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## Diversity of fishes along the coasts of Türkiye

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**Abstract:** The Turkish marine fish diversity was revised and updated in this study based on data published in the last decade. There are currently 552 species in the inventory, reflecting an increase of 7.8% since the previous checklist and belonging to the classes of Teleostei (479 spp.), Elasmobranchii (68 spp.), Chondrostei (3 spp.), Petromyzonti (1 sp.), and Holocephali (1 sp.). Twelve species were excluded from the faunal list due to the lack of valid proof of their presence, the distribution ranges of an additional 12 species were corrected, two new records (*Istiompax indica* (Cuvier, 1832) and *Mola alexandrini* (Ranzani, 1839)) previously unknown from Türkiye were presented for the first time, and a range expansion report for *Parophidion vassali* (Risso, 1810) was given. In terms of number of species, the Levantine Sea coast of Türkiye had the highest diversity with 477 species, followed by the Aegean Sea (466 spp.), Sea of Marmara (277 spp.), and Black Sea (162 spp.). Alien fishes reported from the region have now reached 90 species, corresponding to 16.3% of the total ichthyofauna, the majority of which occur along the Levantine coast with significantly decreasing numbers in the clockwise direction towards the Black Sea.

**Key words:** Marine fish fauna, inventory, checklist, Mediterranean Sea

### 1. Introduction

Located at the junction of three continents, Türkiye occupies an extraordinary geographic position in the northern hemisphere with a remarkably long coastline of over 8000 km, bordered by the Levantine Sea on the southern coast, the Aegean Sea along the western shores, the Sea of Marmara in the northwest, and the Black Sea on the northern coast. This geographic diversity contributes to relatively rich marine biodiversity, making Türkiye's coastal and marine ecosystems some of the most varied and biologically significant throughout the eastern Mediterranean Sea basin (Çınar and Bilecenoğlu, 2014). Each sea has its own unique characteristics, from the warm, saline waters of the northern Levant shores to the nutrient-rich, brackish waters of the Black Sea (Kucuksezgin et al., 2019), creating diverse habitats that support a wide array of marine fish of different origins (Bilecenoğlu et al., 2002).

General knowledge of the Turkish marine ichthyofauna dates back to the ancient Greek and Roman periods and continued into the Ottoman era, but more intensive research began taking place in the early 20th century (Bilecenoğlu et al., 2014). Several inventory studies carried out at regional levels, such as research conducted on the Sea of Marmara (Devedjian, 1915), Black Sea (Slastenenko, 1955–1956), northern Levant Sea (Akyuz, 1957), and Aegean Sea (Geldiay, 1969), were followed by comprehensive country-based lists, revealing that the ichthyofauna in the region was much more diverse than anticipated (Bilecenoğlu et

al., 2002). Building upon a previous inventory, Fricke et al. (2007) presented a significant increase in the number of species while calling attention to the relatively high number of emblematic species in need of protection. The last updated checklist, including 512 fish species from the Turkish coasts, was published by Bilecenoğlu et al. (2014).

Turkish marine fish diversity has been increasing at an unprecedented rate, especially during the last few decades, as a result of the growing number of human-mediated introductions of nonindigenous taxa (Çınar et al., 2021), the quantitative increase in faunal surveys shedding light on previously unreported or overlooked native fish (Engin et al., 2017, 2018a; Kabasakal and Bilecenoğlu, 2020), and descriptions of species new to science (Bilecenoğlu et al., 2017; Engin and İnnal, 2017; Engin et al., 2018b). Although they are represented by only a few species along the Turkish coasts, it is also worth noting the inclusion of tropical taxa that have expanded their ranges via natural dispersal (for example, through the Strait of Gibraltar). Apart from this constant numeric increase in fish richness, the faunal structures of the Sea of Marmara and Black Sea have also been altered by Mediterraneanization, entailing the accelerated introduction of thermophilic fish to these regions (Bilecenoğlu and Doyuk, 2021; Bilecenoğlu and Yokeş, 2022b).

Species checklists are lists of taxa reported to occur in a given geographical area and period, and they have always been a prerequisite for the assessment of local

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biodiversity, the development of long-term management and conservation plans, and the ability to carry out ecological studies (Fischer, 2013; Reyserhove et al., 2020; Lo Brutto, 2023). Provided that they are regularly updated, such inventories comprise essential information for understanding the shifts in species' distribution under the influence of natural and human-induced environmental changes, trends in the population structure of rare or endangered and endemic taxa, and the dispersal patterns of alien species (Fourrière et al., 2016; Reyserhove et al., 2020; Ragkousis et al., 2023). Although the importance of taxonomic research is not fully recognized in the fisheries sector, distinct nomenclatural changes have been observed, especially with the recent advances and rapid involvement of genetic studies in fish taxonomy. Nevertheless, the lack of pertinent information can potentially lead to undesired consequences in fishery management (Fischer, 2013).

A decade has passed since the last checklist of Turkish marine fish was published (Bilecenoğlu et al., 2014), and that checklist is obviously outdated as several species have been added to the inventory or have had their distribution ranges expanded to previously unreported localities. This raises the urgent need to review, validate, and update the ichthyofaunal list of species in accordance with current scientific information.

## 2. Materials and methods

The present study provides the updated version of the last available checklist of marine fishes of Türkiye (Bilecenoğlu et al., 2014), compiled mainly based on scientific papers published during the last decade until the end of May 2024. An opportunistic sampling approach involving the screening of online data sources (websites of local and national newspapers) was also conducted, revealing the presence of two species previously unrecorded from Türkiye (*Istiompax indica* (Cuvier, 1832) and *Mola alexandrini* (Ranzani, 1839)), and the relevant data were presented following the code of ethics proposed by Monkman et al. (2017). Records based on ichthyoplankton data were included only if the identification was further validated by DNA barcoding. Species lacking valid proof

of their presence were excluded from the faunal list. Dalaman Creek is considered the boundary between the Aegean and Levantine seas, and any fish record given from the Çanakkale (Dardanelles) and İstanbul (Bosporus) Straits was added to the faunal list of the Sea of Marmara. As the first records of species up to 2014 were given in the previous checklist (Bilecenoğlu et al., 2014), species occurrences from the Turkish seas before 2014 are indicated with a plus sign (+) in the checklist unless a missed/erroneous reference in the past is specified. Identifications marked with "cf." imply that further studies are required to substantiate the occurrence of the relevant species. All alien fish reported from Turkish seas are indicated with an asterisk before the species name, signifying taxa introduced outside of their natural range and/or beyond their natural dispersal potential by direct or indirect human assistance (Zenetos et al., 2010). The scientific names follow the World Register of Marine Species (WoRMS).<sup>1</sup> The conservation status of the species according to international treaties (Bern Convention<sup>2</sup> and Barcelona Convention<sup>3</sup>), the regional red list (Abdul Malak et al., 2011), and national legislation (species prohibited for fishing according to Fisheries Notifications No. 5/1<sup>4</sup> and 5/2<sup>5</sup>) is noted for each relevant taxon.

## 3. Results

### 3.1. Assessment of fish taxa

The distribution ranges of a total of 12 species were revised and corrected during the compilation of the checklist, due to either new information available or neglected records that did not appear in the previous list compiled by Bilecenoğlu et al. (2014), as follows: 1) *Lamna nasus* (Bonnaterre, 1788): This species was previously recorded from the Sea of Marmara (Devedjian, 1915), the Aegean Sea (Geldiay, 1969), and the northeastern Levant (Akyuz, 1957), but there is only one evidence-based observation from Bozcaada/Aegean Sea (Kabasakal and Kabasakal, 2004) and its occurrence along the rest of the Turkish coastline is currently questionable. 2) *Raja montagui* Fowler, 1910: The current distribution of the species is updated following Mendez et al.<sup>6</sup> and previous records

<sup>1</sup>WoRMS Editorial Board (2024). World Register of Marine Species [online]. Website <https://www.marinespecies.org> [accessed 31 May 2024].

<sup>2</sup>Bern Convention (1997). Appendices of the Convention and Amendments to the Appendices [online]. Website <https://www.coe.int/en/web/bern-convention/appendices> [accessed 31 May 2024].

<sup>3</sup>Barcelona Convention (2024). Decision IG.26/4 [online]. Website <https://spa-rac.org/en/decisions> [accessed 31 May 2024].

<sup>4</sup>Tarım ve Orman Bakanlığı (2020). 5/1 Numaralı Ticari Amaçlı Su Ürünleri Avcılığının Düzenlenmesi Hakkında Tebliğ (No: 2020/20) [online]. Website <https://www.resmigazete.gov.tr/eskiler/2020/08/20200822-8.pdf> [accessed 31 May 2024].

<sup>5</sup>Tarım ve Orman Bakanlığı (2020). 5/2 Numaralı Amatör Amaçlı Su Ürünleri Avcılığının Düzenlenmesi Hakkında Tebliğ (No: 2020/21) [online]. Website <https://www.resmigazete.gov.tr/eskiler/2020/08/20200822-9.pdf> [accessed 31 May 2024].

<sup>6</sup>Mendez L, Bacquet A, Briand F (2022). Guide of Mediterranean Skates and Rays [online]. Website <https://www.ciesm.org/Guide/skatesandrays/> [accessed 31 May 2024].

given from the Sea of Marmara and Levant Sea by Mater and Meriç (1996) are now treated as doubtful. 3) *Raja undulata* Lacepède, 1802: Only the Aegean Sea occurrence of the species is considered valid (see Mendez et al.<sup>4</sup>). 4) *Ophichthus rufus* (Rafinesque, 1810): This unique fish endemic to the Mediterranean Sea was known from the Aegean and Levantine coasts of Türkiye by only a few reports (Bilecenoglu et al., 2002), all lacking concrete evidence on its occurrence. More recently, an individual with total length of 59.5 cm was captured from a depth of 50 m off the Güzelyalı coast of the city of Çanakkale (Sea of Marmara)<sup>7</sup> and identified by Prof. Dr. Sezginer Tunçer (Çanakkale Onsekiz Mart University). Based on that finding, the actual distribution of *O. rufus* is confined to the Çanakkale Strait and the rest of the previous records remain questionable. 5) *Sprattus sprattus* (Linnaeus, 1758): Previous records from the northern Levantine Sea are now assumed invalid following FishBase.<sup>8</sup> 6) *Alosa immaculata* Bennett, 1835: An overlooked record of the species in the Sea of Marmara (Eryılmaz, 2001) was added. 7) *Lampris guttatus* (Brünnich, 1788): This species is mainly distributed in the western and central Mediterranean basin (Albano et al., 2022), and the single evidence-based record from Türkiye was given from the northeastern Levantine Sea by Ergüden et al. (2019). Previous records from the Aegean Sea are currently unverified. 8) *Merlangius merlangus* (Linnaeus, 1758): The core presence of the species in the Black Sea was erroneously neglected in the previous checklist and relevant data are now provided. 9) *Gobius bucchichi* Steindachner, 1870 and 10) *G. incognitus* Kovačić & Šanda, 2016: The newly described cryptic goby species *G. incognitus* was discovered through phylogenetic analyses as a genetically highly distinct clade among morphologically similar specimens tentatively identified as *G. bucchichi* (Kovačić et al., 2023), which were surprisingly proved to occupy distinct geographical niches along the Turkish coastline. *G. bucchichi* is currently known only from Saros Bay (northern Aegean Sea) and the Marmara Archipelago (Sea of Marmara), while the latter species seems to be very common along the Aegean Sea coast, with scattered records from the northern Levant (Bilecenoglu and Yokeş, 2022a). 11) *Dentex macrophthalmus* (Bloch, 1791): The record from the Sea of Marmara reported by Torcu Koç (2004) that did not appear in the previous checklist compiled by Bilecenoglu et al. (2014) was added. 12) *Luvarus imperialis* Rafinesque, 1810: Previous records from the Aegean Sea and Levantine Sea could not be verified due to the lack of actual collection-based data. Therefore, the single record by Irmak and Alparslan (2008)

from the Çanakkale Strait (Sea of Marmara), which was unintentionally neglected by Bilecenoglu et al. (2014), is regarded as the sole valid occurrence of this species.

Species records lacking evidence of presence, representing obvious taxonomic confusions, or based on misidentifications were previously examined in detail by Bilecenoglu et al. (2002), Bilecenoglu et al. (2014), Bilecenoglu (2010, 2020), and Çınar et al. (2021) and will not be mentioned herein. However, there are further species and range expansion records to be excluded from the inventory, as follows: 1) *Carcharias taurus* Rafinesque, 1810: Not only the historical records of the sand tiger shark (see Bilecenoglu et al., 2002) but also more recent mentions of the species (Ismen et al., 2009; Cengiz et al., 2011) failed to provide sufficient evidence on its occurrence (such as photographic data, specimen kept in a museum, etc.). Therefore, it will not be regarded as an element of the Turkish fauna until its existence is satisfactorily verified. 2) *Centrophorus granulosus* (Bloch & Schneider, 1801): Revision of the genus (White et al., 2013) revealed that *Centrophorus uyato* (Rafinesque, 1810) was previously confused and misidentified as *Centrophorus granulosus* (Bloch and Schneider, 1801) in the Mediterranean Sea, the latter species evidently not occurring in the region but rather the Atlantic, Indian, and Pacific oceans. Additional molecular analyses by Verissimo et al. (2014) and Kousteni et al. (2021) also supported the presence of a single species, *C. uyato*, in the Mediterranean Sea. In the present checklist, *C. granulosus* was removed and all previous corresponding records are now listed under *C. uyato*. 3) *Mobula japonica* (Müller & Henle, 1841): Recent research demonstrated that *M. japonica* is a junior subjective synonym of *M. mobular* (Bonnaterre, 1788) (White et al., 2017); therefore, the previous records from Türkiye by Sakalli et al. (2016) and Gökoğlu and Teker (2022) were not included in the checklist. 4) *Acipenser sturio* Linnaeus, 1758 and 5) *A. nudiventris* Lovetsky, 1828: Both species were removed from the checklist since they have been extinct for over two decades in Türkiye (Zengin et al., 2013). 6) *Trachurus indicus* Nekrasov, 1966: According to Golani et al. (2021), further taxonomical analyses are needed to confirm the record of Dalyan and Eryılmaz (2009). 7) Despite extensive examination of all historical and contemporary records, no concrete evidence (such as photographs, museum material, etc.) proving the occurrence of the following five species in Türkiye was found: *Campogramma glaycos* (Lacepède, 1801), *Gaidropsarus vulgaris* (Cloquet, 1824), *Hyporhamphus picarti* (Valenciennes, 1847), *Orcynopsis unicolor* (Geoffroy Saint-Hilaire, 1817), and *Stromateus*

<sup>7</sup>Anadolu Ajansı (2021). Yılan kurdu balığı Çanakkale Boğazı'nda görüntülendi [online]. Website: [https://www.ntv.com.tr/galeri/turkiye/yilan-kurdu-baligi-canakkale-bogazinda-goruntulendi\\_EJNQupXeky7HPQwySU54g](https://www.ntv.com.tr/galeri/turkiye/yilan-kurdu-baligi-canakkale-bogazinda-goruntulendi_EJNQupXeky7HPQwySU54g) [accessed 24 February 2021].

<sup>8</sup>Froese R, Pauly D (editors) (2024). FishBase [online]. Website [www.fishbase.org](http://www.fishbase.org) [accessed 20 February 2024].

*fiatola* Linnaeus, 1758. Thus, these species were excluded from the updated checklist. 8) *Belone svetovidovi* Collette & Parin, 1970: This species was recently recorded from the Sea of Marmara and Black Sea by Turan et al. (2023), but the associated NCBI sequences (OR234691.1 and OR234700.1) clearly indicate İskenderun Bay (northeastern Levantine Sea) as the collection locality. This confusing record will not be considered valid until further findings from the Black Sea are published. 9) *Monotaxis grandoculis* (Forsskål, 1775): The occurrence of this species is known from a single record from the Mediterranean Sea (Bilecenoglu, 2007) since no further observations have been made so far throughout the Levantine basin, which is quite odd for a Red Sea-originated alien species. Considering that the aforementioned record was based on an underwater photograph and a captured individual was not examined, Golani (2010) and Golani et al. (2021) suggested that it should not be added to the Mediterranean ichthyofauna. Thus, it has been excluded from the Turkish marine fish inventory until an actual collection-based report is available. 10) *Lagocephalus sceleratus* (Gmelin, 1789): The Black Sea record of this species was based on a local newspaper article (Bilecenoglu and Öztürk, 2018) and has been excluded from the updated checklist due to the lack of collected individuals so far from the region. 11) *Torquigener flavimaculosus* Hardy & Randall (1983): Morphological and genetic analyses suggested that *T. flavimaculosus* and *T. hypselogoneion* (Bleeker, 1852) are conspecific, making the former species a junior synonym of the latter (Bilecenoglu and Yokeş, 2022c).

### 3.2. New records

***Istiompax indica* (Cuvier, 1832):** On 30 December 2022, a large-sized istiophorid with total length of over 4 m and weighing 274 kg was captured by artisanal fishermen from the Yumurtalık shores of Adana (northeastern Levant). This extraordinary catch appeared swiftly in local newspapers, associated with a photograph of the individual (Figure 1A<sup>9</sup>) in which not all taxonomical characters were recognizable, hindering a precise identification. However, a video of the same incident was also shared online,<sup>10</sup> in which essential distinguishing characteristics presented by Nakamura (1985) such as highly elevated nape, height of the anterior lobe of the first dorsal fin lower than body depth, and rigid pectoral fins that cannot be folded back against sides of the body were visible, revealing the

<sup>9</sup> Gazete Duvar (2022). Adana'da 274 kiloluk 'Blue Marlin' yakalandı: Daha önce görülmedi [online]. Website <https://www.gazeteduvar.com.tr/adanada-274-kiloluk-blue-marlin-yakalandi-daha-once-gorulmedi-haber-1596229> [accessed 31 May 2024; photograph retrieved from this website].

<sup>10</sup> DailyMotion (2022). Adana'da yakalandı: 274 kilo ağırlığında [online]. Website <https://www.dailymotion.com/video/x8grofg> [accessed 31 May 2024; video retrieved from this website].

<sup>11</sup> YouTube (2021). Balıkçıların ağına takılan nesli tehlike altındaki ay balığı, tekrar denize bırakıldı [online]. Website <https://www.youtube.com/watch?v=T3kMonJQcY> [accessed 31 May 2024; video retrieved from this website].

<sup>12</sup> Anadolu Ajansı (2021). Balıkçıların ağına Akdeniz'de nadir görülen 'ay balığı' takıldı [online]. Website <https://www.ntv.com.tr/turkiye/balikcilarin-agina-akdenizde-nadir-gorulen-ay-baligi-takildi,36rVbpNWckmwPFWV10i1ew> [accessed 31 May 2024; photograph retrieved from this website].

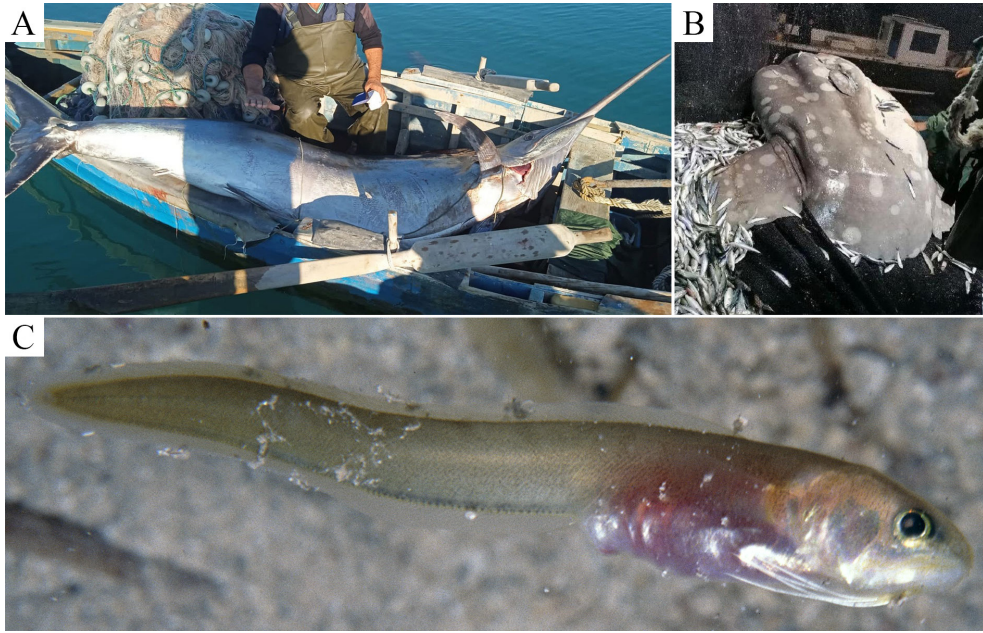
species to be *I. indica*. Observation of an individual along the Turkish coast following its recent finding off Tripoli (Lebanon) (Tsagarakis et al., 2021) is of special interest, highlighting the very probable introduction of *I. indica* via the Suez Canal, but it is not appropriate to suggest an origin at the moment (for details, see Golani et al., 2021). Further occurrences must be monitored.

***Mola alexandrini* (Ranzani, 1839):** Sunfishes of the genus *Mola* are represented by two species in the Mediterranean Sea, *Mola mola* and *M. alexandrini* (Kovačić et al., 2021), and the occurrence of the latter from Türkiye was recently described by Nyegaard et al. (2018) based on unpublished genetic data with no precise locality indicated (HQ167728). On 11 February 2021, an adult sunfish with approximate weight of 250 kg was captured (and released afterward<sup>11</sup>) by a purse seine boat off the Karataş coast of Adana (northeastern Levantine Sea). A combination of diagnostic characteristics (Sawai et al., 2018) including rounded clavus, distinct bump on head profile, and chin (Figure 1B<sup>12</sup>), enabled the precise identification of the individual as *M. alexandrini*. A thorough examination of online data sources published over the last decade did not yield further observations from the rest of the Turkish coastline, and so this is assumed to be a quite rare species that may have been overlooked previously.

***Paraphidion vassali* (Risso, 1810):** Only two records of this species, one from the Sea of Marmara and one from the Aegean Sea, were reported from Türkiye in the last century (Bilecenoglu et al., 2014), and a previously overlooked observation from the northern Levantine coast is being presented here for the first time. An underwater photograph taken in September 2009 at Kaş, Antalya (Figure 1C), was recently made available to the author (M.B.), clearly belonging to *P. vassali* as evidenced by the two pelvic fins almost equal in length (vs. unequal in length in *Ophidion* spp.) and pale gill chamber and guts (Nielsen et al., 1999). The dorsal and anal fins are not edged with black (unlike *Ophidion* spp.), as also observed by Ninni (1923).

### 3.3. Brief analysis of Turkish marine fish biodiversity

As of May 2024, the Turkish marine fish diversity comprises 552 species belonging to 165 families (Table), in which the Levantine coast has the highest diversity, respectively followed by the Aegean Sea, Sea of Marmara, and Black Sea (Figure 2). The majority of the taxa belong



**Figure 1.** A) The black marlin individual (*Istiompax indica* (Cuvier, 1832)) captured from the Yumurtalık shore; B) the giant sunfish (*Mola alexandrini* (Ranzani, 1839)) captured from the Karataş shore; C) *Parophidion vassali* individual observed at Kaş, Antalya Bay (Photograph: M. Baki Yokeş).

to Teleostei (479 spp.), followed by Elasmobranchii (68 spp.), Chondrostei (3 spp.), Petromyzonti (1 sp.), and Holocephali (1 sp.). The most diverse families overall are Gobiidae (59 spp.), Sparidae (26 spp.), Labridae (21 spp.), and Blenniidae (19 spp.), and these are also the top families in each of the seas surrounding Türkiye. The number of alien marine fish in Türkiye has now reached 90 species, corresponding to 16.3% of the total ichthyofauna, with a significant quantitative decrease in the clockwise direction from south to north (Levantine Sea: 84 spp., Aegean Sea: 49 spp., Sea of Marmara: 9 spp., Black Sea: 3 spp.). A total of 62 species have various conservation statuses within the national legislation and international treaties. Thirty-four fish species are included in the regional Mediterranean Sea Red List of the IUCN, including 9 critically endangered, 11 endangered, and 14 vulnerable species, the majority of which belong to Elasmobranchii. As part of the national legislation (Fisheries Notifications No. 5/1 and 5/2), 27 species are prohibited from being caught, while 47 and 21 fish are listed in the appendices of the Barcelona Convention and Bern Convention, respectively.

#### 4. Discussion

The number of fish species in Türkiye has increased by 7.8% since the last checklist ( $n = 512$  in Bilecenoglu et al., 2014), albeit at varying rates depending on the locality (i.e. 8.2% increase in the Levantine Sea, 7.4% in the Sea of Marmara, 5.2% in the Black Sea, and 3.8% in the Aegean Sea; see Figure 3). Over 40 species have expanded their known

distributions to new localities, while 56 taxa (31 of which are aliens) were recorded for the first time in Türkiye in the last decade. The significant rise in Levantine fish diversity can be explained by the ongoing introduction of alien species as the region is very close to the Suez Canal, which is the main pathway for the influx of taxa originating from the Indo-Pacific and Red Sea (Çinar et al., 2021). At the same time, the addition of a remarkable number of native species (*Somniosus rostratus*, *Paralepis coregonoides*, etc.) should not be overlooked. Recent ichthyofaunistic changes in the Sea of Marmara and Black Sea are inevitably linked to the influx of thermophilic native taxa following prominent increases in sea-surface temperatures, especially in the last decade (Bilecenoglu and Doyuk, 2021; Bilecenoglu and Yokeş, 2022b), while the relatively limited increase in the Aegean Sea is generally related to intense research concentrated on cryptobenthic fish (Engin et al., 2017, 2018a) and the introduction of alien species.

The high number of misidentified species in the Mediterranean fish fauna has long been a largely unresolved taxonomic issue, and their removal from faunal guides is a difficult task. To overcome this problem, a set of evidence-based best practice protocols were presented both for first records (Bello et al., 2014) and for the evaluation of historical inventories (Kovačić et al., 2021). Questionable records of Turkish fish diversity were first brought to the attention of the ichthyological community by Bilecenoglu et al. (2002); as a result, 45 taxa were excluded from the list because no data were available

**Table.** Updated checklist of Turkish marine fish. Only first and/or substantiated records are included, where numbers in columns indicate the relevant reference listed at the end of the table. Species previously listed by Bilecenoglu et al. (2014) are shown with a plus (+) sign. BS: Black Sea; SM: Sea of Marmara; AS: Aegean Sea; LS: Levantine Sea; \*: alien species; BC: Barcelona Convention; BN: Bern Convention; NL: national legislation (Fisheries Notifications No. 5/1 and 5/2). Abbreviations for IUCN Red List categories are as follows: CR: critically endangered, EN: endangered, VU: vulnerable.

Group/Species	BS	SM	AS	LS	Notes
<b>CLASS: PETROMYZONTI</b>					
<b>Family: Petromyzontidae</b>					
<i>Petromyzon marinus</i> Linnaeus, 1758			+	+	BC, BN
<b>CLASS: ELASMOBRANCHII</b>					
<b>Family: Hexanchidae</b>					
<i>Heptranchias perlo</i> (Bonnaterre, 1788)			+	+	BC, VU
<i>Hexanchus griseus</i> (Bonnaterre, 1788)	+	+	+	+	BC, VU
<b>Family: Rhincodontidae</b>					
* <i>Rhincodon typus</i> Smith, 1828				1	
<b>Family: Odontaspidae</b>					
<i>Odontaspis ferox</i> (Risso, 1810)			+	+	BC, VU
<b>Family: Alopiidae</b>					
<i>Alopias superciliosus</i> Lowe, 1841		+	+	+	BC, NL
<i>Alopias vulpinus</i> (Bonnaterre, 1788)	+	+	+	+	BC, VU, NL
<b>Family: Cetorhinidae</b>					
<i>Cetorhinus maximus</i> (Gunnerus, 1765)			+	+	BC, BN, VU, NL
<b>Family: Lamnidae</b>					
<i>Carcharodon carcharias</i> (Linnaeus, 1758)		+	+	+	BC, BN, EN, NL
<i>Isurus oxyrinchus</i> Rafinesque, 1810			+	+	BC, BN, CR, NL
<i>Lamna nasus</i> (Bonnaterre, 1788)			+	+	BC, BN, CR, NL
<b>Family: Scyliorhinidae</b>					
<i>Scyliorhinus canicula</i> (Linnaeus, 1758)	+	+	+	+	
<i>Scyliorhinus stellaris</i> (Linnaeus, 1758)		+	+	+	
<b>Family: Pentanchidae</b>					
<i>Galeus melastomus</i> Rafinesque, 1810		+	+	+	
<b>Family: Triakidae</b>					
<i>Galeorhinus galeus</i> (Linnaeus, 1758)		+	+	+	BC, NL
<i>Mustelus asterias</i> Cloquet, 1821	+	+	+	+	BC, EN
<i>Mustelus mustelus</i> (Linnaeus, 1758)	2	+	+	+	BC, EN
<i>Mustelus punctulatus</i> Risso, 1827			+	+	BC
<b>Family: Carcharhinidae</b>					
<i>Carcharhinus altimus</i> (Springer, 1950)				+	
<i>Carcharhinus brachyurus</i> (Günther, 1870)				3	
<i>Carcharhinus brevipinna</i> (Müller & Henle, 1839)			+	+	
<i>Carcharhinus falciformis</i> (Bibron, 1839)				3	NL
<i>Carcharhinus limbatus</i> (Müller & Henle, 1839)				+	
<i>Carcharhinus cf. obscurus</i> (Lesueur, 1818)				3	
<i>Carcharhinus plumbeus</i> (Nardo, 1827)			+	+	BC, EN, NL
<i>Prionace glauca</i> (Linnaeus, 1758)		+	+	+	BC, BN, VU, NL
<b>Family: Sphyrnidae</b>					
<i>Sphyrna zygaena</i> (Linnaeus, 1758)			+	+	BC, VU, NL
<b>Family: Dalatiidae</b>					
<i>Dalatias licha</i> (Bonnaterre, 1788)		+	+	+	
<b>Family: Etmopteridae</b>					

Table. (Continued.)

<i>Etmopterus spinax</i> (Linnaeus, 1758)			+	+	
<b>Family: Somniosidae</b>					
<i>Somniosus rostratus</i> (Risso, 1827)				4	
<b>Family: Oxynotidae</b>					
<i>Oxynotus centrina</i> (Linnaeus, 1758)		+	+	+	BC, CR, NL
<b>Family: Centrophoridae</b>					
<i>Centrophorus uyato</i> (Rafinesque, 1810)		+	+	+	BC, VU
<b>Family: Squalidae</b>					
<i>Squalus acanthias</i> Linnaeus, 1758	+	+	+	+	BC, EN, NL
<i>Squalus blainville</i> (Risso, 1827)	+	+	+	+	NL
<b>Family: Echinorhinidae</b>					
<i>Echinorhinus brucus</i> (Bonnaterre, 1788)		+	+	+	
<b>Family: Squatinidae</b>					
<i>Squatina aculeata</i> Cuvier, 1829			+	+	BC, CR, NL
<i>Squatina oculata</i> Bonaparte, 1840		+	+	+	BC, CR, NL
<i>Squatina squatina</i> (Linnaeus, 1758)	+	+	+	+	BC, BN, CR, NL
<b>Family: Torpedinidae</b>					
<i>Tetronarce nobiliana</i> (Bonaparte, 1835)		+	+	+	
<i>Torpedo marmorata</i> Risso, 1810		+	+	+	
<i>Torpedo torpedo</i> (Linnaeus, 1758)		+	+	+	
<b>Family: Rhinobatidae</b>					
<i>Rhinobatos rhinobatos</i> (Linnaeus, 1758)			+	+	BC, EN, NL
<b>Family: Glaucostegidae</b>					
<i>Glaucostegus cemiculus</i> (Geoffroy Saint-Hilaire, 1817)			+	+	BC, EN, NL
<b>Family: Rajidae</b>					
<i>Dipturus batis</i> (Linnaeus, 1758)		+	+	+	BC, CR
<i>Dipturus oxyrinchus</i> (Linnaeus, 1758)		+	+	+	
<i>Leucoraja circularis</i> (Couch, 1838)			+	+	BC, CR
<i>Leucoraja fullonica</i> (Linnaeus, 1758)			+	+	
<i>Leucoraja naevus</i> (Müller & Henle, 1841)		+	+	+	
<i>Raja asterias</i> Delaroche, 1809		+	+	+	
<i>Raja clavata</i> Linnaeus, 1758	+	+	+	+	NL
<i>Raja miraletus</i> Linnaeus, 1758		+	+	+	
<i>Raja montagui</i> Fowler, 1910			+		
<i>Raja polystigma</i> Regan, 1923			+		
<i>Raja radula</i> Delaroche, 1809		+	+	+	
<i>Raja undulata</i> Lacepède, 1802			+		EN
<i>Rostroraja alba</i> (Lacepède, 1803)			+	+	BC, BN, CR
<b>Family: Dasyatidae</b>					
<i>Bathytoshia lata</i> (Garman, 1880)			+	+	BC
<i>Dasyatis marmorata</i> (Steindachner, 1892)				+	BC
<i>Dasyatis pastinaca</i> (Linnaeus, 1758)	+	+	+	+	BC
<i>Dasyatis tortonesei</i> Capapé, 1975		5	+	+	
* <i>Himantura leoparda</i> (Manjaji-Matsumoto & Last, 2008)				6	
* <i>Himantura uarnak</i> (Forsskål, 1775)				+	
<i>Pteroplatytrygon violacea</i> (Bonaparte, 1832)			+	+	BC
<i>Taeniurops grabatus</i> (Geoffroy Saint-Hilaire, 1817)				+	
<b>Family: Gymnuridae</b>					



Table. (Continued.)

<i>Gymnura altavela</i> (Linnaeus, 1758)	+	+	+	+	BC
<b>Family: Myliobatidae</b>					
<i>Aetomylaeus bovinus</i> (Geoffroy Saint-Hilaire, 1817)		7	+	+	BC
<i>Myliobatis aquila</i> (Linnaeus, 1758)		+	+	+	BC
<b>Family: Rhinopteridae</b>					
<i>Rhinoptera marginata</i> (Geoffroy Saint-Hilaire, 1817)			+	+	BC
<b>Family: Mobulidae</b>					
<i>Mobula mobular</i> (Bonnaterre, 1788)			+	+	BC, BN, EN, NL
<b>CLASS: HOLOCEPHALI</b>					
<b>Family: Chimaeridae</b>					
<i>Chimaera monstrosa</i> Linnaeus, 1758		+	+	+	
<b>CLASS: CHONDROSTEI</b>					
<b>Family: Acipenseridae</b>					
<i>Acipenser gueldenstaedtii</i> Brandt & Ratzeburg, 1833	+	+	+		NL
<i>Acipenser stellatus</i> Pallas, 1771	+	+	+		BN, NL
<i>Huso huso</i> (Linnaeus, 1758)	+	+	+		BC, BN, NL
<b>CLASS: TELEOSTEI</b>					
<b>Family: Notacanthidae</b>					
<i>Notacanthus bonaparte</i> Risso, 1840			+	+	
<b>Family: Chlopsidae</b>					
<i>Chlopsis bicolor</i> Rafinesque, 1810				+	
<b>Family: Synphobranchidae</b>					
<i>Dysomma brevirostre</i> (Facciola, 1887)			+	+	
<b>Family: Anguillidae</b>					
<i>Anguilla anguilla</i> (Linnaeus, 1758)	+	+	+	+	BC
<b>Family: Nemichthyidae</b>					
<i>Nemichthys scolopaceus</i> Richardson, 1848			+	+	
<b>Family: Heterenchelyidae</b>					
<i>Panturichthys fowleri</i> (Ben-Tuvia, 1953)				+	
<b>Family: Muraenidae</b>					
<i>Enchelycore anatina</i> (Lowe, 1838)			+	+	
<i>Gymnothorax unicolor</i> (Delaroche, 1809)			+	+	
<i>Muraena helena</i> Linnaeus, 1758		+	+	+	
<b>Family: Ophichthidae</b>					
<i>Apterichtus caecus</i> (Linnaeus, 1758)				+	
<i>Dalophis imberbis</i> (Delaroche, 1809)			+	+	
<i>Echelus myrus</i> (Linnaeus, 1758)			+	+	
<i>Ophichthus rufus</i> (Rafinesque, 1810)		+			
<i>Ophisurus serpens</i> (Linnaeus, 1758)		8	+	+	
<i>Pisodonophis semicinctus</i> (Richardson, 1848)			+	9	
<b>Family: Muraenesocidae</b>					
* <i>Muraenesox cinereus</i> (Forsskål, 1775)				10	
<b>Family: Nettastomatidae</b>					
<i>Facciolella oxyrhyncha</i> (Bellotti, 1883)			+	+	
<i>Nettastoma melanura</i> Rafinesque, 1810			+	+	
<b>Family: Congridae</b>					
<i>Ariosoma balearicum</i> (Delaroche, 1809)			+	+	
<i>Conger conger</i> (Linnaeus, 1758)	+	+	+	+	

Table. (Continued.)

<i>Gnathophis mystax</i> (Delaroché, 1809)			+	+	
<b>Family: Engraulidae</b>					
* <i>Encrasicholina gloria</i> Hata & Motomura, 2016				11	
<i>Engraulis encrasicolus</i> (Linnaeus, 1758)	+	+	+	+	
* <i>Stolephorus insularis</i> Hardenberg, 1933				+	
<b>Family: Clupeidae</b>					
<i>Sprattus sprattus</i> (Linnaeus, 1758)	+	+	+		
<b>Family: Dussumieriidae</b>					
* <i>Dussumieria elopsoides</i> Bleeker, 1849				+	
* <i>Etrumeus golanii</i> DiBattista, Randall & Bowen, 2012			+	+	
<b>Family: Ehiravidae</b>					
<i>Clupeonella cultriventris</i> (Nordmann, 1840)	+	+			
<b>Family: Alosidae</b>					
<i>Alosa caspia</i> (Eichwald, 1838)	+	+			
<i>Alosa fallax</i> (Lacepède, 1803)	+	+	+	+	BC, BN
<i>Alosa immaculata</i> Bennett, 1835	+	12			BN
<i>Alosa maeotica</i> (Grimm, 1901)	+	+			
<i>Alosa tanaica</i> (Grimm, 1901)	+	+			
<i>Sardina pilchardus</i> (Walbaum, 1792)	+	+	+	+	
<b>Family: Dorosomatidae</b>					
* <i>Herklotsichthys punctatus</i> (Rüppell, 1837)				+	
<i>Sardinella aurita</i> Valenciennes, 1847	+	+	+	+	
<i>Sardinella maderensis</i> (Lowe, 1838)			+	+	
<b>Family: Chanidae</b>					
* <i>Chanos chanos</i> (Forsskål, 1775)				+	
<b>Family: Plotosidae</b>					
* <i>Plotosus lineatus</i> (Thunberg, 1787)				13	
<b>Family: Argentinidae</b>					
<i>Argentina sphyraena</i> Linnaeus, 1758		+	+	+	
<i>Glossanodon leioglossus</i> (Valenciennes, 1848)			+		
<b>Family: Microstomatidae</b>					
<i>Microstoma microstoma</i> (Risso, 1810)			+		
<i>Nansenia oblita</i> (Facciola, 1887)			+		
<b>Family: Salmonidae</b>					
<i>Salmo labrax</i> Pallas, 1814	+				NL
<b>Family: Gonostomatidae</b>					
<i>Cyclothone braueri</i> Jespersen & Tåning, 1926			+	+	
<i>Cyclothone pygmaea</i> Jespersen & Tåning, 1926				+	
<i>Gonostoma denudatum</i> Rafinesque, 1810				+	
<b>Family: Sternoptychidae</b>					
<i>Argyropelecus hemigymnus</i> Cocco, 1829		+	+	+	
<i>Maurolicus muelleri</i> (Gmelin, 1789)		+	+		
<b>Family: Phosichthyidae</b>					
<i>Vinciguerria attenuata</i> (Cocco, 1838)			+	+	
<i>Vinciguerria poweriae</i> (Cocco, 1838)			+	14	
<b>Family: Stomiidae</b>					
<i>Bathophilus nigerrimus</i> Giglioli, 1882			+		
<i>Chauliodus sloani</i> Bloch & Schneider, 1801			+	+	
<i>Stomias boa</i> (Risso, 1810)		+	+	+	

Table. (Continued.)

<b>Family: Aulopidae</b>					
<i>Aulopus filamentosus</i> (Bloch, 1792)			+	+	
<b>Family: Chlorophthalmidae</b>					
<i>Chlorophthalmus agassizi</i> Bonaparte, 1840			+	+	
<b>Family: Ipnoptidae</b>					
<i>Bathypterois mediterraneus</i> Bauchot, 1962			+	15	
<b>Family: Synodontidae</b>					
* <i>Saurida lessepsianus</i> Russell, Golani & Tikochinski, 2015			+	+	
* <i>Synodus randalli</i> Cressey, 1981				16	
<i>Synodus saurus</i> (Linnaeus, 1758)			+	+	
<b>Family: Paralepididae</b>					
<i>Arctozenus risso</i> (Bonaparte, 1840)			+	+	
<i>Lestidiops jayakari</i> (Boulenger, 1889)			+	+	
<i>Lestidiops sphyrenoides</i> (Risso, 1820)			+		
<i>Paralepis coregonoides</i> Risso, 1820				14	
<i>Sudis hyalina</i> Rafinesque, 1810			+	+	
<b>Family: Evermannellidae</b>					
<i>Evermannella balbo</i> (Risso, 1820)				+	
<b>Family: Myctophidae</b>					
<i>Benthoosema glaciale</i> (Reinhardt, 1837)		+	+	+	
<i>Ceratoscopelus maderensis</i> (Lowe, 1839)			+	+	
<i>Diaphus holti</i> Täning, 1918			+	+	
<i>Diaphus metopoclampus</i> (Cocco, 1829)			+	+	
<i>Diaphus rafinesquii</i> (Cocco, 1838)			+	14	
<i>Electrona risso</i> (Cocco, 1829)				+	
<i>Gonichthys cocco</i> (Cocco, 1829)				+	
<i>Hygophum benoiti</i> (Cocco, 1838)		+	+	+	
<i>Hygophum hygomii</i> (Lütken, 1892)			17	14	
<i>Lampanyctus crocodilus</i> (Risso, 1810)		+	+	+	
<i>Lampanyctus pusillus</i> (Johnson, 1890)				+	
<i>Lobianchia dofleini</i> (Zugmayer, 1911)			+	+	
<i>Lobianchia gemellarii</i> (Cocco, 1838)			+		
<i>Myctophum punctatum</i> Rafinesque, 1810		+	+	+	
<i>Notoscopelus bolini</i> Nafpaktitis, 1975				+	
<i>Notoscopelus elongatus</i> (Costa, 1844)		+	+		
<i>Notoscopelus kroyeri</i> (Malm, 1861)			+		
<i>Symbolophorus veranyi</i> (Moreau, 1888)				+	
<b>Family: Lampridae</b>					
<i>Lampris guttatus</i> (Brünnich, 1788)				18	
<b>Family: Lophotidae</b>					
<i>Lophotus lacepede</i> Giorna, 1809			+	19	
<b>Family: Trachipteridae</b>					
<i>Trachipterus trachipterus</i> (Gmelin, 1789)		+	+	+	
<i>Zu cristatus</i> (Bonelli, 1819)			+	+	
<b>Family: Regalecidae</b>					
<i>Regalecus glesne</i> Ascanius, 1772			+	+	
<b>Family: Zeidae</b>					
<i>Zeus faber</i> Linnaeus, 1758	+	+	+	+	

Table. (Continued.)

<b>Family: Bregmacerotidae</b>					
<i>*Bregmaceros nectabanus</i> Whitley, 1941			+	+	
<b>Family: Phycidae</b>					
<i>Phycis blennoides</i> (Brünnich, 1768)			+	+	
<i>Phycis phycis</i> (Linné, 1766)			+	+	
<b>Family: Lotidae</b>					
<i>Gaidropsarus biscayensis</i> (Collett, 1890)		+	+		
<i>Gaidropsarus mediterraneus</i> (Linnaeus, 1758)	+	+	+	+	
<i>Molva macrophthalma</i> (Rafinesque, 1810)			+	+	
<b>Family: Gadidae</b>					
<i>Gadiculus argenteus</i> Guichenot, 1850		+	+	+	
<i>Merlangius merlangus</i> (Linnaeus, 1758)	20	+	+	+	
<i>Micromesistius poutassou</i> (Risso, 1827)		+	+	+	
<i>Trisopterus capelanus</i> (Lacépède, 1800)		+	+	+	
<b>Family: Merlucciidae</b>					
<i>Merluccius merluccius</i> (Linnaeus, 1758)	+	+	+	+	VU
<b>Family: Macrouridae</b>					
<i>Coelorinchus caelorhincus</i> (Risso, 1810)			+	+	
<i>Hymenocephalus italicus</i> Giglioli, 1884			+	+	
<i>Nezumia aequalis</i> (Günther, 1878)		+	+	+	
<i>Nezumia sclerorhynchus</i> Valenciennes, 1838		+	+	+	
<i>Trachyrincus scabrus</i> (Rafinesque, 1810)			+	+	
<b>Family: Moridae</b>					
<i>Gadella maraldi</i> (Risso, 1810)			+	+	
<i>Lepidion lepidion</i> (Risso, 1810)			+		
<i>Mora moro</i> (Risso, 1810)			21	+	
<b>Family: Trachichthyidae</b>					
<i>Hoplostethus mediterraneus</i> Cuvier, 1829			+	+	
<b>Family: Holocentridae</b>					
<i>*Sargocentron rubrum</i> (Forsskål, 1775)			+	+	
<b>Family: Ophidiidae</b>					
<i>Benthocometes robustus</i> (Goode & Bean, 1886)			+	+	
<i>Ophidion barbatum</i> Linnaeus, 1758	+	+	+	+	
<i>Ophidion rochei</i> Müller, 1845	+	+	+		
<i>Parophidion vassali</i> (Risso, 1810)		+	+	PS	
<b>Family: Carapidae</b>					
<i>Carapus acus</i> (Brünnich, 1768)		+	+	+	
<i>Echiodon dentatus</i> (Cuvier, 1829)			+		
<b>Family: Bythitidae</b>					
<i>Bellottia apoda</i> Giglioli, 1883			+	+	
<b>Family: Apogonidae</b>					
<i>Apogon imberbis</i> (Linnaeus, 1758)		+	+	+	
<i>*Apogonichthyoides pharaonis</i> (Bellotti 1874)			+	+	
<i>*Cheilodipterus novemstriatus</i> (Rüppell, 1838)			16	22	
<i>*Jaydia queketti</i> (Gilchrist, 1903)			+	+	
<i>*Jaydia smithi</i> Kotthaus, 1970				+	
<i>*Ostorhinchus fasciatus</i> (White, 1790)			+	+	
<b>Family: Gobiidae</b>					
<i>Aphia minuta</i> (Risso, 1810)	+	+	+	+	

Table. (Continued.)

<i>Buenia affinis</i> Iljin, 1930		23	23		
<i>Buenia massutii</i> Kovačić, Ordines & Schliwen, 2017		24	24		
<i>Chromogobius quadrivittatus</i> (Steindachner, 1863)	25	+	+	+	
<i>Chromogobius zebratus</i> (Kolombatovic, 1891)	25	25	+	+	
<i>Corcyrogobius liechtensteini</i> (Kolombatovic, 1891)			26		
* <i>Cryptocentrus caeruleopunctatus</i> (Rüppell, 1830)				27	
<i>Crystallogobius linearis</i> (Düben, 1845)			+		
* <i>Ctenogobius boleosoma</i> (Jordan & Gilbert, 1882)				28	
<i>Deltentosteus collonianus</i> (Risso, 1820)				+	
<i>Deltentosteus quadrimaculatus</i> (Valenciennes, 1837)		+	+	+	
<i>Didogobius schliweni</i> Miller, 1993			29		
<i>Gammogobius steinitzi</i> Bath, 1971			30		
<i>Gobius auratus</i> Risso, 1810		+	+	+	
<i>Gobius bucchichi</i> Steindachner, 1870		31	31		
<i>Gobius cobitis</i> Pallas, 1814	+	+	+	+	
<i>Gobius couchi</i> Miller & El-Tawil, 1974		32	+		
<i>Gobius cruentatus</i> Gmelin, 1789	+	+	+	+	
<i>Gobius fallax</i> Sarato, 1889			+	+	
<i>Gobius geniporus</i> Valenciennes, 1837		+	+	+	
<i>Gobius incognitus</i> Kovačić & Šanda, 2016			31	31	
<i>Gobius kolombatovici</i> Kovačić & Miller, 2000			+		
<i>Gobius niger</i> Linnaeus, 1758	+	+	+	+	
<i>Gobius paganellus</i> Linnaeus, 1758	+	+	+	+	
<i>Gobius roulei</i> de Buen, 1928			+	+	
<i>Gobius vittatus</i> Vinciguerra, 1883			+	+	
<i>Gobius xanthocephalus</i> Heymer & Zander, 1992		33	+		
* <i>Hazeus ingressus</i> Engin, Larson & Irmak, 2018				34	
<i>Knipowitschia caucasica</i> (Berg, 1916)		+	+	+	
<i>Lebetus guileti</i> (Le Danois, 1913)		35			
<i>Lesueurigobius friesii</i> (Malm, 1874)		+	+	+	
<i>Lesueurigobius suerii</i> Risso, 1810			+	+	
<i>Marcelogobius splechnai</i> (Ahnelt & Patzner, 1995)			+		
<i>Mesogobius batrachocephalus</i> (Pallas, 1814)	+	+			
<i>Millerigobius macrocephalus</i> (Kolombatović, 1891)			+		
<i>Neogobius melanostomus</i> (Pallas, 1814)	+	+	+		
<i>Odondebuena balearica</i> (Pellegrin & Fage, 1907)			+		
* <i>Oxyurichthys petersii</i> (Klunzinger, 1871)			+	+	
* <i>Oxyurichthys keiensis</i> (Smith, 1938)				36	
<i>Pomatoschistus adriaticus</i> Miller, 1973		+	+		
<i>Pomatoschistus anatoliae</i> Engin & Innal, 2017				37	
<i>Pomatoschistus bathi</i> Miller, 1982		+	+		
<i>Pomatoschistus marmoratus</i> (Risso, 1810)	+	+	+	+	
<i>Pomatoschistus minutus</i> (Pallas, 1770)	+	+	+		BN, VU
<i>Pomatoschistus nanus</i> Engin & Seyhan, 2017			24	38	
<i>Pomatoschistus quagga</i> (Heckel, 1839)			+		
<i>Ponticola eurycephalus</i> (Kessler, 1874)	+				
<i>Ponticola platyrostris</i> (Pallas, 1814)	+				
<i>Ponticola ratan</i> (Nordmann, 1840)	+				
<i>Ponticola syrman</i> (Nordmann, 1840)	+	+			BN

Table. (Continued.)

<i>Pseudaphya ferreri</i> (de Buen & Fage, 1908)			30		
<i>Speleogobius llorisi</i> Kovačić, Ordines & Schliwen, 2016			39		
<i>Speleogobius trigloides</i> Zander & Jelinek, 1976			39		
<i>Thorogobius ephippiatus</i> (Lowe, 1839)			+	+	
<i>Thorogobius macrolepis</i> (Kolombatovic, 1891)			+	+	
* <i>Trypauchen vagina</i> (Bloch and Schneider, 1801)				+	
* <i>Vanderhorstia mertensi</i> Klausowitz, 1974			+	+	
<i>Zebrus zebrus</i> (Risso, 1827)	+	40	+	+	
<i>Zosterisessor ophiocephalus</i> (Pallas, 1814)	+	+	+	+	
<b>Family: Centriscidae</b>					
<i>Macroramphosus scolopax</i> (Linnaeus, 1758)			+	+	
<b>Family: Fistulariidae</b>					
* <i>Fistularia commersonii</i> Rüppell, 1838			+	+	
* <i>Fistularia petimba</i> Lacepède, 1803		43	42	41	
<b>Family: Syngnathidae</b>					
* <i>Hippocampus fuscus</i> Rüppell, 1838				+	
<i>Hippocampus gutturalis</i> Cuvier, 1829	+	+	+	+	BC, BN
<i>Hippocampus hippocampus</i> (Linnaeus, 1758)	+	+	+	+	BC, BN, NL
<i>Nerophis maculatus</i> Rafinesque, 1810		+			
<i>Nerophis ophidion</i> (Linnaeus, 1758)	+	+	+	+	
<i>Syngnathus abaster</i> Risso, 1827	+	+	+	+	BN
<i>Syngnathus acus</i> Linnaeus, 1758	44	+	+	+	
<i>Syngnathus phlegon</i> Risso, 1827		+	+	+	
<i>Syngnathus schmidti</i> Popov, 1927	+	+			
<i>Syngnathus tenuirostris</i> Rathke, 1837	+	+	+	+	
<i>Syngnathus typhle</i> Linnaeus, 1758	+	+	+	+	
<i>Syngnathus variegatus</i> Pallas, 1814	+				
<b>Family: Dactylopteridae</b>					
<i>Dactylopterus volitans</i> (Linnaeus, 1758)		+	+	+	
<b>Family: Mullidae</b>					
<i>Mullus barbatus</i> Linnaeus, 1758	+	+	+	+	
<i>Mullus surmuletus</i> Linnaeus, 1758	+	+	+	+	
* <i>Parupeneus forsskali</i> (Fourmanoir & Guézé, 1976)			45	+	
* <i>Upeneus moluccensis</i> (Bleeker, 1855)			+	+	
* <i>Upeneus pori</i> Ben-Tuvia & Golani, 1989			+	+	
<b>Family: Callionymidae</b>					
<i>Callionymus fasciatus</i> Valenciennes, 1837		+	+	+	
* <i>Callionymus filamentosus</i> Valenciennes, 1837			+	+	
<i>Callionymus lyra</i> Linnaeus, 1758	+	+	+	+	
<i>Callionymus maculatus</i> Rafinesque, 1810		+	+	+	
<i>Callionymus pusillus</i> Delaroche, 1809	+	+	+	+	
<i>Callionymus risso</i> LeSueur, 1814	+	+	+	+	
<i>Synchiropus phaeton</i> (Günther, 1861)			+	+	
* <i>Synchiropus sechellensis</i> Regan, 1908				+	
* <i>Diplogrammus randalli</i> Fricke, 1983				46	
<b>Family: Nomeidae</b>					
<i>Cubiceps gracilis</i> (Lowe, 1843)			+	+	
<b>Family: Tetragonuridae</b>					
<i>Tetragonurus cuvieri</i> Risso, 1810				47	

Table. (Continued.)

<b>Family: Pomatomidae</b>					
<i>Pomatomus saltatrix</i> (Linnaeus, 1766)	+	+	+	+	
<b>Family: Scombridae</b>					
<i>Auxis rochei</i> (Risso, 1810)	+	+	+	+	
<i>Euthynnus alletteratus</i> (Rafinesque, 1810)	+	+	+	+	
<i>Katsuwonus pelamis</i> (Linnaeus, 1758)		+	+	+	
<i>Sarda sarda</i> (Bloch, 1793)	+	+	+	+	
<i>Scomber colias</i> Gmelin, 1789	+	+	+	+	
<i>Scomber scombrus</i> Linnaeus, 1758	+	+	+	+	
* <i>Scomberomorus commerson</i> (Lacepède, 1800)			+	+	
<i>Thunnus alalunga</i> (Bonnaterre, 1788)	+	+	+	+	
<i>Thunnus thynnus</i> (Linnaeus, 1758)	+	+	+	+	BC, EN
<b>Family: Bramidae</b>					
<i>Brama brama</i> (Bonnaterre, 1788)			+	+	
<b>Family: Centrolophidae</b>					
<i>Centrolophus niger</i> (Gmelin, 1789)		48	+	+	
<i>Schedophilus ovalis</i> (Cuvier, 1833)			+	+	
<b>Family: Gempylidae</b>					
<i>Ruvettus pretiosus</i> Cocco, 1833		49	+	+	
<b>Family: Trichiuridae</b>					
<i>Lepidopus caudatus</i> (Euphrasen, 1788)			+	+	
<i>Trichiurus lepturus</i> Linnaeus, 1758			+	+	
<b>Family: Sphyraenidae</b>					
* <i>Sphyraena chrysotaenia</i> Klunzinger, 1884			+	+	
* <i>Sphyraena flavicauda</i> Rüppell, 1838				+	
<i>Sphyraena sphyraena</i> (Linnaeus, 1758)	+	+	+	+	
<i>Sphyraena viridensis</i> Cuvier, 1829			+	+	
<b>Family: Carangidae</b>					
<i>Alectis alexandrina</i> (Geoffroy Saint-Hilaire, 1817)	48		+	+	
* <i>Alepes djedaba</i> (Forsskål, 1775)	50		+	+	
<i>Caranx crysos</i> (Mitchill, 1815)			+	+	
<i>Caranx rhonchus</i> Geoffroy Saint-Hilaire, 1817			+	+	
* <i>Decapterus russelli</i> (Rüppell, 1830)				+	
<i>Lichia amia</i> (Linnaeus, 1758)	+	+	+	+	
<i>Naucrates ductor</i> (Linnaeus, 1758)	+	+	+	+	
<i>Pseudocaranx dentex</i> (Bloch & Schneider, 1801)		51	+	+	
<i>Seriola dumerili</i> (Risso, 1810)			+	+	
<i>Seriola fasciata</i> (Bloch, 1793)			52	+	
<i>Trachinotus ovatus</i> (Linnaeus, 1758)		53	+	+	
<i>Trachurus mediterraneus</i> (Steindachner, 1868)	+	+	+	+	
<i>Trachurus picturatus</i> (Bowdich, 1825)			+	+	
<i>Trachurus trachurus</i> (Linnaeus, 1758)	+	+	+	+	
<b>Family: Coryphaenidae</b>					
<i>Coryphaena hippurus</i> Linnaeus, 1758	48	+	+	+	
<b>Family: Echeneidae</b>					
<i>Echeneis naucrates</i> Linnaeus, 1758		+	+	+	
<i>Remora australis</i> (Bennett, 1840)				45	
<i>Remora remora</i> (Linnaeus, 1758)		+	+	+	
<i>Remora osteochir</i> (Cuvier, 1829)			+	+	

Table. (Continued.)

<b>Family: Istiophoridae</b>					
<i>Istiompax indica</i> (Cuvier, 1832)				PS	
<i>Tetrapturus belone</i> Rafinesque, 1810			+	+	
<b>Family: Xiphiidae</b>					
<i>Xiphias gladius</i> Linnaeus, 1758	+	+	+	+	BC
<b>Family: Rachycentridae</b>					
* <i>Rachycentron canadum</i> (Linnaeus, 1766)			+		
<b>Family: Atherinidae</b>					
<i>Atherina boyeri</i> Risso, 1810	+	+	+	+	
<i>Atherina hepsetus</i> Linnaeus, 1758	+	+	+	+	
* <i>Atherinomorus forskalii</i> (Rüppell, 1838)			+	+	
<b>Family: Scomberesocidae</b>					
<i>Scomberesox saurus</i> (Walbaum, 1792)		+	+	+	
<b>Family: Belonidae</b>					
* <i>Ablennes hians</i> (Valenciennes, 1846)				54	
<i>Belone belone</i> (Linnaeus, 1761)	+	+	+	+	
<i>Belone svetovidovi</i> Collette & Parin, 1970		55	+	+	
<i>Tylosurus imperialis</i> (Rafinesque, 1810)			+	+	
<b>Family: Hemiramphidae</b>					
* <i>Hemiramphus far</i> (Forsskål, 1775)			+	+	
<b>Family: Exocoetidae</b>					
<i>Cheilopogon heterurus</i> (Rafinesque, 1810)			56	+	
<i>Hirundichthys rondeletii</i> (Valenciennes, 1847)	57	+	+	+	
* <i>Parexocoetus mento</i> (Valenciennes, 1847)			+	+	
<b>Family: Mugilidae</b>					
<i>Chelon auratus</i> (Risso, 1810)	+	+	+	+	
<i>Chelon labrosus</i> (Risso, 1827)	+	+	+	+	
<i>Chelon ramada</i> (Risso, 1827)	+	+	+	+	
<i>Chelon saliens</i> (Risso, 1810)	+	+	+	+	
<i>Mugil cephalus</i> Linnaeus, 1758	+	+	+	+	
<i>Oedalechilus labeo</i> (Cuvier, 1829)		+	+	+	
* <i>Planiliza carinata</i> (Valenciennes, 1836)			+	+	
* <i>Planiliza haematocheilus</i> (Temminck & Schlegel, 1845)	+	+	+		
<b>Family: Pomacentridae</b>					
<i>Chromis chromis</i> (Linnaeus, 1758)	+	+	+	+	
* <i>Abudefduf</i> cf. <i>saxatilis/vaigiensis/troschelii</i>			26	58	
<b>Family: Gobiesocidae</b>					
<i>Apletodon dentatus</i> (Facciola, 1887)	+	+	+	+	
<i>Apletodon incognitus</i> Hofrichter & Patzner, 1997			+	+	
<i>Diplecogaster bimaculata</i> (Bonnaterre, 1788)	+	+	+	+	
<i>Diplecogaster umutturali</i> Bilecenoğlu, Yokeş & Kovačić, 2017				59	
<i>Gouania willdenowi</i> (Risso, 1810)			+	+	
<i>Lepadogaster candolii</i> Risso, 1810	+	+	+	+	
<i>Lepadogaster lepadogaster</i> (Bonnaterre, 1788)	+	+	+	+	
<i>Opeatogenys gracilis</i> (Canestrini, 1864)			+	+	VU
<b>Family: Tripterygiidae</b>					
<i>Tripterygion delaisi</i> Cadenat & Blache, 1970			+	+	
<i>Tripterygion melanurus</i> Guichenot, 1850			+	+	
<i>Tripterygion tripteronotus</i> (Risso, 1810)	+	+	+	+	



Table. (Continued.)

<b>Family: Blenniidae</b>					
<i>Aidablennius sphyinx</i> (Valenciennes, 1836)	+	+	+	+	
<i>Blennius ocellaris</i> Linnaeus, 1758	+	+	+	+	
<i>Coryphoblennius galerita</i> (Linnaeus, 1758)	+	+	+	+	
<i>Lipophrys trigloides</i> (Valenciennes, 1836)		+	+	+	
<i>Microlipophrys adriaticus</i> (Steindachner & Kolombatovic, 1883)	+	+	+		
<i>Microlipophrys caneuae</i> (Vinciguerra, 1880)			+	+	
<i>Microlipophrys dalmatinus</i> (Steindachner & Kolombatović, 1883)			+	+	
<i>Microlipophrys nigriceps</i> (Vinciguerra, 1883)			+		
<i>Parablennius gattorugine</i> (Linnaeus, 1758)	+	+	+	+	
<i>Parablennius incognitus</i> (Bath, 1968)	+	+	+	+	
<i>Parablennius rouxi</i> (Cocco, 1833)			+	+	
<i>Parablennius sanguinolentus</i> (Pallas, 1814)	+	+	+	+	
<i>Parablennius tentacularis</i> (Brünnich, 1768)	+	+	+	+	
* <i>Parablennius thysanius</i> (Jordan & Seale, 1907)				+	
<i>Parablennius zvonimiri</i> (Kolombatović, 1892)	+	+	+	+	
* <i>Petroscirtes ancyloдон</i> Rüppell, 1835			+	+	
<i>Salaria basilisca</i> (Valenciennes, 1836)			+	+	
<i>Salaria pavo</i> (Risso, 1810)	+	+	+	+	
<i>Scartella cristata</i> (Linnaeus, 1758)			+	+	
<b>Family: Clinidae</b>					
<i>Clinitrachus argentatus</i> (Risso, 1810)		+	+	+	
<b>Family: Callanthidae</b>					
<i>Callanthias ruber</i> (Rafinesque, 1810)			+	+	
<b>Family: Cepolidae</b>					
<i>Cepola macrophthalma</i> (Linnaeus, 1758)		+	+	+	
<b>Family: Haemulidae</b>					
<i>Pomadasys incisus</i> (Bowdich, 1825)			+	+	
* <i>Pomadasys stridens</i> (Forsskål, 1775)			60	+	
<b>Family: Labridae</b>					
<i>Acantholabrus palloni</i> (Risso, 1810)			+	+	
* <i>Bodianus speciosus</i> (Bowdich, 1825)			61		
<i>Centrolabrus melanocercus</i> (Risso, 1810)		+	+	+	
<i>Coris julis</i> (Linnaeus, 1758)	+	+	+	+	
<i>Ctenolabrus rupestris</i> (Linnaeus, 1758)	+	+	+	+	
<i>Labrus bergylta</i> Ascanius, 1767		+	+		
<i>Labrus merula</i> Linnaeus, 1758		+	+	+	
<i>Labrus mixtus</i> Linnaeus, 1758		+	+	+	
<i>Labrus viridis</i> Linnaeus, 1758	+	+	+	+	VU
<i>Lappanella fasciata</i> (Cocco, 1833)			+		
* <i>Pteragogus trispilus</i> Randall, 2013			+	+	
<i>Symphodus cinereus</i> (Bonnaterre, 1788)	+	+	+	+	
<i>Symphodus doderleini</i> Jordan, 1890		+	+	+	
<i>Symphodus mediterraneus</i> (Linnaeus, 1758)		+	+	+	
<i>Symphodus melops</i> (Linnaeus, 1758)			+		
<i>Symphodus ocellatus</i> (Forsskål, 1775)	+	+	+	+	
<i>Symphodus roissali</i> (Risso, 1810)	+	+	+	+	
<i>Symphodus rostratus</i> (Bloch, 1791)	+	+	+	+	
<i>Symphodus tinca</i> (Linnaeus, 1758)	+	+	+	+	

Table. (Continued.)

<i>Thalassoma pavo</i> (Linnaeus, 1758)		+	+	+	
<i>Xyrichtys novacula</i> (Linnaeus, 1758)		+	+	+	
<b>Family: Lutjanidae</b>					
* <i>Lutjanus argentimaculatus</i> (Forsskål, 1775)			62	63	
<b>Family: Moronidae</b>					
<i>Dicentrarchus labrax</i> (Linnaeus, 1758)	+	+	+	+	
<i>Dicentrarchus punctatus</i> Bloch, 1792			+	+	
<b>Family: Nemipteridae</b>					
* <i>Nemipterus randalli</i> Russell, 1986			+	+	
<b>Family: Priacanthidae</b>					
* <i>Priacanthus hamrur</i> (Forsskål, 1775)				64	
* <i>Priacanthus prolixus</i> Starnes, 1988				65	
* <i>Priacanthus sagittarius</i> Starnes, 1988				66	
<b>Family: Scaridae</b>					
* <i>Scarus ghobban</i> Forsskål, 1775			58	+	
<i>Sparisoma cretense</i> (Linnaeus, 1758)			+	+	
<b>Family: Sciaenidae</b>					
<i>Argyrosomus regius</i> (Asso, 1801)	+	+	+	+	
<i>Sciaena umbra</i> Linnaeus, 1758	+	+	+	+	BC, BN, VU
<i>Umbrina cirrosa</i> (Linnaeus, 1758)	+	+	+	+	BC, BN, VU
<b>Family: Sillaginidae</b>					
* <i>Sillago sihama</i> (Forsskål, 1775)			+	+	
<b>Family: Sparidae</b>					
* <i>Acanthopagrus bifasciatus</i> (Forsskål, 1775)			67		
<i>Boops boops</i> (Linnaeus, 1758)	+	+	+	+	
<i>Centracanthus cirrus</i> Rafinesque, 1810			+	+	
<i>Dentex dentex</i> (Linnaeus, 1758)	+	+	+	+	VU
<i>Dentex gibbosus</i> (Rafinesque, 1810)		+	+	+	
<i>Dentex macrophthalmus</i> (Bloch, 1791)		68	+	+	
<i>Dentex maroccanus</i> Valenciennes, 1830		32	+	+	
<i>Diplodus annularis</i> (Linnaeus, 1758)	+	+	+	+	
<i>Diplodus cervinus</i> (Lowe, 1838)			+	+	
<i>Diplodus puntazzo</i> (Cetti, 1777)	+	+	+	+	
<i>Diplodus sargus</i> (Linnaeus, 1758)	+	+	+	+	
<i>Diplodus vulgaris</i> (Geoffroy Saint-Hilaire, 1817)	+	+	+	+	
<i>Lithognathus mormyrus</i> (Linnaeus, 1758)	69	+	+	+	
<i>Oblada melanura</i> (Linnaeus, 1758)	+	+	+	+	
<i>Pagellus acarne</i> (Risso, 1827)		+	+	+	
<i>Pagellus bogaraveo</i> (Brünnich, 1768)		+	+	+	
<i>Pagellus erythrinus</i> (Linnaeus, 1758)	20	+	+	+	
<i>Pagrus auriga</i> Valenciennes, 1843			+	+	
<i>Pagrus caeruleostictus</i> (Valenciennes, 1830)			+	+	
<i>Pagrus pagrus</i> (Linnaeus, 1758)		+	+	+	
<i>Sarpa salpa</i> (Linnaeus, 1758)	+	+	+	+	
<i>Sparus aurata</i> Linnaeus, 1758	+	+	+	+	
<i>Spicara flexuosum</i> Rafinesque, 1810	+	+	+	+	
<i>Spicara maena</i> (Linnaeus, 1758)	+	+	+	+	
<i>Spicara smaris</i> (Linnaeus, 1758)	+	+	+	+	
<i>Spondylisoma cantharus</i> (Linnaeus, 1758)	+	+	+	+	

Table. (Continued.)

<b>Family: Serranidae</b>					
<i>Cephalopholis taeniops</i> (Valenciennes, 1828)			70	71	
<i>Hyporthodus haifensis</i> (Ben-Tuvia, 1953)			+	+	
<i>Epinephelus aeneus</i> (Geoffroy Saint-Hilaire, 1817)			+	+	
* <i>Epinephelus areolatus</i> (Forsskål, 1775)				72	
<i>Epinephelus caninus</i> (Valenciennes, 1843)			+	+	
* <i>Epinephelus coioides</i> (Hamilton, 1822)				73	
<i>Epinephelus costae</i> (Steindachner, 1878)			+	+	
* <i>Epinephelus fasciatus</i> (Forsskål, 1775)				74	
<i>Epinephelus marginatus</i> (Lowe, 1834)	75	+	+	+	BC, BN, EN, NL
<i>Mycteroperca rubra</i> (Bloch, 1793)			+	+	
* <i>Paranthias furcifer</i> (Valenciennes, 1828)			76	77	
<i>Serranus cabrilla</i> (Linnaeus, 1758)	+	+	+	+	
<i>Serranus hepatus</i> (Linnaeus, 1758)	+	+	+	+	
<i>Serranus scriba</i> (Linnaeus, 1758)	+	+	+	+	
<b>Family: Anthiidae</b>					
<i>Anthias anthias</i> (Linnaeus, 1758)		+	+	+	
<b>Family: Trachinidae</b>					
<i>Echiichthys vipera</i> (Cuvier, 1829)		+	+	+	
<i>Trachinus araneus</i> Cuvier, 1829		+	+	+	
<i>Trachinus draco</i> Linnaeus, 1758	+	+	+	+	
<i>Trachinus radiatus</i> Cuvier, 1829		+	+	+	
<b>Family: Triglidae</b>					
<i>Chelidonichthys cuculus</i> (Linnaeus, 1758)	+	+	+	+	
<i>Chelidonichthys gurnardus</i> (Linnaeus, 1758)	+	+	+	+	
<i>Chelidonichthys lastoviza</i> (Bonnaterre, 1788)		+	+	+	
<i>Chelidonichthys lucernus</i> (Linnaeus, 1758)	+	+	+	+	
<i>Chelidonichthys obscurus</i> (Walbaum, 1792)			+	+	
<i>Lepidotrigla cavillone</i> (Lacepède, 1801)		+	+	+	
<i>Lepidotrigla dieuzeidei</i> Blanc & Hureau, 1973		+	+	+	
<i>Trigla lyra</i> Linnaeus, 1758		+	+	+	
<b>Family: Peristediidae</b>					
<i>Peristedion cataphractum</i> (Linnaeus, 1758)		+	+	+	
<b>Family: Synanceiidae</b>					
* <i>Synanceia verrucosa</i> Bloch & Schneider, 1801				+	
<b>Family: Scorpaenidae</b>					
* <i>Pterois miles</i> (Bennett, 1828)			78	+	
<i>Scorpaena elongata</i> Cadenat, 1943			+	+	
<i>Scorpaena loppei</i> Cadenat, 1943			+	+	
<i>Scorpaena maderensis</i> Valenciennes, 1833			+	+	
<i>Scorpaena notata</i> Rafinesque, 1810	+	+	+	+	
<i>Scorpaena porcus</i> Linnaeus, 1758	+	+	+	+	
<i>Scorpaena scrofa</i> Linnaeus, 1758		+	+	+	
<b>Family: Sebastidae</b>					
<i>Helicolenus dactylopterus</i> (Delaroche, 1809)		+	+	+	
* <i>Sebastes schlegelii</i> Hilgendorf, 1880	79,80	81			
<b>Family: Gasterosteidae</b>					
<i>Gasterosteus aculeatus</i> Linnaeus, 1758	+	+	+	+	
<b>Family: Uranoscopidae</b>					

Table. (Continued.)

<i>Uranoscopus scaber</i> Linnaeus, 1758	+	+	+	+	
<b>Family: Ammodytidae</b>					
<i>Gymnammodytes cicerelus</i> (Rafinesque, 1810)	+	+	+	+	
<b>Family: Polyprionidae</b>					
<i>Polyprion americanus</i> (Bloch & Schneider, 1801)		+	+	+	
<b>Family: Champsodontidae</b>					
* <i>Champsodon nudivittis</i> (Ogilby, 1895)		82	+	+	
<b>Family: Epigonidae</b>					
<i>Epigonus constanciae</i> (Giglioli, 1880)			+		
<i>Epigonus denticulatus</i> Dieuzeide, 1950			+	83	
<i>Epigonus telescopus</i> (Risso, 1810)			+		
<i>Microichthys coccoi</i> Rüppell, 1852			+		
<b>Family: Pempheridae</b>					
* <i>Pempheris rhomboidea</i> Kossmann & Räuber, 1877		76	+	+	
<b>Family: Caproidae</b>					
<i>Capros aper</i> (Linnaeus, 1758)		+	+	+	
<b>Family: Ehippidae</b>					
* <i>Platax teira</i> (Forsskål, 1775)			+		
<b>Family: Leiognathidae</b>					
* <i>Equulites popei</i> (Whitley, 1932)				84	
* <i>Equulites klunzingeri</i> (Steindachner, 1898)			+	+	
* <i>Equulites leuciscus</i> (Günther, 1860)				85	
<b>Family: Lobotidae</b>					
<i>Lobotes surinamensis</i> (Bloch, 1790)		86	+	+	
<b>Family: Luvaridae</b>					
<i>Luvarus imperialis</i> Rafinesque, 1810		87			
<b>Family: Pomacanthidae</b>					
* <i>Pomacanthus imperator</i> (Bloch, 1787)				88	
<b>Family: Siganidae</b>					
* <i>Siganus luridus</i> (Rüppell, 1829)			+	+	
* <i>Siganus rivulatus</i> Forsskål, 1775		89	+	+	
<b>Family: Chaetodontidae</b>					
* <i>Heniochus intermedius</i> Steindachner, 1893				+	
<b>Family: Lophiidae</b>					
<i>Lophius budegassa</i> Spinola, 1807	+	+	+	+	
<i>Lophius piscatorius</i> Linnaeus, 1758	+	+	+	+	
<b>Family: Kyphosidae</b>					
<i>Kyphosus vaigiensis</i> (Quoy & Gaimard, 1825)				90	
<b>Family: Terapontidae</b>					
* <i>Pelates quadrilineatus</i> (Bloch, 1790)				+	
* <i>Terapon puta</i> Cuvier, 1829				91	
<b>Family: Bothidae</b>					
<i>Arnoglossus imperialis</i> (Rafinesque, 1810)		+	+	+	
<i>Arnoglossus kessleri</i> Schmidt, 1915	+	+	+	+	
<i>Arnoglossus laterna</i> (Walbaum, 1792)	+	+	+	+	
<i>Arnoglossus rueppelii</i> (Cocco, 1844)			+	+	
<i>Arnoglossus thori</i> Kyle, 1913	+	+	+	+	
<i>Bothus podas</i> (Delaroche, 1809)			+	+	
<b>Family: Citharidae</b>					

Table. (Continued.)

<i>Citharus linguatula</i> (Linnaeus, 1758)		+	+	+	
<b>Family: Cynoglossidae</b>					
* <i>Cynoglossus sinusarabici</i> (Chabanaud, 1931)			+	+	
<i>Symphurus nigrescens</i> Rafinesque, 1810			+	+	
<b>Family: Pleuronectidae</b>					
<i>Platichthys flesus</i> (Linnaeus, 1758)	+	+	+	+	
<b>Family: Scopthalmidae</b>					
<i>Lepidorhombus boscii</i> (Risso, 1810)		+	+	+	
<i>Lepidorhombus whiffiagonis</i> (Walbaum, 1792)		+	+	+	
<i>Scophthalmus maximus</i> (Linnaeus 1758)	+	+	+		
<i>Scophthalmus rhombus</i> (Linnaeus, 1758)	+	+	+	+	
<i>Zeugopterus regius</i> (Bonnaterre, 1788)		+	+	+	
<b>Family: Soleidae</b>					
<i>Buglossidium luteum</i> (Risso, 1810)	+	+	+	+	
<i>Dicologlossa cuneata</i> (Moreau, 1881)		+	+		
<i>Microchirus ocellatus</i> (Linnaeus, 1758)		+	+	+	
<i>Microchirus variegatus</i> (Donovan, 1808)	+	+	+	+	
<i>Monochirus hispidus</i> Rafinesque, 1814		+	+	+	
<i>Pegusa impar</i> (Bennett, 1831)		+	+	+	
<i>Pegusa lascaris</i> (Risso, 1810)	+	+	+	+	
<i>Pegusa nasuta</i> (Pallas, 1814)	+	+	+		
<i>Solea aegyptiaca</i> Chabanaud, 1927				+	
<i>Solea solea</i> (Linnaeus, 1758)	+	+	+	+	
<i>Synapturichthys kleinii</i> (Risso, 1827)		+	+	+	
<b>Family: Balistidae</b>					
<i>Balistes capriscus</i> Gmelin, 1789	+	+	+	+	
<b>Family: Diodontidae</b>					
* <i>Cylichthys spilostylus</i> (Leis & Randall, 1982)				+	
<b>Family: Molidae</b>					
<i>Mola alexandrini</i> (Ranzani, 1839)				PS	
<i>Mola mola</i> (Linnaeus, 1758)		+	+	+	
<i>Ranzania laevis</i> (Pennant, 1776)			+	+	
<b>Family: Monacanthidae</b>					
* <i>Stephanolepis diaspros</i> Fraser-Brunner, 1940		+	+	+	
<b>Family: Ostraciidae</b>					
* <i>Ostracion cubicus</i> Linnaeus, 1758				92	
<b>Family: Tetraodontidae</b>					
* <i>Lagocephalus guentheri</i> Miranda Ribeiro, 1915		+	+	+	
<i>Lagocephalus lagocephalus</i> (Linnaeus, 1758)			+	+	
* <i>Lagocephalus sceleratus</i> (Gmelin, 1789)		93	+	+	

Table. (Continued.)

* <i>Lagocephalus suezensis</i> Clark & Gohar, 1953			+	+	
<i>Spherooides pachygaster</i> (Müller & Troschel, 1848)			+	+	
* <i>Torquigener hypselogeneion</i> (Bleeker, 1852)			+	+	
* <i>Tylerius spinosissimus</i> (Regan, 1908)				+	

1) Turan et al. (2021); 2) Kabasakal (2021); 3) Kabasakal and Bilecenoğlu (2020); 4) Irmak and Özden (2021a); 5) Yıldız et al. (2016); 6) Yucel et al. (2017); 7) Bilecenoğlu (2019); 8) Uzer et al. (2024); 9) Yağlıoğlu and Ayas (2016); 10) Irmak and Özden (2021b); 11) Çiftçi et al. (2017); 12) Eryılmaz (2001); 13) Dođdu et al. (2016); 14) Mavruk et al. (2023); 15) Kousteni et al. (2022); 16) Langeneck et al. (2023); 17) Santin et al. (2021); 18) Ergüden et al. (2019); 19) Yapıcı (2019); 20) Erazi (1942); 21) Dalyan et al. (2021); 22) Turan et al. (2015); 23) Engin et al. (2014); 24) Seyhan Öztürk and Oruç (2023); 25) Engin et al. (2016a); 26) Bilecenoğlu (2016); 27) Ergüden et al. (2022); 28) Mavruk et al. (2022); 29) Bilecenoğlu and Çelik (2021); 30) Engin et al. (2018a); 31) Bilecenoğlu and Yokeş (2022a); 32) Bilecenoğlu and Yokeş (2022b); 33) Tsagarakis et al. (2021); 34) Engin et al. (2018b); 35) Engin et al. (2015a); 36) Özden et al. (2022); 37) Engin and İnnal (2017); 38) Engin and Seyhan (2017); 39) Engin et al. (2017); 40) Kesici and Dalyan (2019); 41) Ünlüođlu et al. (2018); 42) Cerim et al. (2021); 43) Crocetta et al. (2021); 44) Slastenenko (1955–1956); 45) Stamouli et al. (2018); 46) Seyhan et al. (2017); 47) Ayas et al. (2022); 48) Bilecenoğlu and Doyuk (2021); 49) Acarli et al. (2017); 50) Turan et al. (2017); 51) Keskin (2023); 52) Yapıcı and Filiz (2020); 53) Bilecenoğlu and Öztürk (2019); 54) Irmak and Özden (2023); 55) Seyhan Öztürk (2023); 56) Tunçer and Torcu Koç (2020); 57) Lipej et al. (2017); 58) Tiralongo et al. (2022); 59) Bilecenoğlu et al. (2017); 60) Akyol and Ünal (2016); 61) Filiz et al. (2019); 62) Akyol (2019); 63) Ergüden et al. (2023a); 64) Ergüden et al. (2018); 65) Gürlek et al. (2017); 66) Gökođlu and Teker (2018); 67) Şensurat-Genç et al. (2020); 68) Torcu Koç (2004); 69) Engin et al. (2015b); 70) Engin et al. (2016b); 71) Özcan et al. (2020); 72) Ergüden et al. (2023b); 73) Gökođlu and Özvarol (2015); 74) Gökođlu and Biçer (2022); 75) Yağlıođlu and Turan (2021); 76) Ragkousis et al. (2020); 77) Çınar et al. (2021); 78) Turan and Öztürk (2015); 79) Bilecenoğlu et al. (2023); 80) Yağlıođlu et al. (2023); 81) Karadurmuş et al. (2024); 82) Orfanidis et al. (2021); 83) Ergüden et al. (2017); 84) Yokeş (2015); 85) Kebapcioglu and Cinbilgel (2022); 86) Karachle et al. (2016); 87) Irmak and Alparslan (2008); 88) Gürlek et al. (2019); 89) Karakulak et al. (2020); 90) Kiyađa et al. (2019); 91) Manasrılı and Mavruk (2021); 92) Gerovasileiou et al. (2017); 93) Irmak and Altınađaç (2015).

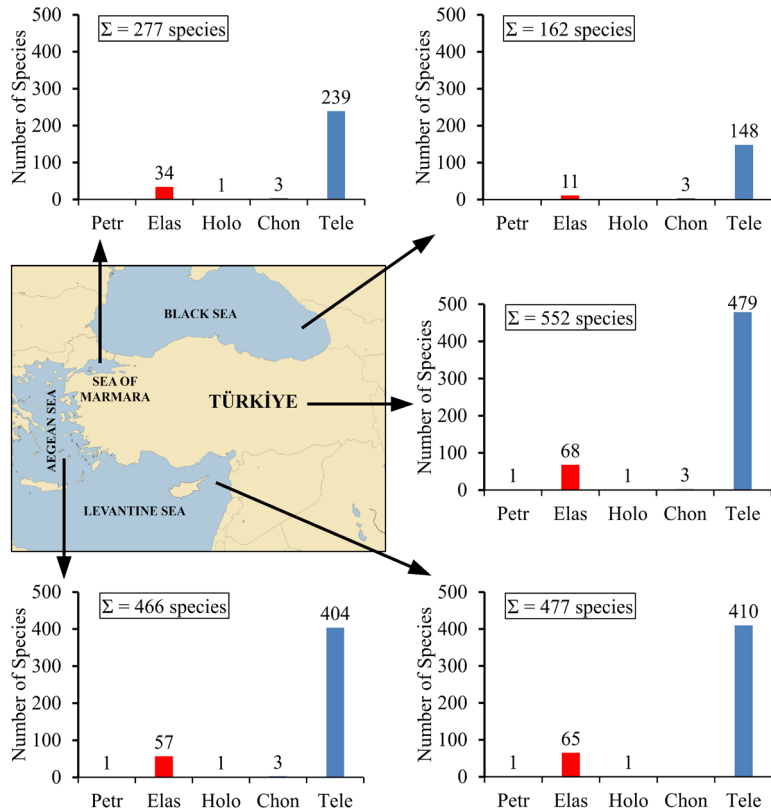
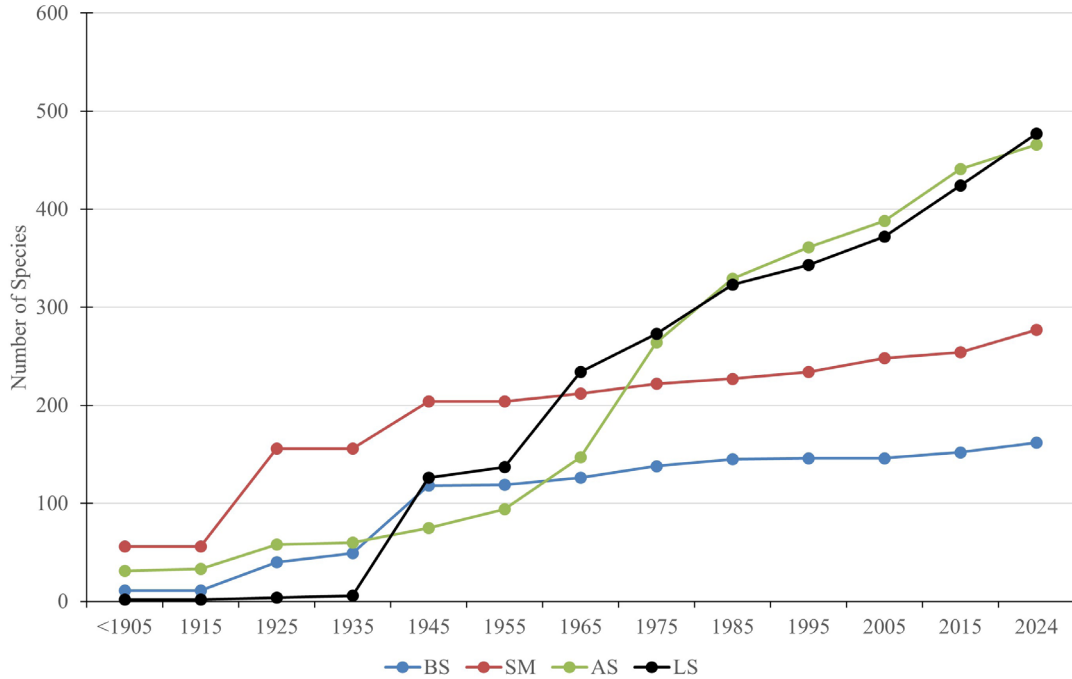


Figure 2. Number of fish species along the coasts of Türkiye. Petr: Petromyzonti; Elas: Elasmobranchii; Holo: Holocephali; Chon: Chondrostei; Tele: Teleostei.



**Figure 3.** Decadal changes in fish species richness along the Turkish seas. BS: Black Sea; SM: Sea of Marmara; AS: Aegean Sea; LS: Levantine Sea.

then to confirm their occurrence. However, more recent research has verified the presence of eight species from the relevant list, especially in the last decade, including *Petromyzon marinus*, *Somniosus rostratus*, *Panturichthys fowleri*, *Diaphus rafinesquii*, *Hygophum hygomii*, *Echiodon dentatus*, *Scorpaena loppei*, and *Pomadasys stridens* (see the Table for relevant references). Several more doubtful species were listed both in other studies (Bilecenoglu, 2010, 2020; Bilecenoglu et al., 2014; Çınar et al., 2021) and in the present assessment, all of which require further verification. As for first records, emphasis on the selection of truly knowledgeable reviewers regarding the regional diversity of a given taxon highlights the significant role of journal editors (Bello et al., 2014), and researchers who are engaged in the science of fish taxonomy should be more careful about presenting their data in formats conforming to widely accepted taxonomic norms.

Monitoring the immense influx of alien fish to the Turkish coasts should be a top research priority. Only 33 species were known two decades ago (Bilecenoglu et al., 2002), while the 90 species listed in the revised checklist correspond to an increase of 172.7%. The food web structure was drastically changed throughout the Levant basin by several invasive aliens (Goren et al., 2016; Saygu et al., 2020; Akgun and Akoglu, 2023), whose incremental dispersal towards northern latitudes poses a potential danger for ecological changes. Sudden occurrences of Indo-Pacific-

originated taxa in the Sea of Marmara (Karakulak et al., 2020; Orfanidis et al., 2021) and the Black Sea (Bilecenoglu et al., 2023) clearly demonstrate the extreme importance of regular monitoring of these fragile ecosystems. The replenishment of the Black Sea ecosystem with new representatives of the Atlantic-Mediterranean faunistic complex, also known as the Mediterraneanization phenomenon (Karpova, 2020), is also worthy of more intensive research.

Previous statements that planning fish diversity surveys concentrated on poorly known localities and taxa will reveal the presence of overlooked and unreported species (Bilecenoglu et al., 2002; Bilecenoglu et al., 2014) have proven to be correct since several cryptobenthic and deepwater species were recently added to the inventory (Table). Carrying out specialized research in neglected habitats such as marine caves or deep-sea ecosystems will improve the existing faunal knowledge, and regular expert assessments of the ichthyofauna remain vital.

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