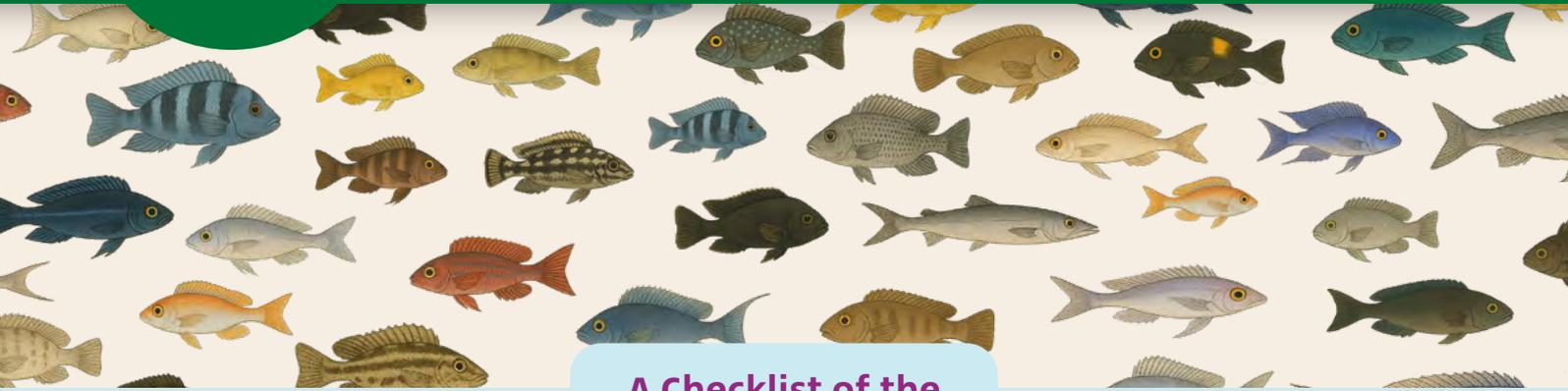




החי והצומח של ארץ ישראל וסביבותיה

Fauna and Flora of Israel and Adjacent Regions



A Checklist of the

Freshwater Fishes of Israel (Natives and Aliens)

August 25, 2025

Menachem Goren

The Steinhardt Museum of Natural History and the School of Zoology, Tel Aviv University, Israel.

E-mail: gorenm@tauex.tau.ac.il

Introduction

Citation: Goren, M., 2025. Checklist of the freshwater fishes of Israel (natives and aliens). Fauna and Flora of Israel and Adjacent Regions, The Israel Academy of Sciences and Humanities. Jerusalem. DOI: <https://doi.org/10.52873/FFchecklist.2025.FreshwaterFishes>

Israel serves as a continental bridge between Africa and Eurasia, adjacent to southeastern Europe. Consequently, its inland water systems are inhabited by fish that come from various origins, including Africa, Asia Minor (Mesopotamia), the Arabian Peninsula, and possibly the Horn of Africa, as well as from the Red Sea (Goren, 2004).

The inland water systems have undergone significant changes due to tectonic and eustatic shifts. Rivers have altered their courses, establishing new water links between them. Species of various origins have either expanded their distribution or been displaced by new invaders (Goren, 2004). Eustatic changes in the Mediterranean Sea's water level have created some water connections between Africa and Israel, but also diminished others. These eustatic changes have done the same among various water systems within Israel and neighboring countries (Por, 1978; Horowitz, 1982).

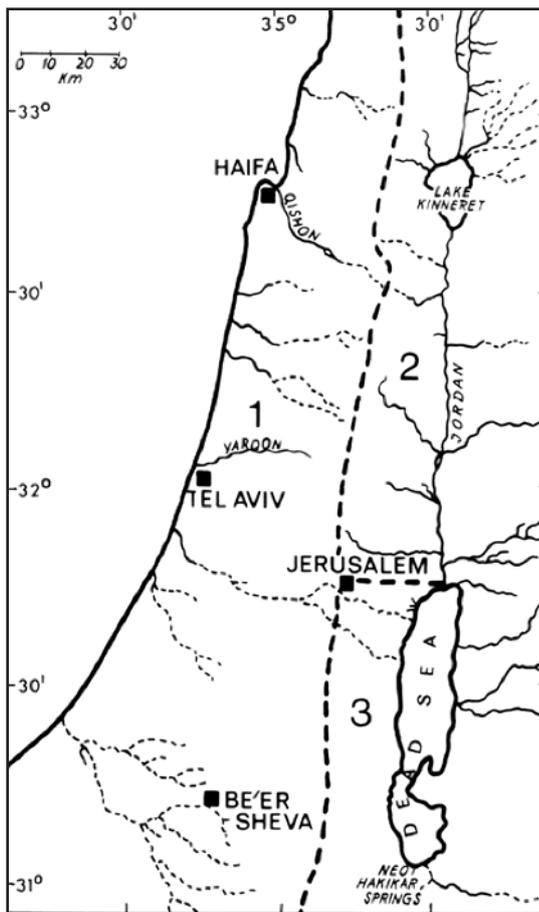


Figure 1. The water network and the three major riverine basins.

70m above sea level. This shallow lake was surrounded by swamps, but it was drained in the early 1950s as part of water-system regulation in the Hula Valley. The second lake is Lake Kinneret (Lower Galilee Region), located around 210 m below sea level. Covering approximately 160 km². It serves as Israel's main open-water reservoir and supplies water to the Jordanian Kingdom. The third system, the Dead Sea system, comprises small, shallow springs isolated from each other by the Dead Sea (Goren and Ortal, 1999).

Research on the freshwater fishes of the Holy Land has a long history. Swedish naturalist Federich Hasselquists conducted pioneering studies during his travels in the Middle East between 1749 and 1752. His findings, posthumously published in 1757 by Carl Linnaeus in a book titled *Iter Palaestinum* (The Journey in the Holy Land), include mention of three species: *Cbarmuth* (*Silurus*) *Bónni* (*Mugil*), och en *Sparus* (*galilaeus*). He referred to *Clarias gariepinus*, *Mugil* sp., and *Sarotherodon galilaeus* respectively. About a century later, reports and descriptions of more fish species were published by Heckel (1843, 1847), Günther (1864), and others. Among these, Lortet's (1883) work stands out for its comprehensive list of 40 fish species from Lake Kinneret and a few other localities (26 of which are considered valid species today). Tristram (1884) also contributed significantly with his publication *The Survey of Western Palestine - The Fauna and Flora of Palestine*, listing 34 species (25 valid). Throughout the 20th century, research on ichthyodiversity and various aspects of fish

The present inland water system of Israel consists of three major riverine components: 1) the coastal system, 2) the Jordan Valley system (=Western Jordan River Basin), and 3) the Dead Sea Valley system (see Figure 1; Goren and Ortal, 1999).

The coastal system comprises rivers flowing in an east-west direction, emptying into the Mediterranean Sea. The upper reaches of these rivers are mountainous, characterized by shallow water and rocky beds, while the western portions are deeper (1-3m) with soft bottoms. Each basin is isolated from its neighboring systems.

The Jordan River flows north-south with its main tributaries being the Dan River, the Hermon River (Banias), and the Senir River (Hazbani).

The Jordan River empties into the Dead Sea at approximately 400 m below global sea level. Numerous tributaries on its west and east sides contribute significant amounts of water. Two lakes interrupt its flow. The upper one was Lake Hula (Upper Galilee Region), situated approximately



biology accelerated, leading to numerous publications. The most notable are the works of Pellegrin (1911, 1923), Annandale (1915), Vinciguerra (1926), Bodenheimer (1935), Washbourn (in Washbourn and Jones, 1938), Tortonese (1938), Trewavas (1942), Steinitz (1953), Ben Tuvia (1959, 1978), Goren (1974, 1983) and Goren and Ortal (1999). More recent contributions include those of Tadmor et al. (2022, 2023) and Çiçek (2023).

Since the 1920s, alien fish species have appeared in Israel's natural habitats. The American mosquitofish (*Gambusia holbrooki*), introduced to control the population of the malaria vector, the mosquito *Anopheles* (Ben Tuvia, 1981), and quickly spread throughout the country. The common carp (*Cyprinus carpio*) was introduced in the 1930s as a pond fish to enhance aquaculture (Hornell, 1935). Another species, the rainbow trout (*Oncorhynchus mykiss* [formerly *Salmo gairdneri*]), was introduced to several rivers but did not successfully reproduce there (Hornell, 1935). Since the latter half of the 20th century, many alien species have been reported in natural water bodies, some introduced for aquaculture purposes, while others escaped from aquaria. Some alien species have established populations in natural habitats, while others likely did not survive. The ichthyodiversity of alien fish species has been studied by several scientists, who published various sporadic publications on the presence of these species in natural environments: Ben-Tuvia (1981), Golani and Mires (2000), Golani et al. (2022), Goren and Ortal (1999), Goren and Galil (2005), and Roll et al. (2007).

The current checklist includes 78 fish species, with 37 being native and 41 classified as aliens. Alien species are included in this checklist if there is a reliable report or record of their presence in the natural environment (e.g. a museum specimen or photograph). Species that are stocked in fishponds but have not been recorded in natural habitats are excluded from the main list and are noted separately.

Seven of the native species are catadromous: spawning in the sea, migrating to freshwater rivers to feed and grow, and then returning to the sea to breed (six Mulletts and *Anguilla*). Four native species – *Mirogrex hulensis*, *Tristramella magdalanae*, *Tristramella sacra*, and *Nun galilaeus* – are extinct in Israel.

Among the native species, the families Cichlidae is represented by seven species; Cyprinidae, Leuciscidae, Mugilidae and Nemacheilidae by six species each; Aphaniidae by three species; and Blenniidae, Anguillidae, and Clariidae by one species each. Among the alien species, Cichlidae is represented by eight species; Xenocyprididae by five species; Poeciliidae and Salmonidae by four species each; Cyprinidae by three species; Acipenseridae, Serrasalminidae and Loricariidae by two species each; and all other eleven families, by one species each.

The biogeographical origins of the native species are traced to six different regions while the alien species come from fifteen distinct regions (see Table 1). The classification of the biogeographical origin of native species follows Goren and Ortal (1999), and the alien from Fricke et al. (2024). The checklist includes publications relevant to understanding species biodiversity and taxonomy. Taxonomic information in the checklist, including type species (for genera) and type localities, follows *Eschmeyer's Catalog of Fishes* (Fricke et al., 2024).



Native species	Number of species
Africa	8
Central America (Sargasso Sea)	1
Europe, Asia	6
Mediterranean	7
Red Sea	1
South West Asia	14
Total natives	37
Africa	6
Australia	1
Central America	2
Central Asia	1
East Asia	7
Europe	2
Europe, Asia	2
Mediterranean	2
North America	5
North Atlantic, Europe and America	1
North Pacific	2
Red Sea	1
South America	7
South Asia	1
West Atlantic	1
Total aliens	41
Total species	78

Table 1. The origin of the native and alien species

Feeding habits and breeding season

The data on fish diets and spawning seasons were primarily obtained from the author's records, with additional information compiled from published sources: Aidilin (1996), Balshine-Earn (1996), Balshine-Earn and Earn (1998), Ben Tuvia (1959), Bogard (1961), Clay and Clay (1981a, b), Gafny et al. (1992), Gophen (1986, 1987, 1992), Gophen and Landau (1977), Gophen and Pollinger (1985), Goren, (1983), Gueta (2005), Komarovskiy (1952), Ostrovsky et al. (2014), Sparatu (1976, 1978), Sparatu and Gophen (1985a, b, c, d, 1986a, b, 1987a, b), Sparatu et al. (1987), Sparatu and Zoren (1978), and Voskoboynik (1996).

Distribution

The distribution patterns of various species were determined by analysis of over 3,500 cataloged specimens housed in the fish collections of the Steinhardt Museum of Natural History at Tel Aviv University (SMNH) and of the Hebrew University of Jerusalem (HUJI). Additional data was obtained from inland water surveys and studies conducted by the author and his students in the Ichthyology Laboratory (Tel Aviv University). Other sources include peer-reviewed literature, student theses, and unpublished data gathered by the author over more than 50 years of fieldwork. In the current checklist, the lists of synonyms are restricted to those associated with fish found in Israel.



Native species

Family Anguillidae Rafinesque 1810

Anguilla Schrank 1798: 304, 307. Type species: *Muraena anguilla* Linnaeus 1758.

Anguilla anguilla (Linnaeus 1758:245). Type locality: Europe.

Synonyms: *Muraena Anguilla*; *Anguilla vulgaris*.

Verified past distribution: All coastal rivers. Introduced to Lake Kinneret and Dan River (Goren and Ortal, 1999; Goren, 2013).

Spawning season: Catadromous fish (migrate from fresh water into the sea to spawn [probably in the Sargasso Sea]).

Diet: Carnivores species, feeds mainly on aquatic invertebrates and fish.

Biogeographic origin of the species: Probably the Sargasso Sea (Central America).

Family Aphaniidae Hoedeman 1949

Aphaniops Hoedeman 1951:2. Type species: *Lebias dispar* Rüppell 1829.

Aphaniops richardsoni (Boulenger 1907:412). Type locality: Usdum (Dead Sea Valley).

Synonyms: *Cyprinodon richardsoni*; *Aphanius dispar richardsoni*; *Cyprinodon dispar* (non Rüppell 1829).

Verified past distribution: Springs around the Dead Sea (Goren, 1974). Endemic to springs around the Dea Sea.

Note: In the Ein Feshkha oasis, the two species *Aphaniops richardsoni* and *Paraphanius mento* are occasionally found together in small ponds temporarily isolated from the main water system. To investigate the possibility of hybrids, laboratory experiments were conducted to simulate these natural conditions. Under these controlled conditions, the two species interbred and produced viable offspring (Goren and Rychwalski, 1978). However, such hybrids have not been observed in Ein Feshkha.

Spawning season: March – September.

Diet: Omnivores species, feeds mainly aquatic invertebrates and algae.

Biogeographic origin of the species: Red Sea.

Paraphanius Esmaeili et al. 2020:12. Type species: *Lebias mento* Heckel 1843.

Paraphanius mento (Heckel 1843:1089). Type locality: Mossul (northern Iraq).

Synonyms: *Lebias mento*; *Lebias cypris*; *Cyprinodon mento*; *Aphanius mento*; *Cyprinodon cypris*; *Aphanius cypris*.

Verified past distribution: Jordan Valley system (including Lake Kinneret) and Einot Tzukim (Ein Feshkha, springs empty into the north-west Dead Sea) (Goren, 1974).

Spawning season: March – August.

Diet: Omnivores species, feeds mainly aquatic invertebrates and algae.

Biogeographic origin of the species: South-West Asia.



Paraphanius striptus (Goren 1974:99). Type locality: Nahal Tanninim (Israel).

Synonyms: *Aphanius mento striptus*; *Cyprinodon sophiae* (non Heckel, 1847); *Aphanius cypris-sophiae*.

Verified past distribution: Coastal system (Taninim R., Yarqon R.), Beit She'an Valley and Einot Tzukim (Ein Feshkha, springs near the north-west Dead Sea) (Goren, 1974).

Spawning season: March to August.

Diet: Omnivores species, feeds mainly aquatic invertebrates and algae.

Biogeographic origin of the species: South-West Asia.

Family Blenniidae Rafinesque 1810

Salariopsis Vecchioni et al. 2022:7. Type species: *Blennius fluviatilis* Asso 1801.

Salariopsis burcuae Yoğurtçuoğlu, Kaya, Atalay, Ekmekçi and Freyhof 2023:90. Type locality: Körkün River (Turkey).

Synonyms: *Blennius fluviatilis* (non Asso 1801); *Salaria fluviatilis*; *Blennius lupulus*; *Blennius varus*; *Blennius vulgaris*.

Verified past distribution: Lake Kinneret (including the mouth of rivers that empty into the lake), Beit Netofa reservoir (Goren, 1974; SMNH).

Spawning season: March – July.

Diet: Omnivores species, feeds mainly aquatic invertebrates and tiny fish.

Biogeographic origin of the species: Mediterranean.

Family Cichlidae Bonaparte 1835

Astatotilapia Pellegrin 1904:164. Type species: *Sparus desfontainii* Lacepède 1802.

Astatotilapia flaviijosephi (Lortet 1883:141). Type locality: Lake Kinneret (Israel).

Endemic species.

Synonyms: *Chromis flavii-josephi*; *Tilapia flavii-josephi*; *Haplochromis flavii-josephi*; *Tilapia flaviijosephi*.

Verified past distribution: Upper Galilee (Ein Teo); Lake Kinneret and mouth of adjacent rivers; Beit She'an and Izrael valleys (rivers and ponds); Central Jordan Valley network (Patsael Spring – עין פצאל) (SMNH). Endemic to Jordan River Basin.

Spawning season: March – August (fluctuate with water temperature). Female mouthbreeder.

Diet: Omnivores species, feeds mainly on snails and aquatic insects.

Biogeographic origin of the species: Africa.

Coptodon Gervais 1853:8. Type species: *Acerina zillii* Gervais 1848.

Coptodon zillii (Gervais 1848:203). Type locality: Artesian well, Tuggurth (Algeria).

Synonyms: *Acerina zillii*; *Tilapia zillii*; *Chromis andreae*.



Verified past distribution: Entire coastal system, entire Jordan River system, Einot Tzukim (Ein Feshkha) (Goren, 1974, 1983). Recently found in southern springs of the Dead Sea as an aquaculture escapee (Szitenberg et al., 2012).

Spawning season: April – September.

Diet: Omnivorous fish, consumes Aquatic invertebrates, fish and aquatic plants.

Biogeographic origin of the species: Africa.



Coptodon zillii nesting (Photo: Amikam Shoob)

Oreochromis Günther 1889:70. Type species: *Oreochromis hunteri* Günther 1889.

Oreochromis aureus (Stiendachner 1864:229). Type locality: West Africa

Synonyms: *Chromis aurea*; *Tilapia aurea*; *Sarotherodon aureus*; *Chromis niloticus* (non *Perca nilotica* Linnaeus, 1758); *Tilapia nilotica*; *Tilapia nilotica exul*.

Verified past distribution: Entire Jordan River system, Einot Tzukim (Ein Feshkha), and entire coastal system (Goren, 1974, 1983; SMNH).

Remark: Steinitz (1951a, 1951b) considered the population of Ein Feshkha as a distinct subspecies, stating that it was “subspecifically different from the typical form found everywhere in the Jordan Valley, and is therefore described as a new subspecies, *T. nilotica exul*.” He described the coloration of this subspecies as having “extensive, more or less bright red areas on the breast.” However, we observed many *O. aureus* nesting in Ein Feshkha without any reddish markings on their breasts. Since Steinitz (1951b) was not aware of the presence of *Coptodon zillii*, the most common cichlid in Ein Feshkha, and given our observation of nesting *O. aureus* lacking any reddish coloration on the breast, we suggest that Steinitz’s description of the color pattern may be inaccurate. Trewavas (1965), who compared specimens from the Jordan Valley and Ein Feshkha, doubted the uniqueness of *exul*’s meristic features. It seems that only a genomic study can confirm the validity of this subspecies.

Spawning season: March – August. Female mouthbreeder.

Diet: Zooplankton, benthic invertebrates.

Biogeographic origin of the species: Africa.

Sarotherodon Rüppell 1852:21. Type species: *Sarotherodon melanotheron* Rüppell 1852.

Sarotherodon galilaeus (Linnaeus 1758:228). Type locality: Lake Kinneret (Israel).

Synonyms: *Sparus galilaeus*; *Chromis galilaeus*; *Tilapia galilaea*; *Chromis tiberiadis*; *Tilapia tiberiadis*; *Chromis microstomus*; *Tilapia microstoma*.

Verified past distribution: Entire Jordan River system, Einot Tzukim (Ein Feshkha), and entire coastal system (Goren, 1974, 1983; SMNH).

Spawning season: March – August. Biparental mouthbreeder.

Diet: Zooplankton and large planktonic algae, mostly *Peridinium*.

Biogeographic origin of the species: Africa.



Tristramella Trewavas 1942:532. Type species: *Hemichromis sacra* Günther 1864.

Tristramella magdalenae (Lortet 1883:146). Type locality: Lake Hula (Israel).

Remark: The status of this species remains uncertain. Trewavas (1942) noted that specimens from Lake Hula share more characteristics with *T. magdalenae* from the Damascus area than with *T. simonis* specimens from Lake Kinneret, the type locality of the latter. Steinitz (1953) acknowledged the existence of this taxon, naming it *T. simonis intermedia*. He mentioned that “the description of this subspecies by Ben-Tuvia and Steinitz is due to appear soon.” In 1960, Steinitz and Ben-Tuvia compared specimens from both locations and found significant differences between *T. simonis* from Lake Kinneret and those from Lake Hula. Consequently, they assigned the Lake Hula specimens to a new subspecies. However, since Lortet (1883) had previously listed Lake Hula as the original type locality for *Cromis magdalenae*, I assign the specimens from Hula Valley to that species.

Synonyms: *Chromis magdalenae*; *Tristramella intermaedia*; *Tristramella simonis intermedia*; *Tilapia Magdallena*.

Verified past distribution: Lake Hula (SMNH).

Present status: Extinct species.

Spawning season: April – August. Mouthbreeder.

Diet: Zooplankton and benthic invertebrates.

Biogeographic origin of the species: Africa.

Tristramella sacra (Günther 1864:493). Type locality: Lake Kinneret (Israel).

Synonyms: *Hemichromis sacra*; *Hemichromis sacer*; *Chromis paterfamilias*; *Paratilapia sacra*.

Remark: Extinct species (Goren, 2004).

Verified past distribution: Lake Kinneret (including the mouth of rivers that empty into the lake) (Goren, 1974, 1983; SMNH). Endemic to Lake Kinneret.

Present status: Probably extinct species.

Spawning season: April – August. Female mouthbreeder.

Diet: Fish, crustaceans, and aquatic insects.

Biogeographic origin of the species: Africa.

Tristramella simonis (Günther 1864:492). Type locality: Lake Kinneret (Israel).

Synonyms: *Chromis simonis*; *Tilapia simonis*.

Verified past distribution: Lake Kinneret (including the mouth of rivers that empty into the lake). A single record from Nir David (Beit She’an Valley) (Goren, 1974, 1983; SMNH).

Spawning season: April – August. Female mouthbreeder.

Diet: Plankton, benthic plants, invertebrates, zooplankton, and small fish.

Biogeographic origin of the species: Africa.



Family Clariidae Bonaparte 1845

Clarias Scopoli 1777:455. Type species: *Silurus anguillaris* Linnaeus 1758.

Clarias gariepinus (Burchell 1822:425). Type locality: Orange River (South Africa).

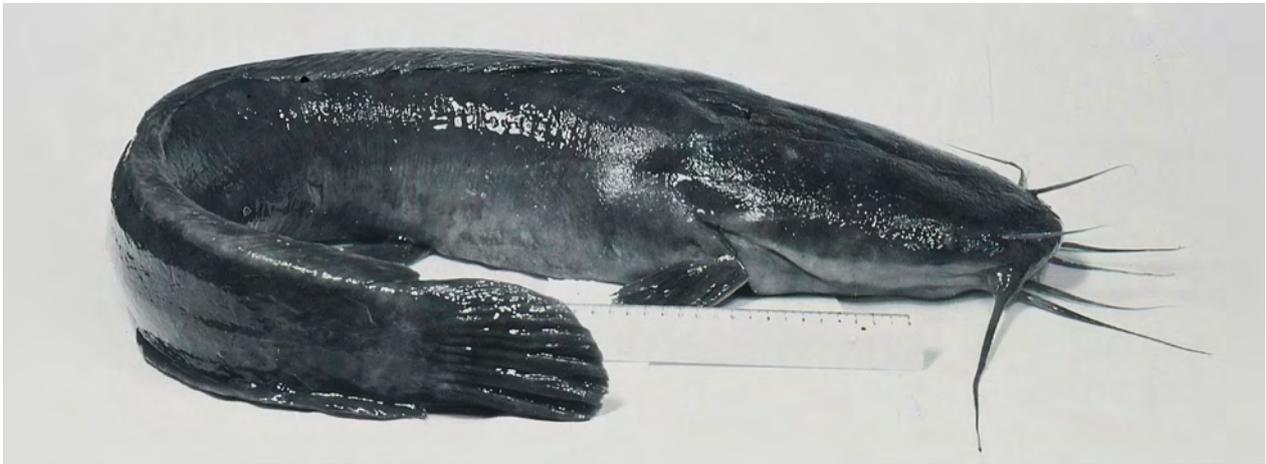
Synonyms: *Silurus (Heterobranchus) gariepinus*; *Clarias macracanthus*; *Clarias lazera*.

Verified past distribution: Entire Jordan River system and entire coastal system (Goren, 1974, 1983).

Spawning season: April – June.

Diet: Carnivorous species – primarily feed on aquatic invertebrates and fish. Occasionally, the fish prey on birds and consume plant material.

Biogeographic origin of the species: Africa.



Clarias gariepinus (Photo: Amikam Shoob)

Family Cyprinidae Rafinesque 1815

Capoeta Valenciennes 1842:278 (in Cuvier and Valenciennes, 1842). Type species: *Cyprinus capoeta* Gldenstdt 1773.

Capoeta damascina (Valenciennes 1842:314 [in Cuvier and Valenciennes, 1842]). Type locality: Damascus (Syria).

Synonyms: *Gobio damascinus*; *Varicorhinus damascinus*; *Varicorhinus fratercula*; *Capoeta capoeta damascinus*; *Scaphiodon socialis*; *Varicorhinus socialis*; *Capoeta socialis*; *Capoeta syriaca*; *Scaphiodon capoeta* (non Gldenstdt 1773).

Verified past distribution: Entire Jordan River system, Golan Heights, central and northern coastal systems (Tananim R, Qishon R., and Kziv R.) (Goren 1974; SMNH).

Spawning season: December – February. The fish migrate upstream for breeding.

Diet: Herbivorous species, primarily feeding on algae. Occasionally, aquatic invertebrates are found in the fishes' intestines.

Biogeographic origin of the species: South-West Asia.



Hybrids of *Capoeta damascina* and *Luciobarbus longiceps*, Steinitz and Ben-Tuvia, 1957; Stoumboudi et al., 1992; Stoumboudi and Abraham, 1996.

Carasobarbus Karaman 1971:230. Type species: *Systemus luteus* Heckel 1843: 1061.

Carasobarbus canis (Valenciennes 1842:186 [in Cuvier and Valenciennes, 1842]). Type locality: Jordan River.

Synonyms: *Barbus canis*; *Luciobarbus canis*; *Barbus caninus*; *Barbus beddomii*; *Barbus Continii*. The status of *B. Continii* is not clear. Its original description is based on a single specimen that resembles *C. canis* and thus is included here as a junior synonym.

Verified past distribution: Entire Jordan River system (Goren 1974; SMNH).

Spawning season: April – August.

Diet: Aquatic insects and algae. Occasionally small fish.

Biogeographic origin of the species: South-West Asia.

Garra Hamilton 1822:343. Type species: *Cyprinus (Garra) lamta* Hamilton 1822:343.

Garra ghorensis Krupp 1982:319; Type locality: Ain al-Hadita, Dead Sea Valley (Jordan).

Synonyms: *Garra tibatica ghorensis*; *Garra sedomitica*.

Verified past distribution: Springs at southern Dead Sea Valley (Neot Hakikar)

Spawning season: No data.

Diet: Mainly Algae, occasionally benthic invertebrates.

Biogeographic origin of the species: South-West Asia.

Garra jordanica Hamidan, Geiger, and Freyhof 2014:227. Type locality: Mujib River (Jordan).

Synonyms: *Garra rufus*; *Garra rufa*; *Discognathus lamta* (non *G. lamta* Hamilton 1822).

Verified past distribution: Entire Jordan River system, Taninim and Qishon Rivers (Central coastal system) and probably in Kziv R. (Northern coastal system, based on a picture of the fish in the water) (Goren, 1983; Goren and Ortal, 1999; SMNH).

Spawning season: February – September.

Diet: Algae and occasionally aquatic invertebrates.

Biogeographic origin of the species: South-West Asia.

Garra sauvagei (Lortet 1883:154). Type locality: Lake Kinneret (Israel).

Synonyms: *Tylognathus nanus* (non *T. nanus* Heckel 1843); *Hemigrammocapoeta nanus*; *Hemigrammocapoeta nana*; *Hemigrammocapoeta nana nanus*; *Tylognathus steinitziorum*; *Garra nana*; *Varicorhinus sauvagei*.

Verified past distribution: Entire Jordan River system, Upper Qishon River (Coastal system) (Goren, 1974).

Spawning season: November – March.

Diet: Zoobenthos and algae.

Biogeographic origin of the species: South-West Asia.



Luciobarbus Heckel 1843:1019, Type species: *Luciobarbus esocinus* Heckel 1843:1054.

Luciobarbus longiceps (Valenciennes 1842:179 [in Cuvier and Valenciennes, 1842]). Type locality: Jordan River.

Synonyms: *Barbus longiceps*; *Barbus longiceps longiceps*.

Verified past distribution: Entire Jordan River system (Goren, 1974; SMNH)

Spawning season: November – March.

Diet: Zoobenthos, small fish.

Biogeographic origin of the species: South-West Asia.

Family Leuciscidae Bonaparte 1835

Acanthobrama Heckel 1843:1033. Type species *Acanthobrama marmid* Heckel 1843:1075.

Acanthobrama lissneri Tortonese 1952:271. Type locality: Lake Kinneret (Israel).

Synonyms: *Alburnus sellal* (part. non *A. sellal* Heckel 1843); *Acanthobrama tricolor* (non Lortet 1883); *Rutilus tricolor*; *Acanthobrama terrae-sanctae oligolepis*.

Verified past distribution: Entire Jordan River system (Goren, 1974; SMNH; HUJI).

Spawning season: December – February.

Diet: Zoobenthos and algae.

Biogeographic origin of the species: South-West Asia.

Acanthobrama telavivensis Goren, Fishelson, and Trewavas 1973:304. Type locality: Rosh Ha'Ayin (Yarkon springs, Israel).

Synonyms: *Rutilus tricolor* (non *Leuciscus tricolor* Lortet, 1883); *Acanthobrama terrae-sanctae* (non *A. terrae-sanctae* Steinitz 1952).

Remark: This species, endemic to the coastal rivers of Israel, became extinct in the wild between 1999 and 2000 due to extreme droughts. A small breeding population, preserved at Tel Aviv University's zoo, served as the source for its reintroduction into the coastal rivers (Goren, 2009).

Verified past distribution: Entire Coastal system (Goren, 1974; SMNH).

Spawning season: December – March.

Diet: Zoobenthos and algae.

Biogeographic origin of the species: South-West Asia.

Mirogrex Goren, Fishelson, and Trewavas 1973:306. Type species: *Acanthobrama terraesanctae* Steinitz 1952.

Mirogrex hulensis Goren, Fishelson, and Trewavas 1973:310. Type locality: Lake Hula (Israel).

Synonyms: *Mirogrex terraesanctae hulensis*; *Acanthobrama hulensis*; *Alburnus sellal* (non *A. sellal* Heckel 1843).

Remark: Extinct species (Goren, 2004).

Verified past distribution: Former Lake Hula and Hula reserve (Goren, 1973; SMNH).

Present status: Extinct species.



Spawning season: December – February.

Diet: Zoobenthos.

Biogeographic origin of the species: South-West Asia.

Mirogrex terraesanctae (Steinitz 1952:295). Type locality: Lake Kinneret (Israel).

Synonyms: *Acanthobrama terrae-sanctae*; *Mirogrex terraesanctae terraesanctae*; *Alburnus sellal* (non Heckel 1843); *Acanthobrama centisquama* (non Heckel 1843).

Verified past distribution: Lake Kinneret and the mouths of rivers that empty into the lake (Goren, 1973; SMNH).

Spawning season: December – February.

Diet: Zooplankton and zoobenthos.

Biogeographic origin of the species: South-West Asia.

Pseudophoxinus Bleeker 1860:43. Type species: *Phoxinellus zeregi* Heckel 1843.

Pseudophoxinus drusensis (Pellegrin 1933:368). Type locality: Al-Mazra'a (Syria).

Synonyms: *Phoxinellus (Pararhodeus) drusensis*; *Pseudophoxinus zeregi drusensis*; *Phoxinellus zeregi syriacus*.

Verified past distribution: Golan Heights (Goren, 1972; SMNH).

Spawning season: April – June.

Diet: Zoobenthos and algae.

Biogeographic origin of the species: South-West Asia.

Pseudophoxinus galilaeus Goren and Feldstein-Farkash 2025 (In press). Type locality: Ein Einan (Hula Valley, Israel).

Synonyms: *Phoxinellus kervillei*; *Pseudophoxinus zeregi* (non Heckel 1843); *Leuciscus zeregi*.

Verified past distribution: Upper Galilee (including Lake Kinneret) (Goren, 1972; SMNH).

Spawning season: February – May.

Diet: Aquatic invertebrates and algae.

Biogeographic origin of the species: South-West Asia.



Pseudophoxinus galilaeus (Photo: Amikam Shoob)



Family Mugilidae Jarocki 1822

Chelon Artedi 1793:118 Type species: *Mugil chelo* Cuvier 1829.

Chelon auratus (Risso 1810:344). Type locality: Nice (France).

Synonyms: *Mugil auratus*; *Liza aurata*.

Verified past distribution: Estuaries of coastal rivers (Bogard, 1961; HUJI)

Spawning season: December – February.

Diet: Zoobenthos, phytobenthos, and detritus.

Biogeographic origin of the species: Mediterranean Sea.

Chelon labrosus (Risso 1827:387). Type locality: Nice (France).

Synonyms: *Mugil labrosus*.

Verified past distribution: Estuary of Dalia R. (a coastal river) (Bogard, 1961; HUJI).

Spawning season: February – April.

Diet: Zoobenthos, phytobenthos, and detritus.

Biogeographic origin of the species: Mediterranean Sea.

Chelon ramada (Risso 1827:390). Type locality: Nice (France).

Synonyms: *Mugil ramada*; *Liza ramada*; *Mugil capito*.

Verified past distribution: Estuaries of coastal rivers (Goren, 1983; SMNH).

Spawning season: November – February.

Diet: Planktonic and benthic organisms and detritus.

Biogeographic origin of the species: Mediterranean Sea.

Chelon saliens (Risso 1810:345). Type locality: Nice (France).

Synonyms: *Mugil saliens*; *Liza salines*.

Verified past distribution: Estuaries of coastal rivers (Bogard, 1961; HUJI)

Spawning season: April – June.

Diet: Benthic organisms, detritus, and zooplankton.

Biogeographic origin of the species: Mediterranean Sea.

Mugil Linnaeus 1758:316. Type species: *Mugil cephalus* Linnaeus 1758.

Mugil cephalus Linnaeus 1758:316. Type locality: Europe.

Verified past distribution: Entire coastal system (Goren, 1983; SMNH).

Spawning season: May – October.

Diet: Planktonic and benthic organisms and detritus.

Biogeographic origin of the species: Mediterranean Sea.



Oedalechilus Fowler 1903:748. Type species: *Mugil labeo* Cuvier 1829.

Oedalechilus labeo (Cuvier 1829:233). Type locality: Mediterranean Sea.

Synonyms: *Mugil labeo*.

Verified past distribution: Na'aman R. (HUJI).

Diet: Benthic organisms, detritus, and zooplankton.

Biogeographic origin of the species: Mediterranean Sea.

Family Nemacheilidae Regan 1911

Nun Bănărescu and Nalbant 1982: 23. Type species: *Cobitis galilaea* Günther 1864.

Nun galilaeus (Günther 1864:493). Type locality: Lake Hula (Israel).

Synonyms: *Cobitis galilaea*; *Nemachilus galilaus*; *Oxynoemacheilus galilaeus*.

Verified past distribution: Lake Hula (SMNH).

Present status: Extinct species.

Spawning season: March – June.

Diet: Zoobenthos.

Biogeographic origin of the species: Europe, Asia.

Oxynoemacheilus Bănărescu and Nalbant 1966:153. Type species: *Cobitis persa* Heckel 1847.

Oxynoemacheilus dori (Goren and Banarescu, 1982:12 [in Banarescu et al., 1982]). Type locality: Beit She'an valley (Israel).

Synonyms: *Orthrias dori*; *Oxynoemacheilus insignis* (non Heckel 1843), Kottelat 2012.

Verified past distribution: Beit She'an valley (SMNH).

Spawning season: March – June.

Diet: Zoobenthos.

Biogeographic origin of the species: Europe, Asia.

Oxynoemacheilus insignis (Heckel 1843:1087). Type locality: Damascus (Syria).

Synonyms: *Cobitis insignis*; *Nemachilus insignis*; *Nemacheilus insignis*; *Noemacheilus insignis tortonesei*; *Noemacheilus angorae jordanicus*; *Orthrias jordanicus*; *Nemacheilus dori* (non Goren and Bănărescu, 1982).

Verified past distribution: Entire Jordan Valley system (Gorem, 1974; SMNH).

Spawning season: March – June.

Diet: Zoobenthos.

Biogeographic origin of the species: Europe, Asia



Oxynoemacheilus insignis (Photo: Bat-Sheva Rothman)



Oxynoemacheilus israeliticus (Goren and Nalbant 1982:19 [in Banarescu et al., 1982]). Type locality: Ein Rewaia, Beit She'an valley (Israel).

Synonyms: *Orthrias israeliticus*.

Remark: The status of the species remains unclear. Its color pattern and the shape of its ossified swim bladder differ from all other *Oxynecheilus* species in Israel. However, since only three specimens were collected from its type locality (Ein Rewaia), which no longer exists, and no additional specimens have been found elsewhere, its validity remains uncertain.

Verified past distribution: Ein Rewaia (Beit She'an Valley).

Oxynecheilus leontinae (Lortet 1883:171). Type locality: Lake Kinneret (Israel).

Synonyms: *Nemachilus leontinae*; *Noemacheilus (Paracobitis) tigris* (non Heckel 1843); *Orthrias tigris*; *Oxynecheilus tigris*.

Verified past distribution: Lake Kinneret (Jordan Valley system) (SMNH)

Spawning season: March – June.

Diet: Zoobenthos.

Biogeographic origin of the species: Europe, Asia.



Oxynecheilus leontinae (Photo: Amikam Shoob)

Oxynecheilus panthera (Heckel 1843:1087). Type locality: Damascus (Syria).

Synonyms: *Cobitis panther*; *Cobitis leopardus*; *Nemachilus panthera*; *Noemacheilus panthera*; *Nemachilus panthera leopardis*; *Orthrias pantheroides*.

Verified past distribution: Upper springs and in northern Jordan system and rivers in Golan Heights (Goren, 1974; SMNH).

Spawning season: March – June.

Diet: Zoobenthos.

Biogeographic origin of the species: Europe, Asia.



Alien species

Family Acipenseridae Bonaparte 1831

Acipenser Linnaeus 1758:237. Type species: *Acipenser sturio* Linnaeus 1758.

Hybrid of *Acipenser gueldenstaedtii* Brandt and Ratzeburg 1833:13, probably with *Huso huso* (Linnaeus 1758:238) (Golani and Mires, 2000).

First record from natural environment in Israel: Lake Kinneret (Goren and Ortal, 1999).

Biogeographic origin of the species: Caspian Sea and tributaries.

Family Atherinidae Risso 1827

Basilichthys Girard 1855:198. Type species: *Basilichthys regillus* Abbott 1899.

Basilichthys bonariensis (Valenciennes 1835:469 [in Cuvier and Valenciennes, 1835]). Type locality: Río de la Plata, Montevideo (Uruguay).

First record from natural environment in Israel: Baruch Reservoir, 1967 (A tributary of Qishon R.; Ben-Tuvia, 1981).

Biogeographic origin of the species: South America.

Family Catostomidae Agassiz 1850

Ictiobus (subgenus of *Catostomus*) Rafinesque 1820:301. Type species: *Catostomus bubalus* Rafinesque 1818.

Ictiobus cyprinellus (Valenciennes 1844:477 [in Cuvier and Valenciennes, 1844]). Type locality: Lake Pontchartrain, Louisiana (USA).

First record from natural environment in Israel: Lake Kinneret, 1960 (Ben-Tuvia, 1981).

Biogeographic origin of the species: North America.

Family Cichlidae Bonaparte 1835

Amatitlania Schmitter-Soto 2007:48. Type species: *Heros nigrofasciatus* Günther 1867.

Amatitlania nigrofasciata (Günther 1867:601); Type locality: Lake Amatitlán (Guatemala).

First record from natural environment in Israel: Ha'Kibbutzim R., 1999 (Goren and Ortal, 1999: as *Cichlosoma nigrofasciatum*).

Biogeographic origin of the species: South America.

Aulonocara Regan 1922:726. Type species: *Aulonocara nyassae* Regan 1922.

First record from natural environment in Israel: Nahal Amal, 2022 (Beit She'an Valley; Golani et al., 2022; as *Aulonocara spp.*).

Biogeographic origin of the species: Africa.



Cichla Bloch and Schneider 1801:336. Type species: *Cichla ocellaris* Bloch and Schneider 1801.

Cichla kelberi Kullander and Ferreira 2006:324. Type locality: Tucuruí, Pará (Brazil).

First record from natural environment in Israel: Lake Kinneret, 2018 (Golani et al., 2019).

Biogeographic origin of the species: South America.

Dimidiochromis Eccles and Trewavas 1989:88 Type species: *Haplochromis strigatus* Regan 1922.

Dimidiochromis compressiceps (Boulenger 1908:240). Type locality: Lake Malawi (Malawi).

First record from natural environment in Israel: Nahal Amal, 2022 (Beit She'an Valley; Golani et al. 2022).

Biogeographic origin of the species: South America.

Labidochromis Trewavas 1935:80. Type species: *Labidochromis vellicans* Trewavas 1935.

Labidochromis caeruleus (Fryer 1956:88). Type locality: Lake Malawi (Malawi).

First record from natural environment in Israel: Nahal Amal, 2022 (Beit She'an Valley; Golani et al., 2022).

Biogeographic origin of the species: Africa.

Oreochromis mossambicus (Peters 1852:681). Type locality: Zambezi River (Mozambique).

First record from natural environment in Israel: Eilat region (Ben Tuvia, 1981).

Biogeographic origin of the species: Africa.

Oreochromis niloticus (Linnaeus 1758:290). Type locality: Nile River (Egypt).

First record from natural environment in Israel: Yarkon R., 1968 (Coastal system; Goren, 1974 as *Tilapia nilotica*)

Biogeographic origin of the species: Africa.

Hybrids of *O. niloticus* X *O. aureus*. Ben-Tuvia, 1981.

Pseudotropheus Regan 1922:681. Type species: *Chromis williamsi* Günther 1894.

First record from natural environment in Israel: Nahal Amal, 2022 (Beit She'an Valley; Golani et al., 2022 as *Pseudotropheus* sp.).

Biogeographic origin of the species: Africa.



Family Cyprinidae Rafinesque 1815

Carassius Jarocki 1822:54, 74. Type species: *Cyprinus carassius* Linnaeus 1758.

Carassius auratus (Linnaeus 1758:322). Type locality: China.

First record from natural environment in Israel: Lake Kinneret, 1981 (Shefler and Ben-Tuvia, 1982).

Biogeographic origin of the species: East Asia.

Cyprinus Linnaeus 1758:320. Type species: *Cyprinus carpio* Linnaeus 1758.

Cyprinus carpio Linnaeus 1758:320. Type locality: Europe.

First record from natural environment in Israel: Stocked in fishpond in 1935 (Hornel, 1935; Bodenheimer, 1935) and shortly after escaped to natural habitats.

Biogeographic origin of the species: East Asia.

Labeo Cuvier 1816:194. Type species: *Cyprinus niloticus* Forsskål 1775.

Labeo catla (Hamilton 1822:287). Type locality: Nile River (Egypt).

First record from natural environment in Israel: Jordan R. System, 1999 (Goren and Ortal, 1999 as *Catla catla*).

Biogeographic origin of the species: Central Asia.

Family Lepisosteidae Agassiz 1832

Atractosteus Rafinesque 1820:71. Type species: *Lepisosteus (Atractosteus) ferox* Rafinesque 1820.

Atractosteus spatula (Lacepède 1803:331). Type locality: North America.

First record from natural environment in Israel: collected in Rishon LeZion, “Superland pond”, 2007 (Goren and Ostrovsky, 2007; SMNH).

Biogeographic origin of the species: North America.

Family Loricariidae Rafinesque 1815

Pterygoplichthys Gill 1858:408. Type species: *Hypostomus duodecimalis* Valenciennes (in Cuvier and Valenciennes, 1840).

Pterygoplichthys disjunctivus (Weber, 1991:638). Type locality: Rio Madeira, Amazon River system (Brazil).

First record from natural environment in Israel: Nahal Amal, 2022 (Beit She'an Valley; Golani et al., 2022).

Biogeographic origin of the species: South America.

Pterygoplichthys pardalis (Castelnau 1855:42). Type locality: Amazon River (Brazil).

First record from natural environment in Israel: Nahal Amal, 2022 (Beit She'an Valley; Golani et al., 2022).

Biogeographic origin of the species: South America.



Family Moronidae Jordan and Evermann 1896

Dicentrarchus Gill 1860:109, 111. Type species *Perca elongata* Geoffroy St. Hilaire 1817.

Dicentrarchus labrax (Linnaeus 1758:290). Type locality: Southern Europe, Mediterranean Sea.

First record from natural environment in Israel: Coastal rivers, Eshkol reservoir, 1979 (Laventer, 1979. Cited from Ben Tuvia, 1981).

Biogeographic origin of the species: Mediterranean.

Morone Mitchill 1814:17. Type species: *Morone rufa* Mitchill 1814.

Morone saxatilis (Walbaum 1792) x ***Morone chrysops*** (Rafinesque 1820).

First record from natural environment in Israel: Birket Ram, 2003 (a natural pond in northern Golan Heights), (Based on a picture of the fish taken by Mr. E. Kogan. A copy of the picture is in Goren's picture collection.); Second report: Nahal Amal, 2022 (Beit She'an Valley; Golani et al., 2022).

Biogeographic origin of the species: North America.

Family Mugilidae Jarocki 1822

Planiliza 1945:17. Type species: *Moolgarda (Planiliza) ordensis* Whitley 1945.

Planiliza carinata (Valenciennes 1836:148 [in Cuvier and Valenciennes, 1836]). Type locality: Red Sea.

Verified past distribution: Lake Kinneret, 1976 (Chervinski, 1978 as *Liza carinata*).

Spawning season: November – March.

Diet: Aquatic invertebrates and algae.

Biogeographic origin of the species: Red Sea (non-native species in the Mediterranean).

Family Pangasiidae Bleeker 1858

Pangasianodon Chevey 1931:538. Type species *Pangasius* Valenciennes 1840 (in Cuvier and Valenciennes, 1840).

Pangasianodon hypophthalmus (Sauvage 1878:235). Type locality: Laos.

First record from natural environment in Israel: Lake Kinneret, 2012 (Snovsky and Golani, 2012).

Biogeographic origin of the species: East Asia.

Family Poeciliidae Bonaparte 1831

Gambusia Poey 1854:382, 390. Type species: *Gambusia punctata* Poey 1854.

Gambusia holbrooki Girard 1859:62. Type locality: Palatka, eastern Florida.

First record from natural environment in Israel: Many water bodies, 1920 (Hornel, 1935 as *Gambusia affinis* [non Baird and Girard 1853]).

Biogeographic origin of the species: North America.



Poecilia Bloch and Schneider 1801:452. Type species *Poecilia vivipara* Bloch and Schneider 1801.

Poecilia reticulata Peters 1859:412. Type locality: Guayre River, Caracas (Venezuela).

First record from natural environment in Israel: Sorek R. (Coastal system), 2009 (SMNH).

Biogeographic origin of the species: North America.

Poecilia velifera (Regan 1914:338). Type locality: Progreso, Yucatán (Mexico).

First record from natural environment in Israel: 1999 Neot Ha'Kikar (Southern Dead Sea system) (SMNH).

Biogeographic origin of the species: North America.

Xiphophorus Heckel 1848:291. Type species: *Xiphophorus hellerii* Heckel 1848.

Xiphophorus hellerii Heckel 1848:291. Type locality: Orizaba (Mexico).

First record from natural environment in Israel: Yarkon R. (Coastal system), 1995; Ein Teo (Upper Jordan R. system), 1996 (SMNH).

Biogeographic origin of the species: Central America.

Family Salmonidae Jarocki Schinz 1822

Oncorhynchus Suckley 1861:313 Type species: Masc. *Salmo scouleri* Richardson 1836.

Oncorhynchus kisutch (Walbaum 1792:70). Type locality: Rivers and lakes of Kamchatka (Russia).

First record from natural environment in Israel: Upper Jordan R. system, 1999 (Goren and Ortal, 1999).

Biogeographic origin of the species: North Pacific.

Oncorhynchus mykiss (Walbaum 1792:59). Type locality: Columbia River, western USA.

First record from natural environment in Israel: Upper Jordan R. system, 1999 (Goren and Ortal, 1999).

Biogeographic origin of the species: North Pacific.

Salmo Linnaeus 1758:308. Type species *Salmo salar* Linnaeus 1758.

Salmo salar Linnaeus 1758:308. Type locality: European seas and rivers.

First record from natural environment in Israel: Upper Galilee, 1982 (Golani and Mires, 2000).

Biogeographic origin of the species: North Atlantic, Europe and America.

Salmo trutta Linnaeus 1758:308. Type locality: European rivers.

First record from natural environment in Israel: Wadi el Kurn (Uja R., the southern Jordan R. system: as trout), 1935 (Hornel, 1935).

Biogeographic origin of the species: Europe.



Family Sciaenidae Cuvier 1829

Sciaenops Gill 1863:30. Type species: *Perca ocellata* Linnaeus 1766.

Sciaenops ocellatus (Linnaeus 1766:483). Type locality: South Carolina (USA).

First record from natural environment in Israel: Kibbutzim R., 2000 (Goren's picture collection).

Biogeographic origin of the species: West Atlantic.



Sciaenops ocellatus 2000 (Photo: Menahem Goren)

Family Serrasalminidae Bleeker 1859

Piaractus Eigenmann 1903:148. Type species: *Myletes brachypomus* Cuvier 1818.

Piaractus brachypomus (Cuvier 1818:452). Type locality: Brazil.

First record from natural environment in Israel: Lake Kinneret, 1994 (Golani and Mires, 2000).

Biogeographic origin of the species: South America.

Piaractus mesopotamicus (Holmberg 1887:387). Type locality: Río Uruguay and Río Baradero (A tributary to Rio Paraná [Uruguay]).

First record from natural environment in Israel: Tanininm R. (Coastal system), 2003 (Based on a picture of the fish taken by Mr. E. Kogan. [A copy of the picture is in Goren's picture collection.])

Biogeographic origin of the species: South America.

Family Sparidae Rafinesque 1818

Sparus Linnaeus 1758:277. Type species: *Sparus aurata* Linnaeus 1758.

Sparus aurata (Linnaeus 1758:227). Type locality: Mediterranean Sea.

First record from natural environment in Israel: Beit She'an Valley, 1998 (Golani and Mires, 2000).

Biogeographic origin of the species: Mediterranean.



Family Tincidae Jordan 1878

Tinca Garsault 1764:Pl. 664. Type species: *Cyprinus tinca* Linnaeus 1758.

Tinca tinca (Linnaeus 1758:321). Type locality: European lakes.

First record from natural environment in Israel: Jordan River, 1978 (Reich, 1978 [Cited from Golani and Mires, 2000]).

Biogeographic origin of the species: Europe, Asia.

Family Xenocyprididae Günther 1868

Ctenopharyngodon Steindachner 1866:782. Type species: *Ctenopharyngodon laticeps* Steindachner 1866.

Ctenopharyngodon idella (Valenciennes 1844:362 [in Cuvier and Valenciennes, 1844]). Type locality: China.

First record from natural environment in Israel: Lake Kinneret, 1965 (Ben-Tuvia, 1981).

Biogeographic origin of the species: East Asia.

Hypophthalmichthys Bleeker 1860:433. Type species: *Leuciscus molitrix* Valenciennes, in Cuvier and Valenciennes 1844 (in Cuvier and Valenciennes, 1842).

Hypophthalmichthys molitrix (Valenciennes 1844:360 [in Cuvier and Valenciennes, 1842]). Type locality: China.

First record from natural environment in Israel: Lake Kinneret, 1965 (Ben-Tuvia, 1981).

Biogeographic origin of the species: East Asia

Hypophthalmichthys nobilis (Richardson 1845:140). Type locality: Canton (China).

First record from natural environment in Israel: Lake Kinneret, 1979 (Ben-Tuvia, 1981).

Biogeographic origin of the species: East Asia

Hybrids of *H. molitrix* X *H. nobilis*, Golani and Mires, 2000.

Megalobrama Dybowski 1872:212. Type species: *Megalobrama skolkovii* Dybowski 1872.

Megalobrama amblycephala Yih 1955:116. Type locality: Lake Liang-Tze, Hupei (China).

First record from natural environment in Israel: Hadera R., 1997 (Golani and Mires, 2000).

Biogeographic origin of the species: East Asia

Mylopharyngodon Peters 1881:925. Type species: *Leuciscus aethiops* Basilewsky 1855.

Mylopharyngodon piceus (Richardson 1846:298). Type locality: Canton (China).

First record from natural environment in Israel: Eshkol reservoir, 1987 (Golani and Mires, 2000).



Alien species stocked in fish ponds but not yet reported in the wild

Family Latidae Jordan 1888

Lates Cuvier 1828 (in Cuvier and Valenciennes, 1828:88). Type species: *Perca nilotica* Linnaeus 1758.

Lates calcarifer (Bloch 1790:100). Type locality: Tamil Nadu (India).

First record from natural environment in Israel: Eilat, 1998 (Volvich and Appelbaum, 2001).

Market name: Barramundi.

The origin of the species: South Asia.

Family Terapontidae Richardson 1842

Bidyanus Whitley 1943:182. Type species: *Acerina bidyana* Mitchell 1838.

Bidyanus bidyanus (Mitchell 1838:95). Type locality: New South Wales (Australia).

First record from natural environment in Israel: Dor Experimental Station (coastal plain) (Golani and Mires, 2000).

Biogeographic origin of the species: Australia.

References

1. Abbott J. F., 1899. The marine fishes of Peru. Proceedings of the Academy of Natural Sciences of Philadelphia, v. 51: 324-364.
2. Agassiz, L., 1832. Untersuchungen über die fossilen Süßwasser-Fische der tertiären Formationen. Jahrbuch für Mineralogie, Geognosie, Geologie und Petrefaktenkunde, v. 3: 129-138.
3. Agassiz L., 1850. The fishes of Lake Superior compared with those of the other great Canadian Lakes In: Agassiz, L. Lake Superior: its physical character, vegetation, and animals, compared with those of other and similar regions. With a narrative of the tour, by J. Elliot Cabot. And contributions by other scientific gentlemen. Gould, Kendall and Lincoln, Boston.
4. Aidilin M., 1996. Biological and ecological aspects of *Salaria fluviatilis* in the littoral zone of Lake Kinneret. M. Sc. thesis. Tel Aviv University (in Hebrew with an English abstract).
5. Annandale, N., 1913. Notes on the fishes, batrachia and reptiles of the Lake of Tiberias. Journal of the Asiatic Society of Bengal, v. 9: 31-41.
6. Annandale, N., 1915. Distribution and origin of the fauna of the Jordan system with special reference to that of Lake Tiberias. Journal of the Asiatic Society of Bengal, v. 10/11: 437-476.
7. Artedi P., 1793. Angermannia--Sueci synonymia nominum piscium fere omnium. Ichthyologiae pars IV. Editio II. Grypeswaldiae.
8. Asso I.D., 1801. Introduccion á la ichthyologia oriental de España. Anales de Ciencias naturales de Madrid, v. 4: 28-52.
9. Baird S. F. and Girard C. F., 1853. Descriptions of new species of fishes collected by Mr. John H. Clark, on the U.S. and Mexican Boundary Survey, under Lt. Col. Jas. D. Graham. Proceedings of the Academy of Natural Sciences of Philadelphia, v. 6: 387-390.
10. Balshine-Earn S., 1996. Reproductive rates, operational sex ratios and mate choice in St. Peter's fish. Behavioral Ecology and Sociobiology, v. 39: 107-116.



11. Balshine-Earn S. and Earn D.J., 1998. On the evolutionary pathway of parental care in mouth-brooding cichlid fishes. Proceedings of the Royal Society of London. Series B: Biological Sciences, v. 265 (1411): 2217-2222.
12. Bănărescu P. M. and Nalbant T. T., 1966. Zwei neue Schmerlen der Gattung *Noemacheilus* (Pisces, Cobitidae) aus Jordanien. Mitteilungen aus dem Hamburgischen Zoologischen Museum und Institut, v. 63: 329-336, Pl. 5.
13. Bănărescu P. M., Nalbant T. T. and Goren M., 1982. The noemacheiline loaches from Israel (Pisces: Cobitidae: Noemacheilinae). Israel Journal of Zoology, v. 31 (1-2): 1-25.
14. Basilewsky S., 1855. Ichthyographia Chinae borealis. Nouveaux mémoires de la Société impériale des naturalistes de Moscou, v. 10: 215-263, Pls. 1-9.
15. Ben-Tuvia A., 1959. The biology of the cichlid fishes of Lake Tiberias and Huleh. State of Israel. Ministry of Agriculture. Division of Fisheries. The Sea Fisheries Research Station, v. 8B: 153-168.
16. Ben-Tuvia A., 1978. Fishes. In: Serruya, C. (ed.) Lake Kinneret Monographiae Biologicae. Dr. W. Junk Publishers, The Hague. v. 32: 407-430.
17. Ben-Tuvia A., 1981. Man-induced changes in the freshwater fish fauna of Israel. Aquaculture Research, v. 12(4): 139-148.
18. Bleeker P., 1858. De visschen van den Indischen Archipel beschreven en toegelicht. Deel I. Siluri. Acta Societatis Regiae Scientiarum Indo-Neêrlandicae, v. 4 (art. 2): i-xii + 1-370.
19. Bleeker P., 1859. Enumeratio specierum piscium hucusque in Archipelago indico observatarum, adjectis habitationibus citationibusque, ubi descriptiones earum recentiores reperiuntur, nec non speciebus Musei Bleekeriani Bengalensibus, Japonicis, Capensis Tasmanicisque. Acta Societatis Regiae Scientiarum Indo-Neêrlandicae, v. 6 (art. 3): i-xxxvi + 1-276.
20. Bleeker P., 1860. Conspectus systematis Cyprinorum. Natuurkundig Tijdschrift voor Nederlandsch Indië, v. 20 (3): 421-441.
21. Bloch M. E., 1790. Naturgeschichte der ausländischen Fische. Berlin. v. 4.
22. Bloch, M. E. and Schneider J. G., 1801. M. E. Blochii, Systema Ichthyologiae Iconibus cx Illustratum. Post obitum auctoris opus in choatum absolvit, correxit, interpolavit Jo. Gottlob Schneider, Saxo. Berolini. Sumtibus Auctoris Impressum et Bibliopolio Sanderiano Commissum.
23. Bodenheimer F.S., 1935. Animal life in Palestine: An introduction to the problems of animal ecology and zoogeography. Jerusalem.
24. Bograd L., 1961. Occurrence of *Mugil* in the rivers of Israel. Bulletin of the Research Council of Israel, v. 9B, Zoology (4): 169-190.
25. Bonaparte C. L., 1831. Saggio di una distribuzione metodica degli animali vertebrati. Roma.
26. Bonaparte C. L., 1835. Prodromus systematis ichthyologiae. Nuovi Annali delle Scienze naturali Bologna, (Ser. 1) (ann. 2) v. 4: 181-196, 272-277.
27. Bonaparte C. L., 1845. Specchio generale del sistema ittologico. Atti della sesta Riunione degli Scienziati Italiani, v. 6: 386-390.
28. Boulenger G. A., 1908. Diagnoses of new fishes discovered by Capt. E. L. Rhoades in Lake Nyassa. Annals and Magazine of Natural History, (Series 8) v. 2 (9): 238-243.
29. Boulenger G. A., 1907. Zoology of Egypt: The fishes of the Nile. Hugh Rees, Ltd., London.
30. Brandt J. F. and Ratzeburg, J. T. C., 1833. Medizinische Zoologie, oder getreue Darstellung und Beschreibung der Thiere, die in der Arzneimittellehre in Betracht kommen, in systematischer Folge herausgegeben. A. Hirschwald, Berlin.
31. Burchell W. J., 1822. Travels in the interior of southern Africa. London. v. 1.
32. Castelnau F. L., 1855. Poissons. In: Animaux nouveaux or rares recueillis pendant l'expédition dans les parties centrales de l'Amérique du Sud, de Rio de Janeiro a Lima, et de Lima au Para; exécutée par ordre du gouvernement Français pendant les années 1843 a 1847, Part 7, Zoologie. Paris P. Bertrand. v. 2: i-xii + 1-112, Pls. 1-50.
33. Chervinski J., 1978. First recovery of *Liza carinata* (Teleostei: Mugilidae) from Lake Kinneret, Israel. Journal of Zoology, v. 27: 52.
34. Chevey P., 1931. Sur un nouveau silure géant du Bassin du Mékong *Pangasianodon gigas* nov. g., nov. sp. Bulletin de la Société Zoologique de France, v. 55 (7): 536-542, Pl. 1.
35. Chran F. von P., 1798. Fauna Boica. Durchgedachte Geschichte der in Baiern einheimischen und zahmen Thiere. Erster Band. Stein'sche Buchhandlung, Nürnberg. v. 1.



36. Çiçek E., Fricke R., Sungur S., Osman Bahadır Çapar O.B. and Golani D., 2023. Freshwater fishes of Israel; a revised and updated annotated checklist. *Zootaxa*, 5369 (4): 451-484.
37. Clay H. and Clay D., 1981a. Biometry of catfish (*Clarias lazera*) ovaries in Israel, with comments on fecundity and methodology. *Israel Journal of Ecology and Evolution*, v. 30 (4): 177-189.
38. Clay D. and Clay H., 1981b. Back-calculated age and growth of the catfish, *Clarias lazera*, in Israel. *Israel Journal of Ecology and Evolution*, v. 30 (1-2): 16-21.
39. Cuvier G. and Valenciennes A., 1846. Histoire naturelle des poissons. Tome dix-huitième. Suite du livre dix-huitième. Cyprinoïdes. Livre dix-neuvième. Des Ésoques ou Lucioïdes.
40. Cuvier G. and Valenciennes A., 1828. Histoire naturelle des poissons. Tome second. Livre Troisième. Des poissons de la Famille des Perches, ou des Percoïdes.
41. Cuvier G. and Valenciennes A., 1836. Histoire naturelle des poissons. Tome onzième. Livre treizième. De la famille des Mugiloïdes. Livre quatorzième. De la famille des Gobioides.
42. Cuvier G. and Valenciennes A., 1840. Histoire naturelle des poissons. Tome quinzisième. Suite du livre dix-septième. Siluroïdes.
43. Cuvier G. and Valenciennes A., 1842. Histoire naturelle des poissons. Tome seizième. Livre dix-huitième. Les Cyprinoïdes.
44. Cuvier G. and Valenciennes A., 1844. Histoire naturelle des poissons. Tome dix-septième. Suite du livre dix-huitième. Cyprinoïdes.
45. Cuvier G., 1816. Le Règne Animal distribué d'après son organisation pour servir de base à l'histoire naturelle des animaux et d'introduction à l'anatomie comparée. Les Reptiles, les Poissons, les Mollusques et les Annélides. A. Belin, Paris. Edition 1. v. 2.
46. Cuvier G., 1818. Sur les poissons du sous-genre Mylètes. Mémoires du Muséum d'Histoire Naturelle, Paris, v. 4: 444-456, Pls. 21-22.
47. Cuvier G., 1829. Le Règne Animal, distribué d'après son organisation, pour servir de base à l'histoire naturelle des animaux et d'introduction à l'anatomie comparée. Edition 2. v. 2.
48. Dybowski B. N., 1872. Zur Kenntniss der Fischfauna des Amurgebietes. Verhandlungen der K.-K. zoologisch-botanischen Gesellschaft in Wien, v. 22: 209-222.
49. Eccles D. H. and Trewavas E., 1989. Malaŵian cichlid fishes. The classification of some Haplochromine genera. Lake Fish Movies, H. W. Dieckhoff, Herten, Germany.
50. Eigenmann C. H., 1903. New genera of South American fresh-water fishes, and new names for some old genera. *Smithsonian Miscellaneous Collections*, v. 45: 144-148.
51. Esmaeili H. R., Teimori A., Zarei F., and Sayyadzadeh G., 2020. DNA barcoding and species delimitation of the Old World tooth-carps, family. Aphaniidae Hoedeman, 1949 (Teleostei: Cyprinodontiformes). *PLoS ONE* v. 15 (4) (art. e0231717): 1-26.
52. Forskål P. in Niebuhr C., 1775 Descriptiones animalium avium, amphibiorum, piscium, insectorum, vermium; quae in itinere orientali observavit Petrus Forskål. Post mortem auctoris edidit Carsten Niebuhr. Hauniae.
53. Fowler H.W., 1903. New and little known Mugilidae and Sphyraenidae. *Proceedings of the Academy of Natural Sciences of Philadelphia*, v. 55: 743-752, Pls. 45-46.
54. Freyhof J., and Yoğurtçuoğlu B., 2020. A proposal for a new generic structure of the killifish family Aphaniidae, with the description of *Aphaniops teimorii* (Teleostei: Cyprinodontiformes). *Zootaxa*, 4810 (3): 421-451.
55. Fricke R., Eschmeyer, W. N. and Van der Laan R. (eds.), 2024. Eschmeyer's catalog of fishes: genera, species, Electronic version accessed 20/11/2024. <http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>
56. Fryer G., 1956. New species of cichlid fishes from Lake Nyasa. *Revue de Zoologie et de Botanique Africaines*, v. 53 (1-2): 81-91.
57. Gafny S., Gasith A. and Goren M., 1992. Effect of water level fluctuation on shore spawning of *Mirogrex terraesanctae* (Steinitz), (Cyprinidae) in lake Kinneret, Israel. *Journal of Fish Biology*, v. 41(6): 863-871.
58. Garsault F. A. P. de, 1764. Les figures des plantes et animaux d'usage en médecine décrits dans la Matière Médicale de Mr. Geoffroy Medecin dessinés d'après nature par Mr. de Garsault, gravés par Mrs. Defehrt, Prévost, Duflos, Martinet &c. Niquet scrip. Paris. v.5.



59. Geoffroy St. Hilaire E., 1817. Poissons du Nil, de la mer Rouge et de la Méditerranée. In: Description de l'Égypte ou recueil des observations et des recherches qui ont été faites en Égypte pendant l'expédition de l'Armée française, publié par les ordres de sa Majesté-L'Empereur Napoléon le Grand. (Imprimerie Impériale). Paris. Histoire Naturelle. v. 1 (part 1): 265-310. Pls. 18-27.
60. Gervais F. L. P., 1848. Sur les animaux vertébrés de l'Algérie, envisagés sous le double rapport de la géographie zoologique et de la domestication. Annales des Sciences Naturelles, Paris (Zoologie) (Sér. 3) v. 10: 202-208.
61. Gervais F. L. P., 1853. Remarques sur les poissons fluviatiles de l'Algérie, et description de deux genres nouveaux sous les noms de *Coptodon* et *Tellia*. Annales des Sciences Naturelles, (Zoologie) (Sér. 3) v. 19: 5-17.
62. Gill T. N., 1858. Synopsis of the fresh water fishes of the western portion of the island of Trinidad, WI. H. 408 Annals of the Lyceum of Natural History of New York v. 6 (nos 10-13, art. 38): 363-430.
63. Gill, T. N., 1860. Monograph of the genus *Labrax*, of Cuvier. Proceedings of the Academy of Natural Sciences of Philadelphia, v. 12: 108-119.
64. Gill T. N., 1863. Catalogue of the North American sciaenoid fishes. Proceedings of the Academy of Natural Sciences of Philadelphia, v. 15: 28-32.
65. Girard C. F., 1855. Abstract of a report to Lieut. Jas. M. Gilliss, U. S. N., upon the fishes collected during the U. S. N. Astronomical Expedition to Chili. Proceedings of the Academy of Natural Sciences of Philadelphia, v. 7: 197-199.
66. Girard C. F., 1859. Ichthyological notices. Proceedings of the Academy of Natural Sciences of Philadelphia, v. 11: 56-68.
67. Golani D., Shetler D. and A. Gelman, 1988. Aspects of growth and feeding habits of the adult European Eel (*Anguilla anguilla*) in Lake Kinneret (Lake Tiberias), Israel. Aquaculture, v. 74: 349-354.
68. Golani D. and Mires D., 2000. Introduction of fishes to the freshwater system of Israel. Israeli Journal of Aquaculture – Bamidgeh, v. 52 (2): 47-60.
69. Golani D., Shohat H. and Appelbaum-Golani B., 2022. Colonisation of exotic fish species of the genera *Pseudotropheus* and *Aulonocara* (perciformes: cichlidae) and the decline of native ichthyofauna in Nahal Amal, Israel. Annales of Scientific and Research Center of the Republic of Slovenia. Series Historia Naturalis, v. 32 (2): 293-300.
70. Golani D., Sonin O., Snovsky G., David L., and Tadmor-Levi R., 2019. The occurrence of the peacock bass (*Cichla kelberi* Kullander and Ferreira 2006) in Lake Kinneret (Sea of Galilee), Israel. BioInvasions Records, v. 8(3): 706-711.
71. Gophen M. and Landau L., 1977. Trophic interaction between zooplankton and sardine *Mirogrex terraesanctae* population in Lake Kinneret, Israel. Oikos, 29:166-174.
72. Gophen M. and Pollinger U., 1985. Relationship between food availability, fish predation and the abundance of the herbivorous zooplankton community in Lake Kinneret. Archiv für Hydrobiologie. Beihefte. Ergens' der Limnologie, v. 21: 397-405.
73. Gophen M., 1986. Fisheries management in Lake Kinneret (Israel). Lake and Reservoir Management, v. 2 (1): 327-332.
74. Gophen M., 1987. Fisheries management, water quality and economic impacts: a case study of Lake Kinneret. Proc. World Conf. On Large Lakes, Mackinac Island, Michigan, USA. 18-21 May 1986, v. 2: 5-24.
75. Gophen M., 1992. Lake Kinneret. Part 1. The lake. Ministry of Defense - Israel Pub. (in Hebrew).
76. Goren, M., and Ortal, R., 1999. Biodiversity of the inland water fishes of Israel. Biological Conservation, v. 89: 1-9.
77. Goren M., 1972. The populations of *Pseudophoxinus zeregi* (Heckel) in Israel and Syria and the status of *Pseudophoxinus (Pararhodeus) drusensis* (Pellegrin) (Pisces: Cyprinidae). Zoological Journal of the Linnean Society, 51: 141-145.
78. Goren M. 2004. Fishes. In: Dolev, A. and A. Pervelozky (eds.) The Red Book – Vertebrates in Israel: Keter publications, Jerusalem: 39-54.
79. Goren M., 2009. Saving critically endangered fish species – utopia or practical idea? The story of the Yarqon bleak *Acanthobrama telavivensis* (Cyprinidae) as a test case. Aqua, International Journal of Ichthyology, v. 15 (1): 1-12.
80. Goren, M. and Rychwalski E.M., 1978. Hybrids of *Aphanius dispar* and *Aphanius mento* (Cyprinodontidae: Pisces). Zoological Journal of the Linnean Society, v. 63 (3): 259-264.
81. Goren M., 1974. The freshwater fishes of Israel. Israel Journal of Zoology, v. 23: 67-118.
82. Goren M., 1983. The Freshwater Fishes of Israel. Kibbutz Ha'Muhad Publishing House, Tel Aviv. (in Hebrew).
83. Goren M and Ostrovsky A. 2007. The crocodile fish (*Atractosteus spatula*) in "Superland Park," Rishon L'Zion, Israel. Beshvil Israel (Israel Trail), Bimonthly magazine of the Israel Nature and Parks Authority, v. 20: 10. (in Hebrew).



84. Goren M., 2013. The fishes of Golan Heights. In: Amit, H. (ed.): Golan Heights: Rivers and Water Yad Ben Zvi, Jerusalem: 122-143. (in Hebrew).
85. Goren M., and Galil B.S., 2005. A review of changes in the fish assemblages of Levantine inland and marine ecosystems following the introduction of non-native fishes. *Journal of Applied Ichthyology*, v. 21: 364–370.
86. Goren M., Fishelson, L. and Trewavas E., 1973. The Cyprinid fishes of *Acanthobrama* Heckel and related genera. *Bull. Br. Mus. Nat. Hist. (Zool.)*, v. 24: 291-315.
87. Goren M. and Feldstein-Farkash, T., 2025. A new *Pseudophoxinus* species (Teleostei, Cypriniformes, Leuciscidae) from upper Jordan River basin (Israel) with comment to the status of few other congeneric species. *Zookeys*, 1249: 303–315.
88. Gueta Y., 2005. Feeding strategy of fishes in the Jordan River system. M. Sc. thesis, Tel Aviv University. (in Hebrew with an English abstract).
89. Gldenstdt J. A. von, 1773. *Cyprinus capoeta* et *Cyprinus mursa*. *Novi Commentarii Academiae Scientiarum Imperialis Petropolitanae*, v. 17 (for 1772): 507-520, Pls. 8-9.
90. Gnther A., 1862. Catalogue of the fishes in the British Museum. Catalogue of the Acanthopterygii, Pharyngognathi and Anacanthini in the collection of the British Museum. British Museum, London. v. 4.
91. Gnther A., 1864. Report on a collection of reptiles and fishes from Palestine. *Proceedings of the Zoological Society of London*, 1864 (pt 3): 488-493.
92. Gnther A., 1867. On the fishes of the states of Central America, founded upon specimens collected in fresh and marine waters of various parts of that country by Messrs. Salvin and Godman and Capt. J. M. Dow. *Proceedings of the Zoological Society of London*, 1866: 600–604.
93. Gnther, A. 1868. Catalogue of the fishes in the British Museum. Catalogue of the Physostomi, containing the families Heteropygii, Cyprinidae, Gonorhynchidae, Hyodontidae, Osteoglossidae, Clupeidae, Chirocentrid, Alepocephalid, Notopterid, Halosauridae, in the collection of the British Museum. v. 7.
94. Gnther A., 1894. Second report on the reptiles, batrachians, and fishes transmitted by Mr. H. H. Johnston, C. B., from British Central Africa. *Proceedings of the Zoological Society of London*, 1893 (pt 4): 616-628, Pls. 53-57.
95. Gnther A., 1889. On some fishes from Kilima-Njaro District. *Proceedings of the Zoological Society of London*, 1889 (pt 1): 70-72, Pl. 8.
96. Hamidan N. A., Geiger, M. F., and Freyhof, J., 2014. *Garra jordanica*, a new species from the Dead Sea basin with remarks on the relationship of *G. ghorensis*, *G. tibanica* and *G. rufa* (Teleostei: Cyprinidae). *Ichthyological Exploration of Freshwaters*, v. 25 (3): 223-236.
97. Hamilton F., 1822. An account of the fishes found in the river Ganges and its branches. Edinburgh and London..
98. Hasselquist F. 1757. Fredric Hasselquists M.D., Societ. Reg. Scient. Upsal. and Stockholm Soc., Iter Palstinum eller resa til heliga landet, frrttad ifrn r 1749 til 1752, med besfrikningar, rn, anmrkingar fver de mrkvrdigaste naturalier, p Hennes Kongl. Majts befallning, utgiven af Carolus Linnus.
99. Heckel J. J., 1843. Abbildungen und Beschreibungen der Fische Syriens, nebst einer neuen Classification und Charakteristik smmtlicher Gattungen der Cyprinen (pp. 991-1044, Pl. 1-13).
100. Heckel J. J., 1847. Naturhistorischer Anhang. In: Russegger, J. von: Reisen in Europa, Asien und Afrika, unternommen in den Jahren 1835 bis 1841. Schweizerbart'sche Verlagshandlung, Stuttgart. v. 2 (pt 3): 207-357
101. Heckel J. J., 1848. Eine neue Gattung von Poecilien mit rochenartigem Anklammerungs-Organ. *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. Mathematisch-Naturwissenschaftliche Classe*, v. 1: 289-303, Pls. 8-9.
102. Hoedeman J. J., 1949. Cyprinodontidae and Cyprinodontini. X.40.211.3. In: *Encyclopaedic voor de Aquariumhouder* (Cited from Hoedeman, 1951).
103. Hoedeman J. J., 1951. Rediagnosis of the Old World cyprinodont genus *Aphanius*. *Beaufortia*, v. 1 (1): 1-6.
104. Holmberg E. L., 1887. *Boletn de la Academia Nacional de Ciencias de Crdoba*, v. 10: 5-391.
105. Hornell J., 1935. Report on the Fisheries of Palestine. Government of Palestine. Crown Agent for the Colonies, London.
106. Horowitz A., 1982. The Pleistocene stratigraphy of the Jordan Valley. In: *Eretz-Israel: Archaeological, Historical and Geographical Studies*. Israel Exploration Society.



107. Jarocki F. P. 1822. Zoologia czyli zwierzetopismo ogólne, podług náynowszego systematu ułożone. Drukarni Lakiewicza, Warsaw.
108. Jordan D.S., 1878. Report on the collection of fishes made by Dr. Elliott Coues U.S.A. in Dakota and Montana during the seasons of 1873 and 1874. Bulletin of the United States Geological and Geographical Survey of the Territories, v. 4 (4): 777–799.
109. Jordan D. S. and B. W. Evermann, 1896. The fishes of North and Middle America: A descriptive catalogue of the species of fish-like vertebrates found in the waters of North America, north of the Isthmus of Panama. Part I. Bulletin of the United States National Museum, 47 (1). Washington.
110. Karaman M.S., 1971. Revision der Barben Europas, Vorderasiens und Nordafricas. Susswasserfische der Turkei, Teil.8. Mitteilungen aus dem Hamburgischen Zoologischen Museum und Institut, v. 67: 175-254.
111. Komarovskiy B., 1952. An analysis of the stomach content of *Acanthobrama terraesanctae* from Lake Tiberias. Bull. Sea Fish. Research Station, Caesaria, v. 4: 1-8.
112. Kottelat M.C., 2012. Conspectus Cobitidum: an inventory of the loaches of the world (Teleostei: Cypriniformes: Cobitoidei). Raffles Bulletin of Zoology Suppl. 26: 1-199.
113. Krupp F., 1982. *Garra tibanica ghorensis* subsp. Nov. (Pisces: Cyprinidae), an African element in the cyprinid fauna of the Levant. – Hydrobiologia, 88: 319-324.
114. Kullander S.O. and Ferreira, E.J., 2006. A review of the South American cichlid genus *Cichla*, with descriptions of nine new species (Teleostei: Cichlidae). Ichthyological Exploration of Freshwaters, 17(4): 289-398.
115. Lacepède, B. G. E. 1802. Histoire naturelle des poissons. v. 4.
116. Lacepède B. G. E., 1803. Histoire naturelle des poissons. v. 5.
117. Linnaeus C., 1758. Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Tomus I. Editio Decima, Reformata. Holmiae.
118. Linnaeus C., 1766. Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. Tomus I. Editio Decima, Reformata. Holmiae.
119. Lortet L., 1875. Sur un poisson du lac de Tibériade, le *Chromis paterfamilias*, qui incube ses oeufs dans la cavité buccale. Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences Paris, 81: 1196-1198.
120. Lortet L., 1883. Études zoologiques sur la faune du lac de Tibériade, suivies d'un aperçu sur la faune des lacs d'Antioche et de Homs. I. Poissons et reptiles du lac de Tibériade et de quelques autres parties de la Syrie. Archives du Muséum d'Histoire Naturelle de Lyon, v. 3: 99-189, Pls. 6-18.
121. Mitchell T. L., 1838. Three expeditions into the interior of eastern Australia, with descriptions of recently explored region of Australia felix, and of the present colony of New South Wales. T. and W. Boone, London. vol. 1.
122. Mitchill T. L., 1814. Report, in part, of Samuel L. Mitchill, M. D., Professor of Natural History, and on the fishes of New York. D. Carlisle, New York.
123. Mitchell T. L., 1838. Three expeditions into the interior of eastern Australia, with descriptions of recently explored region of Australia felix, and of the present colony of New South Wales. T. and W. Boone, London. vol. 1.
124. Ostrovsky I., Goren M., Shapiro J., Snovsky G., Rynskiy A., 2014. Fish biology and ecology In: T. Zohary, A. Sukenik, T. Berman, A Nishri (eds.) Lake Kinneret: Ecology and Management. Springer, Dordrecht.
125. Pellegrin, J., 1904. Contribution a l'étude anatomique, biologique et taxinomique des Poissons de la famille des Cichlidés. Memoires de la Societe zoologique de la France, v. 16: 41-402.
126. Pellegrin, J., 1911. Poissons de Syrie recueillis par m. H. Gadeau de Kerville. Bulletin de la Société zoologique de France, v. 36: 107-110.
127. Pellegrin J., 1923. Etude sur les poissons rapportés par M. Henri Gadeau de Kerville de son voyage zoologique en Syrie (April-June 1908). v. 4: 5- 37.
128. Pellegrin J., 1933. Description d'un poisson nouveau de la Syrie méridionale appartenant au genre *Phoxinellus*. Bulletin du Muséum National d'Histoire Naturelle, (Série 2) v. 5 (5): 368-369.
129. Peters W. C. H., 1881. Über die von der chinesischen Regierung zu der internationalen Fischerei-Ausstellung gesandte Fichsammlung aus Ningpo. Monatsberichte der Königlich Preussischen Akademie der Wissenschaften zu Berlin, v. 45: 921-927.



130. Peters W. C. H., 1852. Diagnosen von neuen Flussfischen aus Mossambique. Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königlich Preussischen Akademie der Wissenschaften zu Berlin 1852: 681-685.
131. Peters W. C. H., 1859. Eine neue vom Herrn Jagor im atlantischen Meere gefangene Art der Gattung *Leptocephalus*, und über einige andere neue Fische des Zoologischen Museums. Monatsberichte der Königlich Preussischen Akademie der Wissenschaften zu Berlin: 411-413.
132. Poey F., 1851-54. Memorias sobre la historia natural de la Isla de Cuba, acompañadas de sumarios Latinos y extractos en Francés. La Habana. v. 1.
133. Por F.D., 1978. Lessepsian migrations. The influx of Red Sea biota into the Mediterranean by way of the Suez Canal. Springer-Verlag, Berlin, Heidelberg, New York.
134. Rafinesque C. S., 1810. Indice d'ittologia siciliana; ossia, catalogo metodico dei nomi latini, italiani, e siciliani dei pesci, che si rinvencono in Sicilia disposti secondo un metodo naturale e seguito da un'appendice che contiene la descrizione de alcuni nuovi pesci siciliani. G. del Nobolo, Messina.
135. Rafinesque C. S., 1815. Analyse de la nature, ou tableau de l'univers et des corps organisés. Palerme.
136. Rafinesque C. S., 1818. Discoveries in natural history, made during a journey through the western region of the United States. American Monthly Magazine and Critical Review, v. 3 (5): 354-356.
137. Rafinesque C. S., 1820. Fishes of the Ohio River. [Ichthyologia Ohiensis, Part 8]. Western Review and Miscellaneous Magazine, v. 3 (3): 165-173.
138. Regan C. T., 1914. Description of a new cyprinodont fish of the genus *Mollienisia* from Yucatan. Annals and Magazine of Natural History, (Series 8) v. 13: 75: 338.
139. Regan C. T., 1922. The cichlid fishes of Lake Nyassa. Proceedings of the Zoological Society of London v. 36 (4) 675-727, Pls. 1-6.
140. Richardson J., 1836. The Fish. In: Fauna Boreali-Americana; or the zoology of the northern parts of British America: containing descriptions of the objects of natural history collected on the late northern land expeditions, under the command of Sir John Franklin, R.N. J. Bentley, London. Part 3237-281.
141. Richardson J., 1842. Description of Australian fish. Transactions of the Zoological Society of London, v. 3 (1): 69-131.
142. Richardson J., 1845. Ichthyology. Part 3. In: R. B. Hinds (ed.) The zoology of the voyage of H. M. S. Sulphur, under the command of Captain Sir Edward Belcher, R. N., C. B., F. R. G. S., etc., during the years 1836-42, No. 10. Smith, Elder and Co., London: 99-150, Pls. 55-64.
143. Richardson J., 1846. Report on the ichthyology of the seas of China and Japan. Report of the British Association for the Advancement of Science 15th meeting: 187-320.
144. Risso, A., 1810. Ichthyologie de Nice, ou histoire naturelle des poissons du Département des Alpes Maritimes. F. Schoell, Paris.
145. Risso A., 1827. Histoire naturelle des principales productions de l'Europe méridionale, et particulièrement de celles des environs de Nice et des *Alpes maritimes*. F. G. Levrault, Paris and Strasbourg. v. 3.
146. Roll U., Dayan T., Simberloff D. and Goren M., 2007. Characteristics of the introduced fish fauna of Israel. Biological Invasions, v 9: 813-824.
147. Rüppell W. P. E. S., 1828-30. Atlas zu der Reise im nördlichen Afrika. Fische des Rothen Meers. Frankfurt am Main, Heinrich Ludwig Bröner.
148. Rüppell W. P. E. S., 1852. Fische und deren Skelette. in: Verzeichniss der in dem Museum der Senckenbergischen naturforschenden Gesellschaft aufgestellten Sammlungen. v.. 4. Frankfurt am Main.
149. Sauvage H.-E., 1878. Note sur quelques poissons d'espèces nouvelles provenant des eaux douces de l'Indo-Chine. Bulletin de la Société philomathique de Paris, (7th Série) v. 2: 233-242.
150. Schmitter-Soto J.J., 2007. A systematic revision of the genus *Archocentrus* (Perciformes: Cichlidae), with the description of two new genera and six new species. Zootaxa, v. 1603 (1): 1-78.
151. Schrank F., von Paula 1798. Fauna Boica. Durchgedachte Geschichte der in Baiern einheimischen und zahmen Thiere. Erster Band. Nürnberg: Stein'sche Buchhandlung.
152. Scopoli J. A., 1777. Introductio ad historiam naturalem, sistens genera lapidum, plantarum et animalium hactenus detecta, caracteribus essentialibus donata, in tribus divisa, subinde ad leges naturae.



153. Shefler D. and Ben-Tuvia A., 1982. The occurrence of gibel-carp goldfish, *carassius auratus gibelio*, in Lake Kinneret (Lake Tiberias). *Bamidgeh, Bulletin of Fish Culture in Israel*, v. 34 (2): 63-65.
154. Szitenberg A., Goren M. and Huchon D., 2012. Mitochondrial and morphological variation of *Tilapia zillii* in Israel. *BioMed Research Notes*, v. 7 (172): 1-8
155. Snovsky G. and Golani D., 2012. The occurrence of an aquarium escapee, *Pangasius hypophthalmus* (Sauvage, 1878), (Osteichthys, Siluriformes, Pangasiidae) in Lake Kinneret (Sea of Galilee), Israel. *BioInvasions Records*, v. 1 (2): 101-103.
156. Spataru P. and Gophen M., 1985. Food composition and feeding habits of *Astatotilapia flavijosephi* (Lortet) in Lake Kinneret (Israel). *Journal of Fish Biology*, v. 26 (5): 503-507.
157. Spataru P. and Gophen M., 1987. The food and benthophagous feeding habits of *Barbus longiceps* (Cyprinidae) in Lake Kinneret (Israel). *Archiv Für Hydrobiologie*, v. 110 (3): 331-337.
158. Sparatu P., 1976. The feeding habits of *Tilapia galilaea* (Artemi) in Lake Kinneret (Israel). *Aquaculture*, v. 9: 45-49.
159. Sparatu P., 1978. The feeding habits of *Tilapia zillii* (Gervais) (Cichlidae) in Lake Kinneret (Israel). *Aquaculture*, v. 14: 327-338.
160. Sparatu P. and Gophen M., 1985a. Feeding behavior of the silver carp *Hypophthalmichthys molitrix* Val. and its impact on the food web in Lake Kinneret, Israel. *Hydrobiologia*, v. 120: 53-61.
161. Sparatu P. and Gophen M., 1985b. Food and feeding habits of *Tilapia aurea* (Steindachner) (Cichlidae) in Lake Kinneret (Israel). *Aquaculture*, v. 13: 67-79.
162. Sparatu P. and Gophen M., 1985c. Food composition of and feeding habits of *Astatotilapia flavijosephi* (Lortet) in Lake Kinneret (Israel). *J. Fish. Biol.* v. 26: 503-507.
163. Sparatu P. and Gophen M., 1985d. Food composition of the barbell *Tor canis* (Cyprinidae) and its role in Lake Kinneret ecosystem. *Environ. Biol. Fishes*, v. 14: 295-301.
164. Sparatu P. and Gophen M., 1986a. Food composition of *Tristramella simonis simonis* (Gunther, 1864) in Lake Kinneret (Israel). *J. Aqua. Trop.*, v. 1: 111-117.
165. Sparatu P. and Gophen M., 1986b. Food and feeding habits of *Capoeta damascina* (Cyprinidae) in Lake Kinneret (Israel). *J. Aqua Trop.*, v. 1: 147-153.
166. Sparatu P. and Gophen M., 1987a. Food composition of *Tristramella sacra* (Gunther, 1864) (Cichlidae) in Lake Kinneret (Israel). *Israel Jour. Zool.*, v. 34: 183-189.
167. Sparatu P. and Gophen M., 1987b. The food and benthophagous feeding habits of *Barbus longiceps* in Lake Kinneret (Israel). *Arch. Hydrobiologia*, v. 110 (3): 331-337.
168. Sparatu P., Viveen W.J.A.R. and Gophen M., 1987. Food composition of *Clarias gariepinus* (= *C. lazera*) (Cypriniformis, Clariidae) in Lake Kinneret (Israel). *Hydrobiologia*, v. 144: 77-82.
169. Steindachner, F., 1864. Ichthyologische Mittheilungen (VII.) Verhandlungen der kaiserlich-königlichen zoologisch-botanischen Gesellschaft in Wien, v. 14: 223-232, Pls. 7-8.
170. Steindachner, F. 1866. Ichthyologische Mittheilungen. (IX) . Verhandlungen der K.-K. zoologisch-botanischen Gesellschaft in Wien, v. 16: 761-796, Pls. 13-18.
171. Steinitz H. and Ben Tuvia A., 1960. The Cichlid fishes of the genus *Tristramella* Trewavas, *The Annals and Magazine of Natural History*, v. 3: 161-175.
172. Steinitz H. and Ben-Tuvia, A., 1957. The hybrid of *Barbus longiceps* C. V. and *Varicorhinus damascinus* C. V. (Cyprinidae, Teleostei). *Bulletin Research Council of Israel*, v. 6B: 176-188.
173. Steinitz H., 1951a. A new subspecies of *Tilapia nilotica* (L) from Palestine, *The Annals and Magazine of Natural History*, v. 4: 513-518.
174. Steinitz H., 1951b. The fishes of Ein Feshkha, Palestine, *Nature*, v. 167: 531.
175. Steinitz H., 1952. *Acanthobrama terrae-sanctae* sp. n. from Lake Tiberias, Israel. *Annals and Magazine of Natural History: Series 12*, v. 5: 51, 293-298.
176. Steinitz H., 1953. The freshwater fishes of Palestine. An annotated list. *Bulletin of the Research Council of Israel*, v. 3B: 207-227.



177. Stoumboudi M.T. and Abraham, M., 1996. The spermatogenetic process in *Barbus longiceps*, *Capoeta damascina* and their natural sterile hybrid (Teleostei, Cyprinidae). *Journal of Fish Biology*, v. 49 (3): 458-468.
178. Stoumboudi M.T., Abraham, M., Villwock, W., Ben-Tuvia, A., Economidis, P.S. and Shapiro, J., 1992. Gonad development and somatic growth in an intergeneric cyprinid hybrid from Lake Kinneret, Israel. *Journal of Applied Ichthyology*, v. 8 (1-4): 110-121.
179. Suckley G., 1861. Notices of certain new species of North American Salmonidae, chiefly in the collection of the N. W. Boundary Commission, in charge of Archibald Campbell, Esq., Commissioner of the United States, collected by Doctor C. B. R. Kennerly, naturalist to the Commission. *Annals of the Lyceum of Natural History of New York*, v. 7: 306-313.
180. Tadmor-Levi R., Borovski T., Marcos-Hadad E., Shapiro J., Hulata G., Golani D. and David L., 2022. Establishing and using a genetic database for resolving identification of fish species in the Sea of Galilee, Israel. *Plos one*, v. 17 (5): p.e0267021.
181. Tadmor-Levi R., Feldstein-Farkash T., Milstein D., Golani D., Leader N., Goren M. and David, L., 2023. Revisiting the species list of freshwater fish in Israel based on DNA barcoding. *Ecology and Evolution*, v. 13 (12): p.e10812.
182. Tortonese E., 1938. Viaggio del Enrico Festa in Palestina e in Siria (1893), Pesci. *Bollettino dei usi di Zoologia ed Anatomia Comparata della R. Università di Torino*, v. 3: 15-20.
183. Tortonese, E., 1952. On a new cyprinoid fish of the genus *Acanthobrama* from Palestine. *The Annals and Magazine of Natural History*, 5: 271-272.
184. Trewavas E. 1935. A synopsis of the cichlid fishes of Lake Nyasa. *Annals and Magazine of Natural History*, (Series 10) v. 16 (91): 65-118.
185. Trewavas E., 1942. The cichlid fishes of Syria and Palestine, *The Annals and Magazine of Natural History*, (Series 11) v. 9: 526-536.
186. Trewavas E., 1965, *Tilapia aurea* (Steindachner) and the status of *Tilapia nilotica* exul, *T. monadi* and *T. lemasoni* (Pisces, Cichlidae). *Israel Journal of Zoology*, v. 14: 258-276.
187. Tristram H. B., 1884. *The Survey of Western Palestine: The Fauna and Flora of Palestine*. London.
188. Vecchioni L., Ching A.C., Marrone F., Arculeo M., Hundt P.J. and Simons A.M., 2022. Multi-locus phylogenetic analyses of the *Almadablennius* clade reveals inconsistencies with the present taxonomy of blennioid fishes. *Diversity*, v. 14 (1): 53.
189. Vinciguerra D., 1926. Sopra una collezione di pesci della Palestina. *Annali del Museo Civico di Storia Naturale Giacomo Doria*, v. 52: 210-226.
190. Volvich L., and Appelbaum, S., 2001. Length to weight relationship of sea bass *Lates calcarifer* (Bloch) reared in a closed recirculating system. *Bamidgeh, Bulletin of Fish Culture in Israel*, v. 53 (3-4): 158-163.
191. Voskoboynik A., 1996. Use of littoral resources by two Cyprinids: *Hemigrammocapoeta nana* and *Garra rufa* in Lake Kinneret, Israel. M. Sc. Thesis. Tel Aviv University. (in Hebrew with an English abstract).
192. Walbaum, J. J., 1792. Petri Artedi sueci genera piscium. In quibus systema totum ichthyologiae proponitur cum classibus, ordinibus, generum characteribus, specierum differentiis, observationibus plurimis. Redactis speciebus 242 ad genera 52. *Ichthyologiae pars III. Ant. Ferdin. Rose, Grypeswaldiae. Part 3.*
193. Washbourn R. and Jones R.F., 1938. LXI. Report of the Percy Sladen expedition to Lake Huleh; a contribution to the study of the fresh waters of Palestine. *Annals and Magazine of Natural History*, v. 2 (11): 517-560.
194. Weber C., 1991. Nouveaux taxa dans *Pterygoplichthys* sensu lato (Pisces, Siluriformes, Loricariidae). *Revue Suisse de Zoologie* v. 98 (3): 637-643.
195. Whitley G. P., 1943. Ichthyological notes and illustrations. (Part 2). *Australian Zoologist* v. 10 (2): 167-187.
196. Whitley G. P., 1945 New sharks and fishes from Western Australia. Part 2. *Australian Zoologist* v. 11 (1): 1-42, Pl. 1.
197. Yih P.-L., 1955. Notes on *Megalobrama amblycephala*, sp. nov., a distinct species from *M. merminalis* (Richardson). *Acta Hydrobiologica Sinica* v. 1 (2): 115-122, Pl. 1. (in Chinese with an English abstract).
198. Yoğurtçuoğlu B., Kaya C., Atalay M.A., Ekmekçi F.G. and Freyhof J., 2023. Two new freshwater blennies from the Eastern Mediterranean basin (Teleostei: Blenniidae). *Zootaxa*, v. 5311 (1): 85-104.