

Family Dorosomatidae

Gizzard shads

A large family of about 115 species in 30 genera. They are mostly tropical and subtropical shads, many of them found in coastal waters, entering freshwaters during parts of their life, or even being pure freshwater species such as African *Congothrissa*, *Limnothrissa*, and *Sier-rathrissa*. Many species are of high commercial value, especially for artisanal fisheries. Two genera, *Nematalosa* and *Tenuulosa*, both with a wide distribution range in the Indian Ocean, enter freshwaters in West Asia. *Nematalosa nasus* and *Tenuulosa ilisha* are reported from the lower parts of the Shatt al Arab/Arvand. Only *T. ilisha* regularly enters freshwater habitats, while *N. nasus* is restricted to brackish waters. Both species are included in the identification key of Clupeiformes above.

Tenuulosa comprises five species distributed in the subtropical and tropical Indo-Pacific. All species are

anadromous or landlocked, with rare reports of resident marine stocks. One species, *T. thibaudeaui*, is a pure freshwater species endemic to the Mekong. All *Tenuulosa* are highly valued as food fish and provide a livelihood for many, if not millions, of small-scale fisher families. Overfishing is a serious issue throughout their range. However, as this is due mostly to artisanal fisheries, catches are rarely reported accurately, and the extent of the decline of all species might be much underestimated.

The scientific and common names of *T. ilisha* require some clarification. This species is widely called *Hilsa*, which is confused with the Kelee shad, *Hilsa kelee*. Kelee and Hilsa are sympatric in the Gulf of Oman and along the southern coast of the Arabian Peninsula. Kelee enters estuaries, and both species are easily distinguished by the presence of prominent striae on the top of the head in *H. kelee* (vs. absence in *T. ilisha*). **Further reading.** Whitehead 1985 (diversity).



Nematalosa nasus; Basra, Iraq, ~150 mm SL. © A. Ali.

Tenuulosa ilisha

Common name. Hilsa.

Diagnosis. Distinguished from *Nematalosa nasus* in lower reaches of rivers in Persian Gulf basin by: ● last dorsal ray shorter than first branched dorsal ray / ● upper jaw with median notch. Size up to 600 mm SL, usually about 360 mm SL, and up to 2.5 kg.

Distribution. From Persian Gulf along coasts of Indian sub-continent east to Irrawaddy and Salween (Myanmar). In West Asia, enters Karun and Shatt al Arab/Arvand to spawn upstream in Euphrates and Tigris. In Tigris, migrates as far

north as Qal'at Salih, and in Euphrates, as far north as Yaou. Local freshwater populations in many large rivers in South Asia.

Habitat. At sea in coastal waters, migrates to lower and middle reaches of large rivers to spawn. A resident population is suspected in Kuwait Bay, which does not appear to migrate upstream and spawns in sea or in freshwater fan of Shatt al Arab/Arvand.

Biology. Anadromous, usually migrating 50–100 km upstream. Long-distance migratory populations in Pakistan (Indus), Bangladesh/India (Ganges), and Myanmar



Tenulosa ilisha; Basra, Iraq; ~250 mm SL. © A. Ali.

(Irrawaddy). In Ganges reported to migrate 1300 km upstream, but freshwater resident populations also occur in upper Ganges. Migrates upstream to spawn at 2 years and 250 mm (males) and 3 years and about 330 mm (females). Lives up to 7 years, usually 4–5 years. First spawner appears at Shatt al Arab/Arvand in February and March at high tide and spends 1–2 months feeding. Continues to migrate upstream to spawn from April–July. Does not feed during migration. Reported to travel up to 70 km in a day. Males usually ascend rivers earlier than females. Two spawning peaks reported, one in March–May and one in July–August, but data are conflicting. In South Asia, main spawning season during southwest monsoon, with a shorter season from January to February or March. Spawns on submerged vegetation in fast currents. Larvae emerge in 1 day (23°C). Larvae and juveniles enter backwaters and tributaries of rivers. Spent fish return to sea between August and November and migrate south to overwinter. Feeds on a wide variety of small phytoplankton and zooplankton.

Conservation status. VU; most important Indo-Pacific shad for commercial and artisanal fisheries, particularly in Gulf of Bengal. Also, one of the most important commercial

species in Kuwait. Despite its wide distribution, Hilsa has declined sharply throughout its range, including Bangladesh, where world's largest population occurs. Overfishing, pollution, and dam construction have led to massive population declines. Often highly contaminated with pollutants. Northernmost distribution in Iraq today is Hawr al Hammar due to dam construction.

Further reading. Whitehead 1985 (biology, distribution); Coad 2010a (biology in Persian Gulf basin).

