

Chapter 62

The Marine and Diadromous Fisheries of Iraq



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Iraq has very rich freshwater resources, among the most abundant in the Middle East, due to the Tigris and Euphrates Rivers, the Basrah River and the Mesopotamian marshes, which serve as nursery grounds for a number of diadromous fish. Jointly, these rivers and the marshlands provide crucial nutrients to the fisheries of the northern Gulf, particularly through the Shatt al-Arab River (Jawad 2006), which is formed by the confluence of the Euphrates and Tigris river about 200 km upstream (Abdullah et al. 2015). However, Iraq's maritime Exclusive Economic Zone (EEZ) is tiny (Fig. 62.1) and so strongly influenced by the Shatt-al-Arab's outflow that it can be considered an extension of its estuary. Thus, one could argue that Iraq's marine waters are an extension of its river system, and hence, their inclusion in a book devoted to Iraq's rivers.

Given the smallness of its EEZ, Iraq's estuarine and marine fisheries (henceforth 'marine fisheries') generate catches that are 3–4 times smaller than its freshwater fisheries. However, while the fish fauna of Iraq has been studied by a number of authors (Table 62.1), there are currently no management plans in place for any of Iraq's fisheries. Detailed catch statistics have not been properly collected since the early 1990s with missing statistics for some years, and few stock assessments have been performed. Thus, the numbers presented here will remain tentative until this situation is addressed. The marine fisheries are predominantly artisanal in nature, with gillnetting for the diadromous hilsa shad (*Tenualosa ilisha*), grey mullet (*Liza* spp.) and pomfret (*Pampus* spp.) being dominant fishing activities. Fish supply is relatively low throughout Iraq's coastal region and does not meet local demand (Jawad 2006). Since 1950, the first year considered here, and especially during the twenty-first century, large areas of the Mesopotamian marshes were drained, at

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Fig. 62.1 Map of the Exclusive Economic Zone of Iraq, comprising 540 km² of shallow water heavily influenced by the Shatt-al-Arab outflow



Table 62.1 Notes on the ichthyofaunal diversity of Iraq

Taxa	Remarks	Source
Marine and freshwater fishes	A thorough quantitative account of the ichthyology of Iraq, from Heckel (1843) to Sultan and Hassan (2009)	Jawad (2012)
Marine and freshwater fishes	First monograph on the fishes of Iraq	Khalaf (1962)
Marine and freshwater fishes	Fishes of the Tigris-Euphrates Basin, consisting of at least 58 freshwater and 53 marine species	Coad (1991)
Freshwater fishes	65 ^a species recorded, based on literature published until early 2018.	FishBase (February 2018; www.fishbase.org)
Marine and brackish water fishes	269 ^a species recorded, based on the literature published until early 2018.	FishBase (February 2018; www.fishbase.org)

^aThe numbers of fish Iraqi fish species in FishBase add up to only 331, as some species occur in marine, brackish- and freshwater

different times and for different reasons (Jawad 2003; Al-Yamani et al. 2007). Although the initial draining of the central marshes was intended for land reclamation for agricultural purposes, it later became a political attempt to force the ‘Marsh Arabs’ (i.e. the Ma’dan people) out of the area through water diversions. The marshes, which have been reduced in extent by over 90%, have long been considered as a refuge for people persecuted by the government at that time. Not surprisingly, millions of fish and waterfowl died as the waters receded (North 1994).

In addition, damming naturally flowing rivers reduced freshwater discharge into the sea, leading to reduced nutrient input to coastal waters, which consequently diminished plankton productivity, and in turn, fish landings (Al-Yamani et al. 2007). The damming also increased the salinity of the northwestern Gulf, raising concerns about jellyfish outbreaks and changes in plankton (and hence fish) community density and distribution (Al-Yamani et al. 2007).

Major wars have greatly shaped the country's marine fisheries. The Iran-Iraq War, which lasted from 1980 to 1988, led to decreased marine fisheries catch, though the lack of detailed records precludes detailed inferences (Ali et al. 2000). In addition, the first Gulf War in 1991 led to sanctions by the United Nations which implied that areas in the Northern Persian Gulf traditionally exploited by Iraqi fishers could no longer be accessed. This, combined with other factors (general insecurity and perhaps oil pollution; Linden et al. 2004), meant that Iraq's catches dropped to near zero in 1991 and 1992.

A previously completed historical catch reconstruction of the Iraqi marine fisheries for 1950–2015 completed by Khalfallah (2020) is summarized here. This summary illustrates the need to establish management infrastructure for fisheries monitoring and regulation enforcement, especially in light of the many marine and estuarine fish populations that are shared with other Persian Gulf countries.

62.1 The Large-Scale Marine Fisheries of Iraq

Information on the marine Iraqi large-scale fishery is sparse; however, an account on the introduction of the trawl fishery in what is now the Iraqi EEZ is available. As a national initiative to develop the fishing industry, authorities introduced an experimental and exploratory trawler '*Zubeidi*' in what is now the Iraqi EEZ. This initiative, however, did not meet expectations leading to a cessation of the trawling experiments in 1952 (Amodeo 1956). In his 'Report to the Government of Iraq' on Iraqi fisheries in the 1960s, Andersskog (1966) did not mention any trawlers or trawl nets. During the 1970s, small Iraqi trawlers began to be deployed (Ali et al. 2000; Mohamed et al. 2002b; Jawad 2012). This trawl fishery was government-owned and was privatized only in the early 1990s (Ali et al. 1998; Mohamed et al. 2002b). National laws and regulations of the marine fishing industry were improved in 1976 (Al-Assadi and Al-Matouri 2014). In the late 1980s, Iraq initiated a war against Iran, and marine fisheries ceased operation for almost 8 years (Ali et al. 2000; Mohamed et al. 2002b; Mohamed and Qasim 2014). Following the first Gulf War in the early 1990s, the United Nations imposed sanctions on Iraq which lasted until early 2000s. This, however, played a role in the increase of the marine fishing activities (Mohamed 1993; Mohamed and Qasim 2014). Fishing, however, stopped again for almost a year in 2003 due to the US-led coalition invasion of Iraq that same year (Nasir and Khalid 2013). The period following the US forces withdrawal from the Iraqi territories in 2011 was marked by violence and instability.

The annual catches by Iraqi trawlers were estimated by Khalfallah (2020) using a variety of sources and estimates of the CPUE or catch/effort of different classes of trawlers, whose numbers were provided by Mohamed et al. (2002a), Mohamed et al. (2002b) and Ali et al. (1998). According to Khalfallah et al. (2019), reported large-scale catches represented 6% of total reconstructed catches, while the unreported catches of this sector represented 35%. Industrial marine fisheries catches started with an average of 700 t·year⁻¹ in the 1970s and increased to around 8000 t·year⁻¹ between 2010 and 2015. Catches have, however, dropped to merely 100 t·year⁻¹ during the 1980s then increased to almost 9900 t·year⁻¹ and 12,600 t·year⁻¹ during the 1990s and 2000s, respectively. Hilsa shads and greenback mullet (*Planiliza subviridis*) made up most of the catch by the industrial Iraqi marine fishery over the past 65 years (1950–2015). Catches of hilsa shads have dropped drastically in the past decade, while industrial landings of the low-value Klunzinger's ponyfish (*Equulites klunzingeri*) increased tremendously since the early 2000s (20% of total industrial catch in 2015).

62.2 The Small-Scale Marine Fisheries of Iraq

During the 1950s, the artisanal Iraqi fishery consisted mainly of few dozen boats, deploying various traps (Amodeo 1956). To improve fish yield, the FAO introduced Iraqi fishers to the use of hooks and lines, and floating lines (Amodeo 1956). Since then, the small-scale fishery has not developed much. It still consists mainly of wooden launches and small boats deploying traps, gillnets, and hooks and lines (Mohamed et al. 2002a; Mohamed et al. 2002b; Al-Assadi and Al-Matouri 2014). Al-Abdulrazzak and Pauly (2014) did not detect any weirs ('hadra') from Google Earth maps of the Iraqi coast, although such traps were detected in neighbouring Kuwait and Iran.

Khalfallah (2020) estimated marine landings to be about 41% and 6% for reported and unreported artisanal commercial fisheries, respectively. Reported and unreported commercial small-scale landings increased from about 1000 t·year⁻¹ in the 1950s to around 7700 t·year⁻¹ in the 1970s. Following a drastic drop in the 1980s, i.e. 1900 t·year⁻¹, artisanal landings increased to just over 7000 t·year⁻¹ in the 1990s and 8800 t·year⁻¹ in the 2000s. Between 2010 and 2015, artisanal landings were about 5700 t·year⁻¹. Hilsa shads were the most caught by the artisanal fishery but their landing had decreased dramatically by 2015.

As it appears unlikely that any marine recreational fishing occurs in Iraq (Morgan 2006), the only other subsector of the small-scale fishery is the subsistence fishery. Subsistence fishing is the activity performed by people who gather fish and invertebrates for their personal and family consumption. Khalfallah (2020) estimated subsistence catches to be 3% of total reconstructed catches, increasing from an average of 200 t·year⁻¹ in the 1950s and 1960s to almost 500 t·year⁻¹ between 2000 and 2015. In the 1980s, subsistence catches decreased considerably to 65 t·year⁻¹ due to the Iran-Iraq war.

62.3 Discarded Catch

There is almost no information on discards in the Iraqi marine waters despite some attempts to estimate the Iraqi marine fisheries bycatch (Mohamed 1993; Mohamed et al. 2002a). In many studies, ‘bycatch’ is frequently (and erroneously) used as a synonym for discards. At other times, ‘bycatch’ includes both discards and what is referred to as ‘non-commercial species’. This category refers to the catch destined for fishmeal production. In the study completed by Khalfallah (2020), the term bycatch was not considered as a fishery component. Instead, landed by-catch was considered commercial if sold and subsistence if used for personal consumption. Only rejected by-catch was classified in the ‘discards’ category.

Discards by the artisanal fishery were usually small, primarily due to the fact that for religious reasons most of the population around the Iraqi coast does not consume fishes without visible scales, e.g. sea catfish of the Ariidae family (Ye et al. 2000; Jawad 2006). According to Khalfallah (2020), total discards increased from around 65 t·year⁻¹ in the 1950s and 1960s to almost 400 t·year⁻¹ in the 1970s. This is likely a direct consequence of the introduction of the trawl fishery in the Iraqi fishery. Discards were estimated at around 8500 t·year⁻¹ between 2010 and 2015.

62.4 Discussion

This chapter summarizes the results of the historical catch reconstruction completed by Khalfallah (2020) for Iraq for 1950–2015. Despite being based on far more sources than the preliminary study of Al-Abdulrazzak and Pauly (2013), the resulting catch time series presented here as Fig. 62.2 is still tentative, as nothing can fully replace a non-existent catch monitoring programme. This also applies to the catch composition data in Fig. 62.3.

However, clear messages appear from these two figures. One, very obvious, is that wars are generally good for fish (as they were in the North Sea during two World Wars; see Beverton and Holt 1957), because fishing cannot proceed, and fishing kills fish.

The other clear message is that the anadromous hilsa, which made up most of the marine catch of Iraq (Al-Dubakel 2011) and is also important in neighbouring Iran (Hashemi et al. 2010), has now severely declined, in both relative (i.e. as component of total catch) and absolute term. This is probably due to the water quality in the Shatt-al-Arab and to its low quantity. For information on this, see Jawad (2003); Salman et al. (2009); Al-Said et al. (2017); Ben-Hasan et al. (2018).

Needless to say, both of these items require attention and could be remedied by good applied science and resource management.

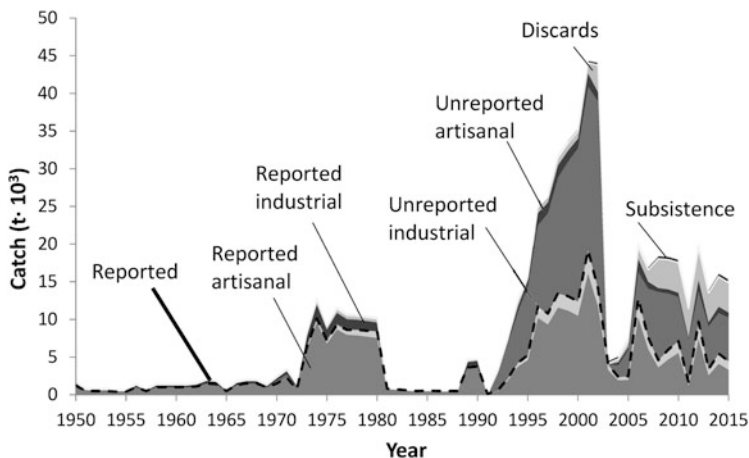


Fig. 62.2 Time series of the marine and diadromous catch of Iraq, 1950 to 2015, distinguishing industrial and artisanal landings, along with (mainly industrial) discards and subsistence catch. The black dotted line refers to the catch level reported by Iraq to the FAO (Khalfallah 2020)

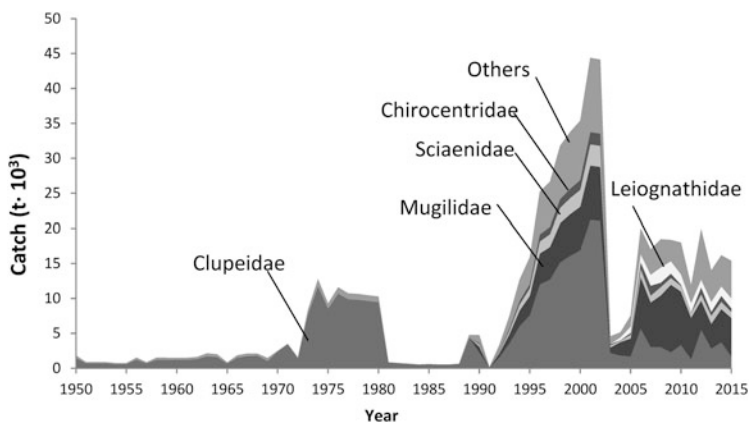


Fig. 62.3 Time series of the marine and diadromous catch of Iraq, 1950–2015, by taxa. Note the diminishing importance of Clupeidae mainly comprising hilsa (*Tenualosa ilisha*) both in absolute and relative terms (see www.seaaroundus.org for catch by taxon and by fishery sector) (Khalfallah et al. 2019)

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