual catch was close to 13,000 m. tons in 1953, which decreased to 2,700 m. tons in 1962 and then again started to increase with a peak annual catch of 12,279 m. tons in 1971 (Fig. 51). The changes in the annual shad landings can mainly be attributed to the construction of Kotri Barrage in 1955, which resulted in an obstruction of migration patterns. The catch declined up to 1961 (7,800 m. tons) but again stabilized to a level not significantly different, and a major capture of 12,279 m. tons in 1971, which is generally attributed to floods in the early 1970s. A major decrease in the landings of shad was observed during 2000 and 2012 during which annual landings of shads remained much less than 300 m. tons which is attributed to uncontrolled fishing, use of efficient nylon and other plastic fishing nets and motorized fishing boats, mass cale catch of undersized (juveniles) in lower reaches of Kotri Barrage which coupled with the low flow of freshwater has resulted in major decrease in the landings during this period. The floods in 2010, 2011, 2018, 2020, and 2022 have resulted in the recovery of the landings of shads, which reached 513 m. tons in 2014 and a level of 1,540 m. tons in 2023 (Fig. 51).

Panhwar and Liu (2013), Panhwar and Siddiqui (2005), and Panhwar *et al*. (2011) have studied various aspects of growth, reproductive biology, and population dynamics of river shad (*T. Ilisha*). These studies revealed that the "Palla" fishery in Pakistan is under severe stress and seems vulnerable to overexploitation. They recommended imposing a ban on fishing during upstream migration and on undersized specimens. The data presented in Fig. xxa indicates that before 1971, shads were caught in large quantities along the River Indus below Kotri, from the estuarine area of the River Indus, and from coastal waters along the Sindh and Balochistan coast. In the River Indus, the Delta, and along the Sindh coast, the river shad (*Tenualosa ilisha*) used to be dominant, whereas along the Balochistan coast, the toli shad (*Tenualosa toli*) was caught in large quantities. Since it is difficult for a common person to distinguish the two species, all toli shad caught along the Sindh or Balochistan coast used to be transported to inland fish markets in Sindh, where *Tenualosa* is considered a priced fish and fetches extremely high prices. Genus *Tenualosa* is caught in freshwater bodies, estuarine areas, and on the open coastline using drift gillnets as well as by fixed gillnets in some areas. A landlocked population of *Tenualosa Ilisha* was reported from Keenjhar Lake by Jafri *et al*. (1999). They recorded a sizeable population of *T. ilisha* living permanently in the lake, rather than migrating back to the Indus River or Sea. They also observed that this landlocked population is adapted for feeding on the plankton of the Keenjhar Lake, and the physical structure of the fish's digestive tract and its feeding preferences allow it to thrive in the lake's specific ecological conditions.

There have been many other studies that dealt with various aspects of its biology, feeding habits, and molecular identification of river shad; however, many other species were used based on misidentification. Bhambhro *et al*. (2024) have studied the morphometrics, growth, and length-weight relationship of hilsa shad (*Tenualosa Ilisha*) in the downstream Kotri Barrage Indus River; however, Bloch's gizzard shad (*Nematalosa nasus*) and kelee shad (*Hilsa kelee*) were mainly used for comparison. Khan *et al.* (2025) conducted a molecular identification study of *Tenualosa toli* and *T. ilisha* from the Pakistan coast; however, instead of *T. toli*, chacunda gizzard shad (*Anodontostoma cacunda*) was used.

Jafri (1988) and Qureshi (1968) have described the fishing gears being used for catching river shad in the River Indus below Kotri and in the Indus estuarine area. According to them, a variety of fishing gears are being used for harvesting river shad, including seine nets, drag nets, and drift gillnets. The choice of the gear is based mainly on the depth of water, the velocity of the current, and the time of the fishing season. The lift net, which is used in the River Indus at Hyderabad and Kotri, is operated by a single fisherman to catch one fish at a time during floods. The seine net is used in the Indus deltaic area where the current of water is slow. However, there is now a ban imposed on the use of seine nets in the Indus Deltaic creeks by the Government of Sindh. The drift gillnets are used in areas where currents are strong and other gears cannot be used.

Toli shad used to be caught mainly from the Sonmiani Bay and Makran coast in Balochistan, as well as in the area north of Cape Monz in Sindh. It was mainly caught from the waters over the continental shelf to a depth between 10 and 50 m using gillnets. Its one of the main fishing ground was located on the eastern coast of Balochistan between Gaddani (Balochistan Coast) and Goth Mubbarak (Sindh Coast). In this area, fishermen used to place fixed nets, locally called "darband" or "aarassi", in the migratory route of this species and used to harvest large quantities of the toli shad. Bundewari along the Balochistan coast and Bhit Khori on the Sindh coast were the main landing villages for this species. The landings of toli shad have decreased in the late 1980s, and this species is seldom represented in commercial catches (Fig. 51b). Because of a decrease in the landings of toli shad and some other commercial species, fishermen have almost abandoned the village of Bhit Khori.

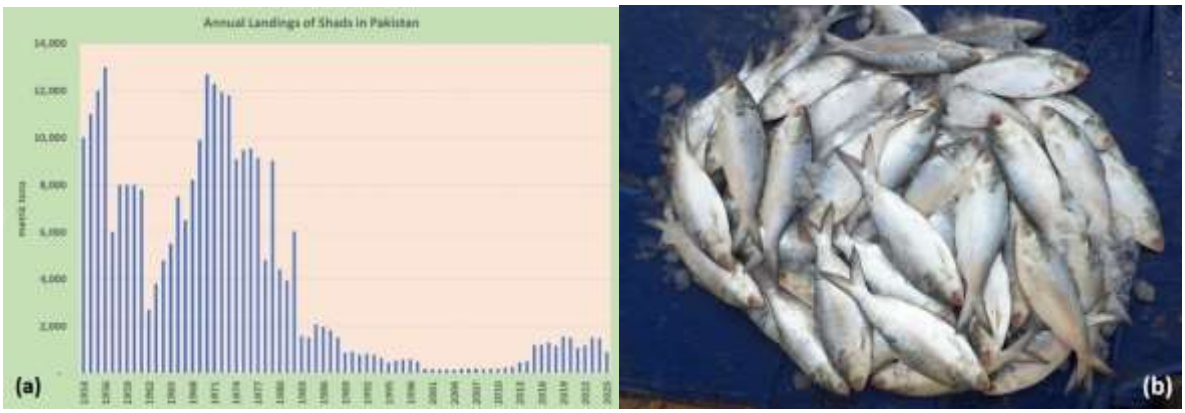


Fig. 51. Landings of the shads (*Tenualosa spp.)* in Pakistan. (a) Landing data 1971-2025); (b) a heap of toli shad (*T. toli*) at Karachi Fish Harbour.

RIVER SHADS (*GUDUSIA* SPP.)

Two species in Pakistan represent River shads; Indian river shad (*Gadusia chapra*) is reported to be widely distributed in the waters of Sindh and Punjab provinces, as well as some warm water areas of Khyber Pakhtunkhwa and Balochistan. Whereas the Burmese river shad (*G. variegata*) is also reported from Pakistan, its presence there is generally considered doubtful. Indian river shad is a pelagic and potamodromous fish, which occurs in the rivers, canals, lakes, ponds, ditches, and inundated fields (Ahmad *et al*., 2007; Rahman, 1989). In Bangladesh and in India, this fish is caught in large quantities and is an important component of the catch of subsistence and artisanal fisheries (Talwar and Jhingran, 1991). In Pakistan, small quantities are consumed by the population residing along rivers, barrages, and lakes (Dhands); however, a major part of the catch of this species is used as a raw material for fish meal. It is also used as feed in aquaculture for some predatory fish such as snakeheads and catfish. No separate statistics of its landings in Pakistan are recorded.

SARDINELLAS

Sardinellas are represented in Pakistan by at least 9 species, including *Sardinella albella, S. atricauda, S. brachysoma, S. fimbriata, S. gibbosa, S. dayi, S. longiceps, S. melanura,* and *S. sindensis*. Of these, Indian oil sardine (*S. longceps*), Sindh sardinella (*S. sindensis*), goldstripe sardinella (*S. gibbosa*), and white sardinella (*S. albella*) are found in large quantities, and the remaining species are found occasionally but not in commercial quantities. Sardinellas form an important component of the fishery of Pakistan, with its contribution to be between 1 % in 1971 to as high as 28 % in 1978 (Fig. 52). However, it was around 10 % of the total fish landing of Pakistan. Several studies were undertaken on the fisheries of Sardinellas in Pakistan (Ahmed *et al.*, 1962; Ahsanullah, 1965, 1966a, 1966b; Hasan 1971), whereas various aspects of the biology of sardinellas were studied by Elahi *et al.* (2013), Hashmi and Khan (2003), Khatoon and Hussain (1998; 2005). During the 1960s and 1970s, sardinellas were the mainstay of the fishery of Balochistan, which used to produce predominantly Indian oil sardine for local consumption, salted-drying for transportation to other areas of Pakistan, and for export to Sri Lanka, and sun-drying for raw material for fish meal production.

Sardinella spp. are caught in Pakistan by several fishing gears, including cast nets, gillnets, and surrounding nets, estuarine set-bag net (ESBN), beach seine, and trawl net, which operate in shallow coastal waters to a depth of about 50 m. Although some species of *Sardinella* can be found all along the continental shelf (200 m), about 90 % of their commercial fishing is based in coastal waters. It may be added that monofilament gillnet and surrounding nets (locally called 'Katra' net) are the main gears that are used in catching sardinellas in coastal waters. In the last ten years, demand for *Sardinella longiceps* has substantially increased in past ten years because of its export in frozen form to Southeast Asian countries, resulting in the establishment of targeted fisheries mainly using monofilament gillnet in Gwadar (West Bay), Sur, Pasni, Ormara, and in the creeks of the Indus Delta. In the last two years, the catches of Indian oil sardines from these fishing grounds have decreased substantially and have been mainly replaced by Sindh sardinella (*S. sindensis*) and gold-stripe sardinella (*S. gibbosa*), and exported in place of Indian oil sardines.

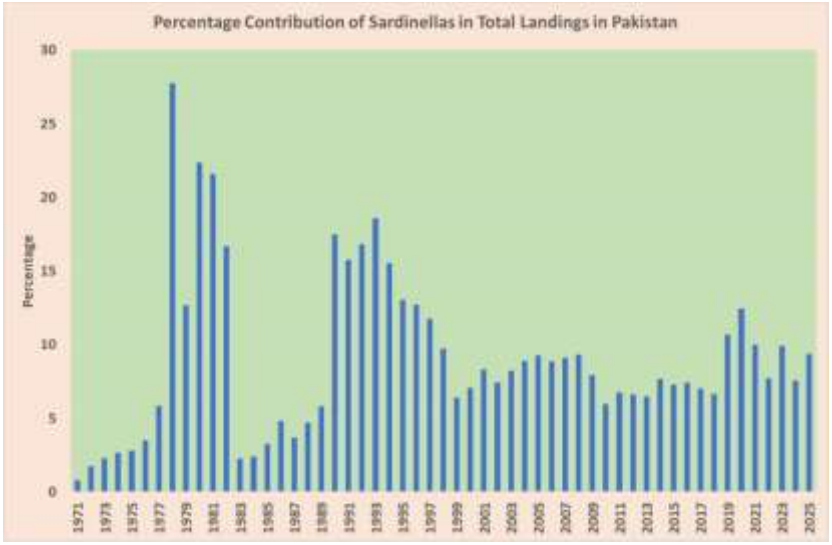


Fig. 52. Percentage contribution of Sardinellas in the total fish production of Pakistan.

Fig. 53. Surrounding (‘katra’) net boats have installed winches since 2022 for efficient heaving of the net.

In order to increase the catches of sardinellas in Pakistan, three major changes have been made in the fishing operations over the last 5 years. Previously, the surrounding net (locally called ‘Katra’ net) used to be deployed and heaved manually; however, the entire ‘katra’ boat fleet has installed net haulers (Fig. 53), which made their operation smooth, and the size of crew on each fishing trip has reduced by at least 50 %, resulting in increased annual income of the ‘katra' boats. Since last year, these ‘katra’ boats have started using light to concentrate the fish schools of sardinellas in coastal waters, which has also increased the catch per boat (Fig. 54). The use of intense light to attract fish is generally considered undesirable; however, despite protests from fishermen engaged in other fisheries, its use is increasing in the surrounding net fishery in Pakistan.

In Pakistan, the operation of the surrounding net (‘katra’) is different from the seine net, as there are no purse rings or purse line attached to the net. The design of the ‘katra’ net from Pakistan is similar to that of the lampara net used in the Mediterranean Sea and other parts of the world. In the process of heaving the net, it is not closed using a purse ring and line for closing purse lines at the bottom, but the bottom line is pulled to surround the schooling fish, which is then heaved. In some areas of Balochistan (Pasni to Jiwani), some fishermen have modified their gillnets and have placed rings on the bottom rope, and operate the gillnet for catching schools of fish (Fig. 54), mainly pelagic species (dominated by sardinellas). These modifications have put substantial pressure on the stock of small pelagics in Pakistan.

Fig. 53. Light is now used to attract schooling fish by the 'Katra' boats in both Sindh and Balochistan.

of sardinellas in Pakistan have a trimodal distribution over the last 75 years, with the first modal peak between 1971 and 1983 (Fig. 55). It started with a minimum landing of 1,177 m. tons in 1971 and reaching gradually to 71,365 m. tons in 1978 and then declining to only 6,427 in 1983. The second mode was found between 1983 and 1993. It reached a maximum of 92,704 m. tons in 1993 (the highest landings ever recorded from Pakistan) and declining to 30,629 m. tons in 1999. The landings between 1999 and 2009 remained stable, ranging from 29,815 m. tons in 2002 and 34,336 during 2004. The third mode was found between 2010 and 2025 with a minimum of 20,127 m. tons in 2010, reaching a maximum of 42,093 in 2020, and declining to 28,741m. tons in 2024. A major fluctuation in the catches of the Indian oil sardine over a period of the last 90 years was recorded in India (Rohit *et al*., 2018). In Pakistan, however, since data for all sardinellas is pooled, it is not possible to decipher the trend in catches for various species of Sardinellas.

Fig. 54. Modified gillnet at Jiwani being used as a purse seine.

Sardinellas are coastal species and found in the pelagic environment along the coastline. All species form schools of various sizes and densities and are considered migratory species. Along the coast of Pakistan, large schools of sardinellas are found in Gwadar (West Bay), Karwat, Pasni Bay, Ormara, Kund Malir, Sapat, Sonmiani Bay, off Hawks Bay, and in the lower reaches of the Indus Delta and along the mouth of creeks. According to Jayaprakash and Pillai (2000), Indian oil sardines are classified into different types of surface and bottom schools, which can be differentiated into surface (flipping, patterning, rippling, coloured, and luminous) and bottom (bubbling and odouriferous) schools. According to them, the size of these schools may range from 2 to 25 m in length and 1 to 20 m in breadth. No such information on Indian oil sardine or other sardinella species is available from Pakistan; however, fishermen along the Pakistan coast are well aware of the schooling behavior of sardinellas and, at times, follow the schools and harvest them in large quantities.

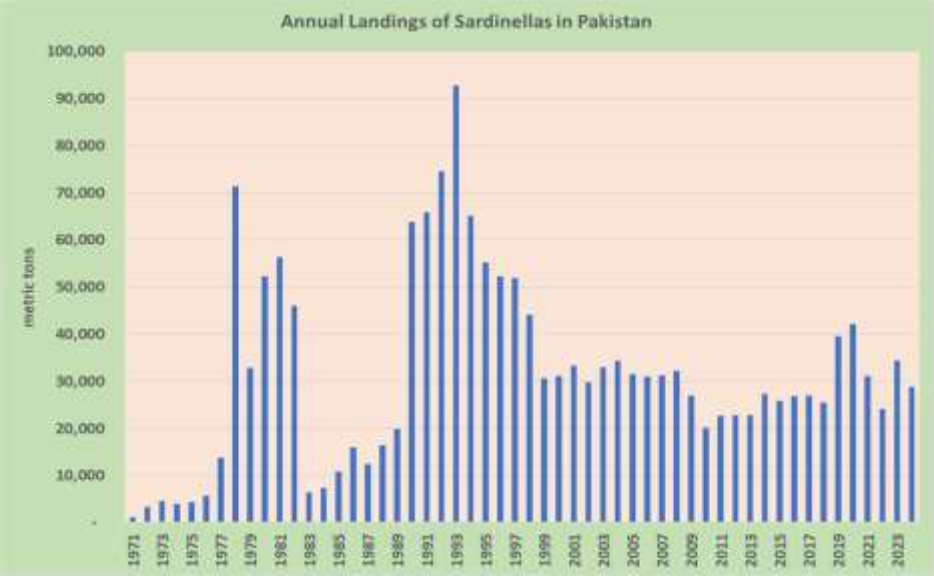


Fig. 55. Landings of the Sardinellas in Pakistan.

Jayaprakash (2007) presented a schematic map depicting the migration pattern of the Indian oil sardine, along the Western Indian Ocean, including India and Pakistan coast. The information includes the pattern of season-wise availability of its juveniles, pre-adults, adults, spawners, and spent fishes, as well as the spawning and distribution of fish eggs and larvae in the Northern Indian Ocean. In this map, it is depicted that the Indian oil sardine migrates parallel to the coast, both northward and southward, depending on the prevailing current pattern along both the coasts of India and Pakistan. The stock from Somalia, the Gulf of Oman, and Pakistan appears to move to the northwest coast of India (Jayaprakash, 2007). According to Anonymous (2011), there is a single stock of Indian oil sardines that is not specifically confined to any of the countries (Oman, Pakistan, and Iran) in the region. Because of the similar physical and biological conditions of the Arabian Sea and the Gulf of Oman, the free movement of Indian oil sardines from the Gulf of Oman to the northwest coast of India.

Along the coast of India, the oil sardines are restricted to a narrow 16 km broad strip of the inshore waters (Jayaprakash, 2007), however, in some seasons, there is an extension in their distributional range, and they have been found to enter the estuaries and backwaters. There is a free flow of schools of Indian oil sardines from the Gulf of Oman, the Persian Gulf, Pakistan, to the Indian coast. The stock of oil sardine in the Somali coast, the Gulf of Oman, and Pakistan may have a similar stock abundance compared to the Indian counterpart (Jayaprakash, 2007). It may be added that in Pakistan, migration of oil sardine, along the coastline and in the estuarine areas and bays, is not well understood. Additionally, such information about other species of genus *Sardinella* is extremely limited in India and almost lacking from the Pakistan coast.

The Indian oil sardine sampled from Balochistan ranged from 13.0 to 22.0 cm in total length and weighed between 40 and 90 g (Ahsanullah, 1966b; Elahi *et al.*, 2013; Elahi *et al*., 2016; Hasan, 1971). In India, the total length and wet weight of Indian oil sardine exploited during 2000 to 2015 ranged from 4.2 to 23.7 cm and between 0.93 and 101.6 g, respectively (Rohit *et al*., 2018). Ahsanullah (1965) studied the sex ratio of Indian oil sardine from Pasni (Balochistan) in 1964 and 1965, and reported that the females were mostly dominating throughout the year (55%) as compared to the males (45%). The size of the males and females taken together shows that out of the total catch, about 79% were between 17.1 and 20.5 cm, which is the common size available throughout the year. Hashmi and Khan (2003) and Hashmi *et al*. (2013) observed a sex ratio of 1:1.25 in Sindh Sardinellas (*Sardinella sindensis)* from Karachi, Pakistan. They observed that the highest gonadosomatic index (GSI) value in males was found during June and August (3.813 to 4.078), while in females, the highest values during June and August were found to be (3.157 to 5.616), which suggested that June to August is the spawning period of this species. Antony Raja (1964) indicated July to September as the peak spawning period in India, which occasionally may be advanced or prolonged by a month. Studies of metrics and gonadosomatic indices (GSI) by Hashmi and Khan (2003) indicate that *Sardinella longicep* in the Arabian Sea primarily spawns between July and September. Both in India and Pakistan, the peak spawning coincided with the southwest monsoon (June-September). Khatoon and Hussain (1998) reported that three species of *Sardinella, S. sindensis*, *S. fimbriata,* and *S. longiceps* enter the mangrove area for feeding and spawning purposes. The data obtained in this study, together with available information, suggest a long

spawning season for *Sardinella sp.* with spawning peaks occurring in different localities. However, major spawning is found to occur outside the mangrove area along the coast.

Fig.57. Disposal of sardinellas for fish meal purposes. (a) Drying of Sardinellas in the Creek area before transportation to fishmeal plants; (b) sardinellas transported in unhygienic and open trucks from Karachi Fish Harbour to fishmeal processing plants in Ibrahim Hayderi.

There are only a few reports on the spawning grounds of the Indian oil sardine available from India and Pakistan. Amtyaz *et al.* (2013) reported that the mean fecundity in *Sardinella sindensis* ranged between 47,521 and 110,876 eggs. The fecundity in India ranged from a few thousand to over 100,000. It may be added that detailed investigations of the genus *Sardinella* are required in Pakistan, as many facets of its distribution, biology, feeding, spawning, fecundity, and population dynamics are not known. Being one of the most important components of the coastal fishery of Pakistan, there is a need for such studies to be undertaken on a priority basis.

In the Indus Delta, an important fishery existed for producing sardinellas for local consumption as well as for raw material for fish meal production (Fig. 56). Although the fishery for sardinellas is still important in Sindh and Balochistan, a major part of the catch is exported in frozen form, whereas these fish are still used in substantial quantities as raw material for fishmeal production. Sardinellas are mainly consumed as raw material for fishmeal production, which is generally considered an undesirable act, as this precious seafood resource can be used for direct human consumption, as well as for export. For the improved use of Sardinellas and allied species, there is a need to improve their fishery, better handling on board, as well as in landing centers, and during transportation is required. The present mode of drying sardinellas on bare ground (Fig 56a) and transportation in open trucks without ice (Fig. 56b) results in purification and degradation of the quality of the fish. Using such poor-quality raw material results in the production of fish meal with extremely low protein content. Although small quantity of sardinellas is landed in comparatively better condition (Fig. 57), it is presently used for direct human consumption as well as for export in frozen form to Southeast Asian countries.

Fig. 56. *Sardinella longiceps* (a) In a wicker basket at Gwadar. (b) transported at Karachi Fish Harbour on a pickup.

Landings of miscellaneous clupeiform fishes in Pakistan have not been separately recorded before 1983 (Fig. 58). The landings were found to have a bimodal distribution over the last 43 years, with the first modal peak between 1983 and 2009. It started with a minimum landing of 4,203 metric tons in 1983 and gradually increased to 43,833 metric tons in 1990 and 43,475 metric tons, and then declined to 14,818 metric tons in 2009. The second mode was

found between 2009 and 2025. It reached a maximum of 64,051 metric tons in 2024 (the highest landings of miscellaneous clupeiform fish ever recorded from Pakistan) and declined to 37,515 metric tons in 2025. The annual catch of anchovies in India typically ranges between 45,000 and 65,000 metric tons and accounts for approximately 6% to 18% of India's total marine fish landings in India (Parveen *et al.,* 2022). In Pakistan, miscellaneous clupeiform fish (including anchovies), however, contributes 1.48 % in 1983 and 16.88 % in 2024 to the total landings. It may be added that separate data for various species of miscellaneous clupeiform fish is not recorded.

MISCELLANEOUS CUPEIFORM FISHES

In addition to shads and sardinellas, several types of clupeiform fishes are caught by fishermen in coastal and offshore waters; however, their landing data are not recorded separately, pooled, and reported as miscellaneous clupeiform fishes. These include anchovies (thryssas, and other anchovies), gizzard shad, white sardines, and kelee shads. The most dominant species in this group is the anchovy, which forms important small pelagic fisheries in Pakistan (Fig. 57).

Fig. 57. A heap of (a) thryssas (*Thryssa spp.*); (b) Indian anchovy (*Stolephorus indicus*) at Karachi Fish Harbour.

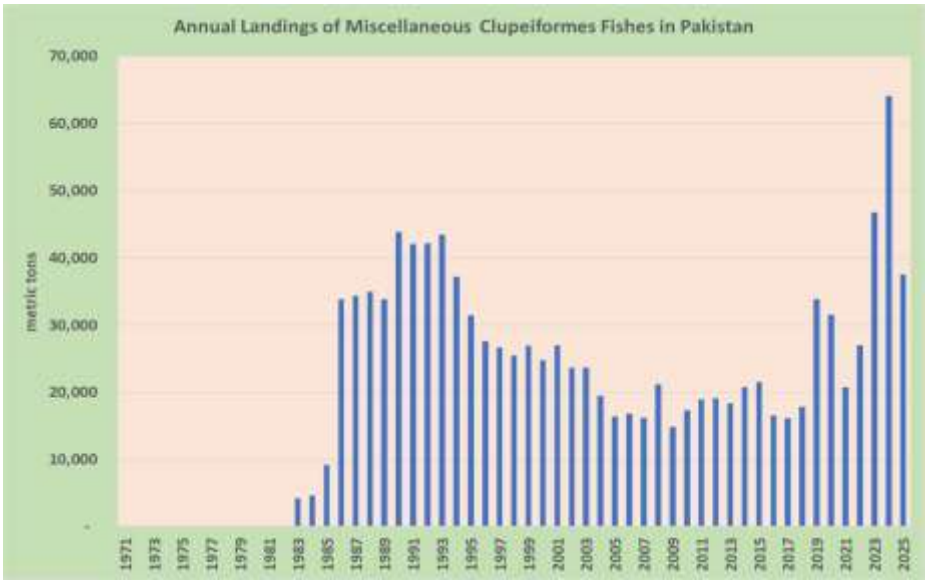


Fig. 58. Landings of the Miscellaneous Clupeiform fishes in Pakistan.

ANCHOVIES (INCLUDING THRYSSAS)

Anchovies are small pelagic and schooling marine fishes of the family Engraulidae and characteristically have a large mouth, almost always extending behind the eye, and a pointed snout. It is found mainly in shallow tropical waters, as well as in brackish water extending to river mouths. Whereas a few anchovies inhabit freshwater. In

Pakistan, anchovies are represented by 26 species belonging to 5 genera. Several genera, including *Coilia, Encrasicholina, Setipinna, Stolephorus,* and *Thryssa* contribute to the landings of anchovies in Pakistan. Genus *Thryssa* is represented by 11 species, including *T. baelama, T. dayi, T. hamiltonii, T. kammalensis, T. malabárica, T. mystax, T. mystica, T. purava, T. serena, T. setirostris,* and *T. supra.*

Anchovies are also an important component of the fishery of Pakistan; however, separate data on this important group is not recorded. Several studies were undertaken on the various aspects of biology of genus *Thryssa* (Baloch *et al*., 2012; Hoda, 1976, 1979, 1982, and 1983), whereas abundance, spawning, and growth of the anchovy (*Coilia dussumieria*) from Bhanbhore, Sindh coast were studied by Abbas (2000). Anchovies are not consumed locally, and almost the entire catch is sun-dried for use as a raw material for fish meal production (Fig. xxx). Anchovies are caught in Pakistan by several fishing gears, including cast nets, gillnets, and surrounding nets, estuarine set-bag net (ESBN), beach seine, and trawl net, which operate in shallow coastal waters to a depth of about 40 m. It may be added that monofilament gillnet and surrounding nets (locally called 'Katra' net) are the main gears that are used in catching anchovies in the coastal waters. The modifications made in the operation of 'katra' net and monofilament gillnet, including the use of net haulers and the use of intense light for attraction of fish schools of small pelagics, as well as the modified use of monofilament gillnets as purse seine, have increased catches of small pelagics, including anchovies, in the coastal waters of Pakistan.

Indian anchovy (*Solephorus indicus*) and Commerson's anchovy (*Stolephorus commersonnii*) are caught in coastal waters, bays, estuaries, and creek systems of the Indus Delta by gillnets, cast nets, beach seine, surrounding net ('katra'), and estuarine set-bag net. Although the bulk of the catch of these anchovies ends up as raw material for fishmeal production, small quantities are consumed by Bangladeshi communities based in Karachi.

Fig. 59. A heap of a) Chacunda Gizzard Shad (*Anodontostoma chacunda*); b) Bloch's Gizzard Shad (*Nematalosa nasus*) at Karachi Fish Harbour.

GIZZARD SHADS

Gizzard shad belong to the family Dorosomatidae and are characterized by a deep, silvery, laterally compressed body, a muscular gizzard-like stomach, and some genera that have a single, long trailing ray on their dorsal fin. In Pakistan, gizzard shads are represented by three genera, including *Anodontostoma*, *Gonialosa,* and *Nematalosa.*

Although the Ganges gizzard shad (*Gonialosa manmina*) is reported from Pakistan, it is known only from rivers and associated ecosystems in Sri Lanka, India, and Bangladesh. The records from the River Indus and its tributaries are considered to be the result of misidentification. Five species of gizzard shad are reported from Pakistan, including Chacunda gizzard shad (*Anodontostoma chacunda*), Arabian gizzard shad (*N. arabica*), Bloch's gizzard shad (*N. nasus*), Persian gizzard shad (*N. persara*), and Gulf gizzard shad (*N. resticularia*), locally known as "Dhaddi-Palli" in Sindh and "Goi" in Balochistan. The gizzard shad inhabits vast estuarine areas in Pakistan, as well as coastal areas, including bays and lagoons, occasionally ascending into the upper reaches of the tidal zone. These are caught by gillnets, cast nets, beach seine, other seine gears, and also by estuarine set-bag nets used in shallow coastal waters. Although they are landed in substantial quantities, these species are not generally consumed as food and are mostly used as a raw material for fish meals. Small quantities are, however, consumed by the Bangladeshi population settled in Karachi.

WHITE SARDINES

White sardines (*Escualosa thoracata*) are a coastal species that is found in shallow coastal waters to a maximum depth of 30 m along the Pakistan coast. It also inhabits bays, lagoons, and estuaries of the Indus Delta,

coastal lakes, and even enters the lower reaches of the River Indus. This species is found in small to large fish school which migrates along the coastline for feeding purposes. It is generally caught by encircling net ('katra'), cast net, small-meshed coastal gillnet, estuarine set bag net (ESBN), and trawl net that are operating in coastal waters. This is a small species ranging from 3.5 cm to a maximum length of 10.3 cm, whereas the dominating size of catch consists of specimens that range between 7.0 and 8.5 cm.

Fig. 60. A heap of white sardines (*Escualosa thoracata*) at Karachi Fish Harbour

It is mainly caught in shallow water creeks of the Indus estuary and Miani Hor, Ormara (East Bay), Kalmat Khor, Pasni Bay, Sur, and Gwadar (East Bay). Its main landing centers are Karachi Fish Harbour (Fig. 60) and Ibrahim Hayderi. It is considered a delicacy by the Bangladeshi community living in Karachi, whereas in other areas along the coast of Pakistan, it is mainly sundried and used as raw material for fishmeal production.

KELEE SHAD

Kelee shad (*Hilsa kelee*) is the most common among all shads (river shad, toli shad, and gizzard shads). It is a coastal species that is found in shallow coastal waters to a maximum depth of 25 m along the Pakistan coast. It also inhabits bays, lagoons, and estuaries of the Indus Delta, coastal lakes, and even enters the lower reaches of the River Indus. This species is found in large schools of fish in shallow coastal waters and is known to migrate into rivers and the upper reaches of the Indus estuaries. It is generally caught by encircling net ('katra'), cast net, small-meshed coastal gillnet, estuarine set bag net (ESBN), and trawl net that are operating in coastal waters. There are some important fishing grounds for this species along the Pakistan coast, which include off Paradise Point to Cape Monz, Ormara (Pedi Zur), and Kapper (between Shumal Bundar and Karwat), where these are caught with gillnets, however, Karachi Fish Harbour remains the main landing center for this species (Fig. 61). This is a comparatively a large species ranging from 10 cm to a maximum length of 35.0 cm. In contrast, the dominating size of catch consists of specimens that range between 12.0 and 25.0 cm. This species is found to be a repeated spawner, which spawns twice per year from April to June and August to October (Panhwar, 2012). Moazzam *et al.* (2004) studied the morphometry of this species from samples collected from the Balochistan and Sindh coasts.

Fig. 61. A heap of kelee shad (*Hilsa kelee*) at Karachi Fish Harbour

Panhwar *et al.* (2013) analyzed the length-frequency data and the von Bertalanffy growth model to determine population parameters. They calculated the asymptotic length (maximum theoretical length) to be 23.10 cm, and the growth coefficient was estimated to be 0.94/year. The study concluded that since natural mortality significantly outpaces fishing mortality, the kelee shad stock in Pakistan remains in a sustainable state. They recommended that fishing pressure on the species should not be increased beyond existing levels to maintain this ecological balance.

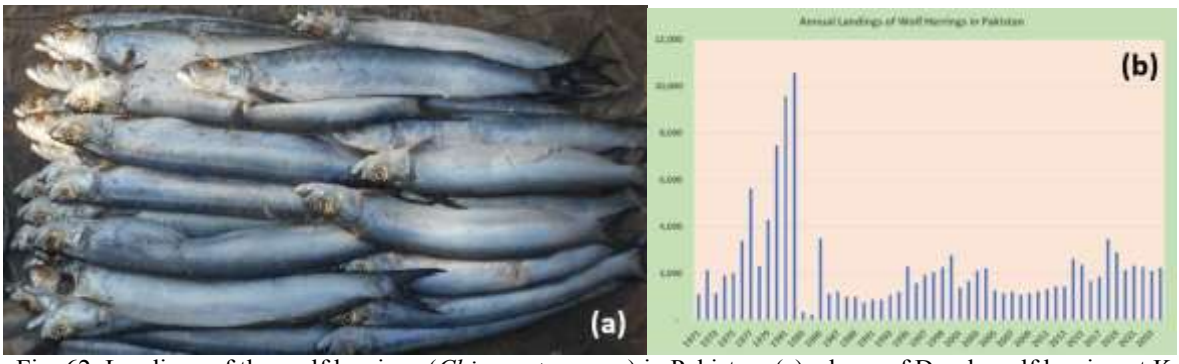


Fig. 62. Landings of the wolf herrings (*Chirocentrus spp.*) in Pakistan. (a) a heap of Dorab wolf herring at Karachi Fish Harbour. (a) Landing data 1971-2025.

WOLF HERRINGS

Wolf herrings are important marine predators found in inshore waters and are a major part of the continental shelf up to a depth of 120 m (Fig. 62a). They are non-shoaling fish that feed mainly on fish and rarely on cephalopods and crustaceans. Analysis of the samples collected from Karachi Fish Harbour revealed that its food consists of fish (99 %) and invertebrates (1%). Luther (1985) observed that young wolf herrings feed mainly on oil, the postlarvae and juveniles of *Stolephorous* and *Sardinella* on *Acetes*, whereas the adults feed on sardines and other clupeoids. Khodadadi *et al.* (2012) have studied stomach content analysis of *Chirocentrus nudus* from Khuzestan province, North of the Persian Gulf, and observed that it feeds on fishes (97 %) such as *Sardinella spp.* (58%), *Ilisha melastoma* (16%), *Thryssa hamiltonii* (14%), *Liza klunzingeri* (5%), and *Equulites lineolatus* (4%), squid (*Uroteuthis duvaucelii*)- 2 %, and crabs (1%).

There are no target fisheries for wolf herrings in Pakistan, and it is caught mainly in pelagic gillnet fisheries in coastal waters and rarely in the deep offshore waters. It is seldom caught by bottom-set longline fisheries that operate in coastal waters. According to Abdussamad *et al.* (2011), in India, wolf herrings are exploited as a targeted resource by medium meshed gillnet (35to 65 mm mesh), whereas almost all other gears land these species in small quantities as bycatch.

Landings of wolf herring species in Pakistan have not been separately recorded; however, total landings of this group of fish are available from 1971 to 2025 (Fig. 62b). The landings were found to have a multimodal distribution over the last 43 years, with the first modal peak between 1971 and 1984. It started with a minimum landing of 1,098 metric tons in 1971 and increased to 10,572 metric tons in 1982 (the highest landings of wolf herrings ever recorded from Pakistan), and then declined to 226 metric tons in 1984 (the lowest landings of wolf herrings ever recorded from Pakistan) and again increased to 3,498 metric tons in 1985. The second mode was found between 1987 and 2008. The minimum of this mode was recorded to be 776 metric tons in 1990. It reached a maximum of 2,277 metric tons in 2000 and declined to 1,097 metric tons in 2008. The annual catch of wolf herring forms another mode between 2018 and 2025. Its minimum value of 1,097 metric tons was recorded in 2008, which reached a maximum of 3.643 metric tons in 2018 and decreased to 2,115 metric tons in 2023. The annual landings of wolf herring in India were recorded to be about 22,141 metric tons during 2008 in India (Abdussamad *et al.*, 2011).

Clupeiform fishes are one of the most important components of the commercial fisheries of Pakistan, which not only include prized species like hilsa shad (*Tenualosa ilisha*), which is relished in the coastal area, as well as the province of Sindh but also includes anchovies and several other species of the Order Clupeiformes which are sold at very low prices and used mainly used as raw material for fish meal production. It may be added that the Order Clupeiformes is one of the most diversified groups of marine and estuarine fishes found in Pakistan, which is represented by 67 species; however, information about biology, population dynamics, stock assessment, and other aspects of fisheries and trade is not well studied. This warrants to initiate detailed investigation of these aspects for taking adequate management measures for the protection of the resources of this important group of fish.

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