# AN INVESTIGATION ON FISHES OF GÖKOVA BAY (SOUTHERN AEGEAN SEA)[1]

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**Abstract:** This investigation was carried out for determination of the fish species living in Gökova Bay. Fish species examined in this research were caught by various nets from the bay in the years of 2000-2001. A total of 144 species belong to 62 families were identified. Of these species, 12 belong to cartilaginous and 132 to bony. Of the species, 6 belong to Mediterranean-basin, 12 Lessepsian, 17 Cosmopolitan and 109 Atlanto-Mediterranean. Morphological properties of some species are given.

**Key Words**: Fish species, Systematic, Gökova Bay.

## GÖKOVA KÖRFEZİ (GÜNEY EGE DENİZİ) BALIKLARI ÜZERİNE BİR ARAŞTIRMA

**Özet:** Bu çalışma, Gökova Körfezi'nde yaşayan balık türlerini belirlemek amacıyla yapılmıştır. Bu araştırmada incelenen balık türleri körfezden çeşitli ağlar kullanılarak 2000-2001 yıllarında yakalanmıştır. 62 familyaya ait 144 tür belirlenmiş olup, bunlardan 12'si kıkırdaklı, 132'si ise kemikli balıktır. Bunlardan 6'sı Akdeniz, 12'si Kızıldeniz göçmeni, 17'si kozmopolit ve 109'u ise Atlanto-Mediterranean kökenlidir. Bazı türlerin morfolojik özellikleri verilmiştir.

**Anahtar Kelimeler**: Balık türleri, Sistematik, Gökova Körfezi

## 1. INTRODUCTION

Aegean Sea is divided to sub-region as northern and southern Aegean Sea due to bio-ecological differences (1). Gökova Bay located between Bodrum and Marmaris is declared as "Natural Protection Area" with high biological potential and touristic importance. In addition, Gökova Bay is the clearest and the richest in fish species of Aegean Sea because of the geological structure, nutrients and fresh water input (1, 2, 3)

Taxonomic investigations for the determination of fish fauna of the Turkish Seas were initiated by foreign researchers at the beginning of the 20th century, and entered an intensive stage with the participation of Turkish researchers in 1940s. Tortonese (4) and Papaconstantinou (5) listed 300 and 447 species, respectively.

Ben-Tuvia (6, 7) gave fish fauna of Israel coasts. Ben-Tuviva (8) gave a systematic account of 45 species from Cyprus. Demetropoulos and Neocleous (9) also gave a list of fishes from Cyprus. Whitehead et al., (10) reported 1256 species

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belonging to 218 families for the North-Eastern Atlantic and Mediterranean. Fischer et al., (11) reported 118 fish families
for the Mediterranean. Golani (12) gave a list of 405 fish species belonging to 125 families of which 32 were new records to the Eastern Levant.

Some taxonomic investigations carried out by Turkish scientists following as:

Aksiray (13,14) gave a description key of 360 species from Turkish Seas, and later listed 454 species with the detailed morphological and biological features. Geldiay (15) reported 295 species for the Aegean Sea. Mater and Kaya (16) reported three new gobies for the Turkish Seas. Kaya et al., (17) reported a new fish species first seen along the coast of Aegean of Turkish Seas. Anonymus (18) gave species composition, stock estimation and biological aspects of some economic fishes from the southern Aegean Sea. Mater and Meric (19) presented a list of marine fishes of Turkey. Kara and Gurbet (20) gave the estimates of stock size and abundance of some demersal fish species in Gökova Bay but not the systematic status of them. Benli et al., (21) examined the species composition of catch, species diversity and the estimation of the abundance the commercial species of Aegean Sea. Torcu and Aka (22) studied 68 species from Edremit Bay. Torcu and Mater (23) reported systematic status of 22 Lesepsian fish species along the coasts of southern aegean Sea and Mediterranean. Basusta and Erdem (24) listed the fish species of İskenderun Bay. Torcu et al., (25) reported *Pempheris vanicolensis* as new record for Turkish Republic of Northern Cyprus. Bilecenoğlu et al. (26) listed fishes of Turkey. Mater et al., (27) wrote a taxonomical information on the recent status of 415 marine fishes inhabiting Turkish Seas. Eryılmaz (28) reported 15 cartilaginous fishes and 77 bony fishes for north Aegean Sea. Akyol et al., (29) recorded an indo-Pacific silverstripe blaasop, *Lagocephalus sceleratus* from the Aegean coast of Turkey.

From Gökova Bay; Mater et al. (30) reported 13 deep sea species, 7 of them were new records for Turkey. Kaya et al. (31) reported *Gobius vittatus* as a new record for Turkey. Bizsel and Cihangir (32) reported *Sphyraena viridensis* as a new record for Turkey. Meric (33) reported 10 deep sea species.

In spite of the fact that many faunistic investigations have been carried out along the coasts of Turkey, there is no such detailed faunistic investigation for Gökova Bay. For this reason we hope that this investigation will contribute to the fish fauna of Gökova Bay.

## 2. MATERIAL and METHOD

Pelagic and benthic samples were collected by local gears and nets from Gökova Bay in the the years of 2000-2001 (Fig. 1). The obtained samples were washed up with fresh water immediately; after identifications, they were kept in percentage 70% of alcohol or 4% of formaldehyde solutions and total length was measured with a dial caliper of 0.05 mm accuracy and some of meristic characters [(dorsal= D), (anal= A), (pelvic= V), (pectoral= P) fin rays and (lateral line scales=Ll.)] were counted under binocular microscope.

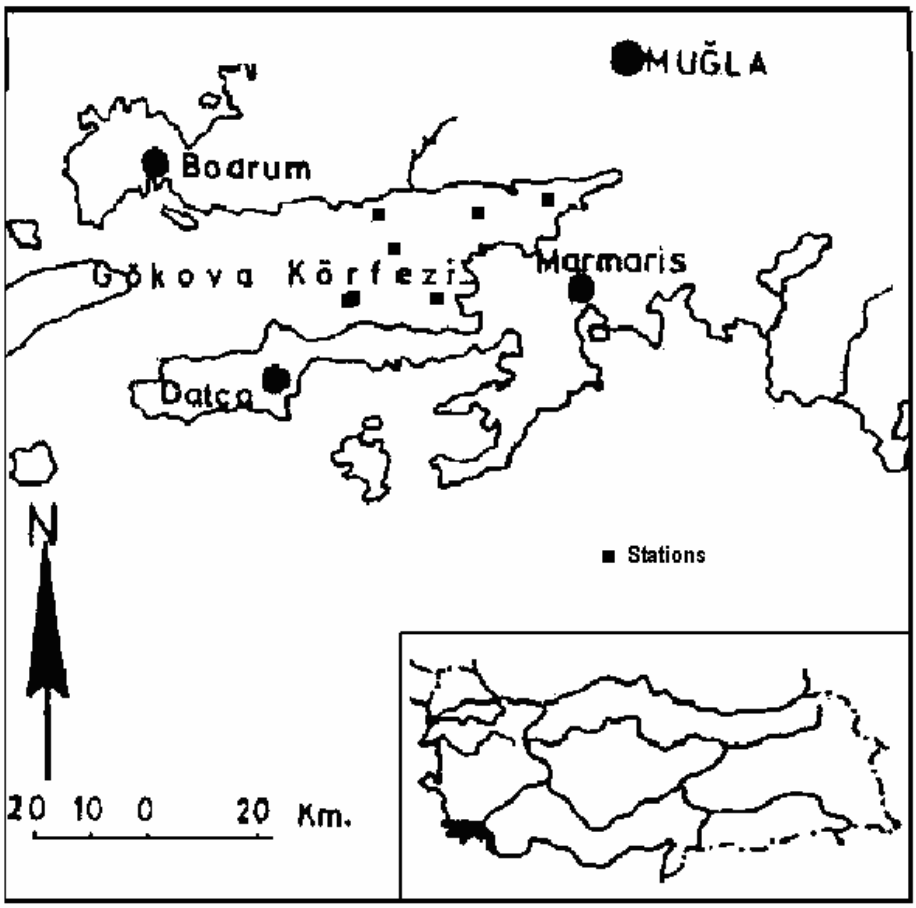


**Fig. 1: Sampling Area**
**(1: Akyaka; 2: Taşbükü; 3:Ören coast; 4: Ören open; 5: Akyar 1; 6- Akyar 2)**

## 3. RESULTS

Of the total 144 species belonging to 62 families, 12 cartilaginous and 132 bony were identified and are listed below. Systematic categories were given according to Whitehead et al. (10), Fischer (11), and Nelson (34).
Distribution: Atlanto-Mediterranean species (A-M),
Cosmopolitan species (C),
Mediterranean species (M)
Lessepsian species (L) (26), (27)

**Phylum :** Chordata

**Subphylum :** Vertabrata

**Superclass :** Gnathostomata

**Class : CHONDRICHTHYES**

**FAM: SCYLIORHINIDAE**

***Scyliorhinus canicula* (Linneaus, 1758)**- Lesser spotted dogfish, Kedi Balığı **(C)**

Material examined: 7 specimen. TL: 49 cm.

**FAM: CARCHARHINIDAE**

***Carcharhinus plumbeus* (Nardo, 1827)** Sandbar shark, Büyük Camgöz **(C)**

Material examined: 1 specimen. TL: 55 cm.

**FAM: TRIAKIDAE**

***Mustelus asterias* Cloquet, 1821** Starry smoothound, Köpek Balığı **(C)**

Material examined: 2 specimen. TL: 55-57 cm.

***Mustelus mustelus* (Linneaus, 1758)** Smoothound, Adi Köpek Balığı **(C)**

Material examined: 5 specimen. TL: 60-64 cm.

**FAM: SQUALIDAE**

***Squalus acanthias* Linneaus, 1758**

Spurdog, Mahmuzlu Camgöz **(C)**

Material examined: 4 specimen. TL: 50-52 cm.

***Squalus blainvillei* (Risso, 1826)** Longnose spurdog, Mahmuzlu Camgöz **(C)**

Material examined: 2 specimen. TL: 45-49 cm.

**FAM: SQUATINIDAE**

***Squatina squatina* (Linneaus, 1758)**

Angelshark, Keler **(C)**
Material examined: 1 specimen. TL: 85 cm.

**FAM: RHINOBATIDAE**

***Rhinobatos rhinobatos* (Linnaeus, 1758)** Common guitarfish, Kemane Balığı **(C)**

Material examined: 1 specimen. TL: 79 cm.

**FAM: TORPEDINIDAE**

***Torpedo marmorata* Risso, 1810**

Marbled electric ray, Elektrik balığı, Çarpan (**C)**
Material examined: 2 specimen. TL: 15-17.6 cm.

**FAM: RAJIDAE**

***Raja clavata* Linnaeus, 1758**

Thornback ray, Dikenli Vatoz **(C)**
Material examined: 4 specimen. TL: 10.0-12.0 cm

**FAM: DASYATIDAE**

***Dasyatis pastinaca* (Linnaeus, 1758)** Common stingray, İğneli Vatoz, Rina **(C)**

Material examined: 3 specimen. TL: 35.0-40.0 cm.

**FAM: MYLIOBATIDAE**

***Myliobatis aquila* (Linnaeus, 1758)**

Common eagle ray, Çuçuna **(C)**
Material examined: 2 specimen. TL: 47.0-50.0 cm.

**Class: OSTEICHTHYES**

**FAM: CLUPEIDAE**

***Sardina pilchardus* (Walbaum, 1792)**

European pilchard, Sardalya Balığı **(A-M)**
Material examined: 12 specimen. TL: 10.0-14.3 cm.

***Sardinella aurita* Valenciennes, 1847**

Round sardinella, Büyük Sardalya **(A-M)**
Material examined: 7 specimen. TL: 15.0-17.1 cm.

***Sprattus sprattus* (Linnaeus, 1758)**

Sprat, Çaça **(A-M)**
Material examined: 1 specimen. TL: 11.0 cm.

**FAM: ENGRAULIDAE**

***Engraulis encrasicolus* (Linnaeus, 1758)** European anchovy, Hamsi **(A-M)**

Material examined: 10 specimen. TL: 12.4 cm

**FAM: SYNODONTIDAE**

***Saurida undosquamis* (Richardson, 1848)** Brushtooth lizardfish, Iskarmoz, Zurna, Lokum Balığı, **(L)**

Material examined: 11 specimen. TL: 25.0-26.7 cm.
Diagnostic characters: D 11-12, A 10-12, V 9, P 14-15, Ll. 41-52.

***Synodus saurus* (Linnaeus, 1758)** Atlantic lizardfish, Iskarmoz, Zurna, Lokum Balığı (**A-M)**

Material examined: 4 specimen. TL: 25.2-26.3 cm.
Diagnostic characters: D 11-13, A 9-12, V 8, P 12-14, Ll. 54-60.

**FAM: ANGUILLIDAE**

***Anguilla anguilla* (Linnaeus, 1758)**

Eel, Yılan Balığı **(A-M)**

Material examined: 3 specimen. TL: 40.0-45 cm

**FAM: MURAENIDAE**

***Muraena helena* Linnaeus, 1758**

Mediterranean moray, Müren **(A-M)**
Material examined: 1 specimen. TL: 85.0 cm.

**FAM: CONGRIDAE**

***Conger conger* ([Artedi, 1738] Linnaeus, 1758)**

Conger eel, Mıgri **(A-M)**
Material examined: 1 specimen. TL: 64.0 cm.

**FAM:OPHICHTHIDAE**

***Echelus myrus* (Linnaeus, 1758)**

Bluntsnout snake eel, Mırmır Yılan Balığı **(A-M)**
Material examined: 3 specimen. TL: 45.0-51.0 cm.

**FAM: BELONIDAE**

***Belone belone gracilis* Lowe, 1839**

Garfish, Zargana **(A-M)**
Material examined: 2 specimen. TL: 40.0-41.0 cm.
Diagnostic characters: D 16-20, A 19-23, V 6, P 11-14.

**FAM: CYPRINODONTIDAE**

***Aphanius fasciatus* Nardo, 1827**

Dişli Sazancık **(M)**

Material examined: 2 specimen. TL: 4.0-4.1 cm.

**FAM: SYNGNATHIDAE**

***Hippocamphus hippocamphus* (Linnaeus, 1758)**

Sea-horse, Denizatı **(A-M)**

Material examined: 1 specimen. TL: 12.0 cm.
Diagnostic characters: D 16-19, P 13-15.

***Hippocamphus ramulosus* Leach, 1814**

Sea-horse, Denizatı **(A-M)**
Material examined: 1 specimen. TL: 14.0 cm.
Diagnostic characters: D 15-21, P 15-18

***Syngnathus acus* Linnaeus, 1758**
Great pipefish, Deniziğnesi **(A-M)**
Material examined: 1 specimen. TL: 25. cm.
Diagnostic characters: D 35-43, P 11-13

**FAM: GASTEROSTEIDAE**

***Gasterosteus aculeatus* Linnaeus, 1758**

Three-spined stickleback, Dikence Balığı **(A-M)**
Material examined: 5 specimen. TL: 3.0-3.9 cm.

**FAM: MERLUCCIDAE**

***Merluccius merluccius* (Linnaeus, 1758)** Hake, Bakalyaro, Berlam **(A-M)**

Material examined: 4 specimen. TL: 22.0-25.0 cm.

Diagnostic characters: D1 8-10, D2 36-40, A 36-40

**FAM: GADIDAE**

***Merlangius merlangus euxinuss* (Nordmann, 1840)**

**Whiting, Mezgit** (A-M)
Material examined: 4 specimen. TL: 17.0-19.6 cm.
Diagnostic characters: D1 12-14; D2 20-25; D3 19-21, A1 30-34, A2 21-23

***Phycis phycis* (Linnaeus, 1766)**

Mostelle de roche, Gelincik Balığı **(A-M)**
Material examined: 1 specimen. TL: 23.7 cm.

**FAM: HOLOCENTRIDAE**

***Sargocentron rubrum* (Forsskal, 1775)**

Red soldier fish, Hindistan, Asker, Sincap, Pijama balığı **(L)**
Material examined: 3 specimen. TL: 15.0 cm.
Diagnostic characters: DXI,12-14; A IV,10; Ll. 48-51.

**FAM: ZEIDAE**

***Zeus faber* Linnaeus, 1758**

John Dory, Dülger, Peygamber balığı **(A-M)**
Material examined: 4 specimen. TL: 15.0-16.5 cm.
Diagnostic characters D IX-XI,21-24; A III-IV,20-24

**FAM: SERRANIDAE**

***Anthias anthias* (Linnaeus, 1758)**

Swallowtail sea perch, Berber balığı **(A-M)**
Material examined: 3 specimen. TL: 8.5-9.1 cm.
Diagnostic characters D X,15; A III,7; Ll.36-39

***Epinephelus aeneus* (Geoffroy Saint-Hilaire, 1817)**

White grouper, Lahoz, Orfoz **(A-M)**
Material examined: 3 specimen. TL: 17.0-18.6 cm,
Diagnostic characters: D X-XI,14-16; A: III,8-9; V I+5; Ll.>90.

***Epinephelus guaza* (Linnaeus, 1758)**

Dusky grouper, Orfoz **(A-M)**
Material examined: 3 specimen. TL: 60.0-63.0 cm.
Diagnostic characters: D XI,13-15; A III,8-9; V I,5

***Epinephelus alexandrinus* (Valenciennes, 1828)**

Golden grouper, Orfoz **(A-M)**
Material examined: 4 specimen. TL: 20.0-21.3 cm.
Diagnostic characters: DXI,16-18; A III,8-9; V I,5; Ll. 92.

***Serranus cabrilla* (Linnaeus, 1758)**

Comber, Hani balığı **(A-M)**
Material examined: 4 specimen. TL: 16.5-17.7 cm.
Diagnostic characters: D X,13-15; A III,7-8; V I,5; Ll. 72-76

***Serranus hepatus* (Linnaeus, 1758)**

Brown comber, Benekli hani **(A-M)**
Material examined: 4 specimen. TL: 9.3-10.1 cm
Diagnostic characters: D X,11-12; A III,6-7; V I,5; Ll.45-50.

***Serranus scriba* (Linnaeus, 1758)**

Painted comber, Yazili hani (A-M)
Material examined: 8 specimen. TL: 15.0-16.3 cm.
Diagnostic characters: D X,14-16; A III,7-8; V I,5; Ll.65-73.

**FAM: MORONIDAE**

***Dicentrarchus labrax* (Linnaeus, 1758)**

European seabass, Levrek **(A-M)**
Material examined: 6 specimen. TL: 23.0-25.5 cm

**FAM: APOGONIDAE**

***Apogon imberbis* (Linneaus, 1758)**

Cardinal fish, Kardinal balığı **(A-M)**

Material examined: 5 specimen. TL: 9.0-10.7 cm.

**FAM: CEPOLIDAE**

***Cepola rubescens* Linneaus, 1766**

Red banfish, Kurdela balığı **(A-M)**

Material examined: 3 specimen. TL: 27.5-29.3 cm.

**FAM: POMATOMIDAE**

***Pomatomus saltatrix* (Linnaeus, 1766)**

Bluefish, Lüfer **(A-M)**
Material examined: 2 specimen. TL: 18.2-18.7 cm.

**FAM: CARANGIDAE**

***Alectis alexandrinus* (Geoffroy Saint-Hilarie, 1817)**

Alexandria pomoano, İskender balığı **(A-M)**
Material examined: 1 specimen. TL: 34.7 cm.

***Caranx crysos* (Mitchill, 1815)**

Blue runner, Kral balığı **(A-M)**
Material examined: 1 specimen. TL: 22.5 cm.

***Lichia amia* (Linnaeus, 1758)**

Leerfish, Akya **(A-M)**
Material examined: 1 specimen. TL: 47.0 cm.

***Seriola dumerili* (Risso, 1810)**

Greater amberjack., Sarıkuyruk (A-M)
Material examined: 1 specimen. TL: 65.0 cm.
Diagnostic characters: DVII,I,29-35; A II,I,18-22

***Trachinotus ovatus* (Linnaeus, 1758)**

Derbio, Pompano, Yaladerma **(A-M)**

Material examined: 2 specimen. TL: 16.5-17.1 cm.

***Trachurus mediterraneus* (Staindachner, 1868)**

Mediterranean horse-mackerel, Istavrit **(A-M)**
Material examined: 5 specimen. TL: 15.7-16.5 cm.

***Trachurus trachurus* (Linnaeus,1758)**

Atlantic horse-mackerel, Karagöz istavrit **(A-M)**
Material examined: 6 specimen. TL: 20.0-21.8 cm.

**FAM: CORYPHAENDAE**

***Corpaena hippurus* (Linnaeus,1758)**

Common dolphin-fish, Papağan balığı **(A-M)**
Material examined: 5 specimen. TL: 40.1-45 cm.
Diagnostic characters: D 58-66, Ll. 198

**FAM: LEIOGNATHIDAE**

***Leiognathus klunzingeri***

**(Steindachner,1898),** Pony fish, Eksi balığı **(L)**

Material examined: 12 specimen. TL: 9.9 cm.

**FAM: SCIAENIDAE**

***Sciaena umbra* Linneaus, 1758**

Brown meagre, İşkine **(A-M)**
Material examined: 3 specimen. TL: 16.5-16.9 cm.

***Umbrina cirrosa* (Linnaeus, 1758)**

Shi drum, Minakop **(A-M)**
Material examined: 2 specimen. TL: 17.8 cm.

**FAM: MULLIDAE**

***Mullus barbatus* Linnaeus, 1758**

Red mullet, Barbunya balığı **(A-M)**
Material examined: 3 specimen. TL: 16.5-16.9 cm.

***Mullus surmuletus* Linnaeus,1758**

Striped red mullet, Tekir **(A-M)**
Material examined: 4 specimen. TL: 16.0-16.5 cm.

***Upeneus moluccensis* (Bleeker, 1855)**

Golden-banded goatfish, Paşa barbunyası **(L)**
Material examined: 6 specimen. TL: 9.5-11.2 cm.

***Upeneus pori* (Ben-Tuviva and Golani, 1989)** Golden-striped goatfish, Nil Barbunyası **(L)**

Material examined: 5 specimen. TL: 14.0-14.9 cm.

**FAM: SPARIDAE**

***Boops boops* (Linnaeus, 1758)**

Bogue, Kupez, Lapa **(A-M)**
Material examined: 4 specimen. TL: 13.5-14.6 cm.

***Dentex dentex* (Linnaeus, 1758)**

Common dentex, Snagrit **(A-M)**

Material examined: 3 specimen. TL: 20.3 cm.

***Dentex gibbosus* (Rafinesque, 1810)**

Pink dentex, Antenli snagrit **(A-M)**
Material examined: 6 specimen. TL: 21.0-24 cm.

***Dentex macrophtalmus* (Bloch, 1791)**

Large-eye dentex, Mandagöz mercan **(A-M)**
Material examined: 8 specimen. TL: 16.5-18.1 cm.

***Dentex maroccanus* Valenciennes, 1830**

Morocco dentex, Fas mercani **(A-M)**
Material examined: 3 specimen. TL: 17.4 cm.

***Diplodus annularis* (Linnaeus, 1758)**

Annular sea bream, Isparoz **(A-M)**
Material examined: 4 specimen. TL: 13.2-13.6 cm.

***Diplodus puntazzo* (Cetti, 1777)**

Sharpsnout sea bream, Sivriburun karagöz **(A-M)**
Material examined: 5 specimen. TL: 17.5-18.9 cm.

***Diplodus sargus* (Linnaeus, 1758)**

White sea bream, Sargoz **(A-M)**
Material examined: 3 specimen. TL: 15.5-17.8 cm.

***Diplodus vulgaris* (Geoffroy Saint-Hilarie, 1817)**

Common two banded sea bream, Karagöz **(A-M)**
Material examined: 5 specimen. TL: 16.5-17.4 cm.

***Lithognathus mormyrus* (Linnaeus, 1758)**

Striped sea bream, Mırmır **(A-M)**
Material examined: 3 specimen. TL: 11.3-13.6 cm.

***Oblada melanura* (Linnaeus, 1758)**

Saddled bream, Melanur **(A-M)**
Material examined: 2 specimen. TL: 18.5-19.5 cm.

***Pagellus acarne* (Risso, 1826)**

Axilarry sea bream, Yabani mercan **(A-M)**
Material examined: 4 specimen. TL: 13.5-14.9 cm.

***Pagellus bogaraveo* (Brünnich, 1768)**

Red sea bream, Mandagöz mercan **(A-M)**
Material examined: 4 specimen. TL: 18.5-19.5 cm.

***Pagellus erythrinus* (Linnaeus, 1758)**

Common pandora, Kırma mercan **(A-M)**
Material examined: 4 specimen. TL: 13.5-14.9 cm.

***Pagrus pagrus* (Linnaeus, 1758)**

Common sea bream, Fangri mercan (A-M)
Material examined: 4 specimen. TL: 14.5-15.6 cm.

***Sarpa salpa* (Linnaeus, 1758)**

Salema, Sarpa **(A-M)**
Material examined: 3 specimen. TL: 18.9-19.5 cm.

***Sparus aurata* Linnaeus, 1758**

Gilt-head sea bream, Çipura **(A-M)**

Material examined: 4 specimen. TL: 14.3-15.0 cm.

***Spondyliosoma cantharus* (Linnaeus, 1758)**

Black sea bream, İskatari, Fırtına Balığı **(A-M)**
Material examined: 5 specimen. TL: 14.0-15.1 cm.

FAM: **CENTRACANTHIDAE**

***Spicara flexusa* Rafinesque, 1810**

Garizzo, İzmarit **(M)**
Material examined: 3 specimen. TL: 14.1 cm.

***Spicara smaris* (Linnaeus, 1758)**

Zerro, İzmarit **(A-M)**
Material examined: 5 specimen. TL: 13.8-14.4 cm.

***Spicara maena* (Linnaeus, 1758)**

Mendole, Ada izmariti **(A-M)**
Material examined: 4 specimen. TL: 16.7-17.5 cm.

**FAM: POMACENTRIDAE**

***Cromis chromis* (Linnaeus,1758)**

Damsel fish, Çatal kuyruk **(A-M)**
Material examined: 5 specimen. TL: 13.5-14.3 cm.

**FAM: LABRIDAE**

***Coris julis* (Linnaeus, 1758)**

Rainbow wrasse, Gelin-Ot balığı **(A-M)**
Material examined: 4 specimen. TL: 16.5-17.2 cm.

***Symphodus roissali* (Risso, 1810)**

Langaneu, Ot baligi-Çırçır **(A-M)**

Material examined: 1 specimen. TL: 23. 1 cm.

***Symphodus tinca* (Linnaeus, 1758)**

Peacock wrasse, Ot balığı-Çırçır **(A-M)**
Material examined: 3 specimen. TL: 18.5-19.0 cm.

***Symphodus ocellatus* (Forsskal, 1775)**

Crenilabre ocelle, Ot balığı **(M)**
Material examined: 2 specimen. TL: 20.6-21.0 cm.

***Symphodus cinereus* (Bonnaterre, 1788)**

Rouquie, Ot balığı **(A-M)**
Material examined: 1 specimen. TL: 7.7 cm.

***Thalassoma pavo* Linnaeus, 1758**

Ornate wrasse, Ot balığı **(A-M)**
Material examined: 4 specimen. TL: 8.5-9.8 cm.

***Xyrichthys novacula* (Linnaeus, 1758)**

Cleaver wrasse, Papağan balığı **(A-M)**
Material examined: 3 specimen. TL: 14.2-15.6 cm.

***Pteragogus pelycus* Randall, 1981**

Sideburn wrasse, Ot balığı **(L)**
Material examined: 4 specimen. TL: 6.5-7.1 cm.

**FAM: SCARIDAE**

***Sparisoma cretense* (Linnaeus,1758)**

Parrotfish, Iskaroz, Papağan balığı, Soğan balığı **(A-M)**
Material examined: 2 specimen. TL: 13.7-14.3 cm.

**FAM: TRACHINIDAE**

***Trachinus draco* Linnaeus, 1758**

Greater weever, Trakonya **(A-M)**
Material examined: 9 specimen. TL: 14.2-15.4 cm.

***Trachinus radiatus* Cuvier, 1829**

Streaked weever, Trakonya **(A-M)**

Material examined: 5 specimen. TL: 25.7 cm.

***Echiichthys vipera* (Cuvier, 1829)**

**Lesser weever, Varsam (**A-M)
Material examined: 6 specimen. TL: 15.5-16.3 cm.

**FAM: URANOSCOPIDAE**

***Uranoscopus scaber* Linnaeus, 1758**

Stargazar, Tiryaki balığı, Kurbağa Balığı **(A-M)**
Material examined: 3 specimen. TL: 21.2-23. 5 cm.

**FAM: SIGANIDAE**

***Siganus luridus* (Rüppell, 1828)**

Dusky spinefoot, Siyah Sokar **(L)**
Material examined: 3 specimen. TL: 13.7-14.5 cm.

***Siganus rivulatus* (Forsskal, 1775)**

Marbled spinefoot, Beyaz Sokar **(L)**
Material examined: 5 specimen. TL: 16.4-17.2 cm.

**FAM: TRICHIURIDAE**

***Trichiurus lepturus* Linnaeus, 1758**

**Large-eyed hairtail, Palaska balığı** (C)
Material examined: 1 specimen. TL: 45.0 cm.

**FAM: SCOMBRIDAE**

***Auxis rochei* (Risso, 1810)**

Bullet tuna, Tombik **(A-M)**
Material examined: 2 specimen. TL: 38.6-39.5 cm.

***Euthynnus alleteratus* (Rafinesque, 1810)**

Little tunny, Yazılı Orkinoz **(A-M)**
Material examined: 1 specimen. TL: 64.0 cm.

***Katsuwonus pelamis* (Linnaeus, 1758)**

Skipjack tuna, Yanlışlıkla Palamut **(C)**
Material examined: 1 specimen. TL: 45.0 cm.

***Sarda sarda* (Bloch, 1793)**

Atlantic bonito, Palamut **(A-M)**
Material examined: 1 specimen. TL: 35.0 cm.

***Scomber japonicus* Houttuyn, 1782**

Chub mackerel, Kolyoz **(C)**
Material examined: 3 specimen. TL: 26.5-27.7 cm.

***Scomber scombrus* Linnaeus, 1758**

Atlantic mackerel, Uskumru **(A-M)**
Material examined: 7 specimen. TL: 18.5-19.9 cm.

***Scomberomorus commersoni* (Lacepéde, 1800)**

Narrow-barreed Spanish mackerel, Ceylan balığı, Tombak **(L)**
Material examined: 1 specimen. TL: 113.0 cm.

***Thunnus thunnus* (Linnaeus, 1758)**

Atlantic bluefin tuna, Orkinoz **(A-M)**
Material examined: 1 specimen. TL: 41.2 cm.

**FAM: XIPHIIDAE**

***Xiphias gladius* Linnaeus, 1758**

**Swordfish, Kılıç Balığı (**C)
Material examined: 1 specimen. TL:103.0 cm

**FAM: GOBIDAE**

***Gobius niger* Linnaeus, 1758**

Black goby, Kaya balığı **(A-M)**
Material examined: 3 specimen. TL: 14.5-15.2 cm.

***Oxyurichtys papuensis* (Valenciennes, 1837)**

Kaya Balığı **(L)**

Material examined: 1 specimen. TL: 15.9 cm.

**FAM: BLENNIDAE**

***Blennius fluviatilis* Asso, 1801**

Freshwater blenny, Tatlısu horozbina Balığı **(A-M)**
Material examined: 4 specimen. TL: 6.5-7.3 cm.

***Blennius ocellaris* Linnaeus, 1758**

Butterfly blenny, Horozbina **(A-M)**
Material examined: 2 specimen. TL: 9.2 cm.

***Lipophrys canevai* (Vinciguerra, 1880)**

Horozbina **(M)**
Material examined: 1 specimen. TL: 3.5 cm.

***Parablennius gattorugine* (Brünnich, 1768)**

**Tompot blenny, Horozbina** (A-M)
Material examined: 1 specimen. TL: 16.8 cm.

***Blennius sangiunolentus* (Pallas, 1811)**

Baveuse, Horozbina **(A-M)**
Material examined: 1 specimen. TL: 15.7 cm.

**FAM: SPHYRAENIDAE**

***Sphyraena chrysotaenia* Klunzinger, 1884**

Obtuse barracuda, Zurna **(L)**
Material examined: 1 specimen. TL: 23.0 cm.

***Sphyraena sphyraena* (Linnaeus, 1758)**

Barracuda, Zurna **(A-M)**
Material examined: 3 specimen. TL: 30.0-30.5 cm.

***Sphyraena viridensis* Cuvier, 1829**

Yellowmouth barracuda, Zurna (**A-M)**
Material examined: 3 specimen. TL: 31.0-32.5 cm.

**FAM: MUGILIDAE**

***Chelon labrosus* (Risso, 1826)**

Thicklip grey mullet, Kefal-Mavri **(A-M)**
Material examined: 4 specimen. TL: 17.0-18.7 cm.

***Liza aurata* (Risso, 1810)**

Golden grey mullet, Altınbaş kefal **(A-M)**
Material examined: 2 specimen. TL: 25.0-27.8 cm.

***Liza saliens* (Risso,1810)**

Leaping mullet, Kefal **(A-M)**
Material examined: 1 specimen. TL: 27.5 cm.

***Liza ramada* (Risso, 1826)**

Thinlip grey mullet, Kefal **(A-M)**
Material examined: 5 specimen. TL: 17.9-20.1 cm.

***Mugil cephalus* Linnaeus, 1758**

Flathead grey mullet, Kefal **(A-M)**
Material examined: 3 specimen. TL: 24.7-25.3 cm.

***Oedalechilus labeo* (Cuvier, 1829)**

Boxlip mullet, Kefal **(M)**
Material examined: 1 specimen. TL: 15.6 cm.

**FAM: ATHERINIDAE**

***Atherina (Hepsetia) boyeri* Risso, 1810**

Gümüs balığı, **(A-M)**
Material examined: 4 specimen. TL: 12.1 cm.

**FAM: SCORPAENIDAE**

***Scorpaena notata* Rafinesque, 1810**

Petite rascasse, İskorpit **(A-M)**
Material examined: 3 specimen. TL: 12.0-12.7 cm.

***Scorpaena porcus* Linnaeus, 1758**

Black scorpionfish, İskorpit **(A-M)**
Material examined: 3 specimen. TL: 13.5-14.5 cm.

***Scorpaena scrofa* Linnaeus, 1758**

Red scorpionfish, İskorpit **(A-M)**

Material examined: 5 specimen. TL: 13.8-14.3 cm.

**FAM: TRIGLIDAE**

***Trigla lucerna* Linnaeus, 1758**

Tub gurnard, Kırlangıç **(A-M)**
Material examined: 3 specimen. TL: 19.5-20.3 cm.

***Trigla lyra* Linnaeus, 1758**

Piper gurnard, Kırlangıç **(A-M)**
Material examined: 2 specimen. TL: 10.3-10.5 cm.

***Trigloporus lastoviza* (Brünnich, 1768)**

Streaked gurnard, Kırlangıç **(A-M)**
Material examined: 4 specimen. TL: 20.0-23.1 cm.

**FAM: DACTYLOPTERIDAE**

***Dactylopterus volitans* (Linnaeus, 1758)**

Flying gurnard, Uçan kırlangıç **(A-M)**
Material examined: 5 specimen. TL: 30.0-32.9 cm.

**FAM: CITHARIDAE**

***Citharus linguatula* (Linnaeus, 1758)**

Spotted flounder, Kanca ağılı pisi balığı **(A-M)**
Material examined: 7 specimen. TL: 15.0-16.1 cm.

**FAM: SCOPTHALMIDAE**

***Lepidorhombus boscii* (Risso, 1810)**

Four-spotted megrim, Benekli pisi **(A-M)**
Material examined: 5 specimen. TL: 19.0-21.0 cm.

**FAM: BOTHIDAE**

***Arnoglossus laterna* (Walbaum, 1792)**

Scaldfish, Pisi balığı **(A-M)**
Material examined: 1 specimen. TL: 13.4 cm.

***Bothus podas* (Delaroche, 1809)**

Wide-eyed flounder, Pisi balığı **(A-M)**
Material examined: 5 specimen. TL: 15.0-15.5 cm.

**FAM: PLEURONECTIDAE**

***Platichthys flesus luscus* (Pallas, 1811)**

Flounder, Pisi balığı **(M)**
Material examined: 5 specimen. TL: 11.5-12.4 cm.

**FAM: SOLEIDAE**

***Microchirus ocellatus* (Linnaeus, 1758)**

Four-eyed sole, Dil balığı **(A-M)**
Material examined: 5 specimen. TL: 12.3-12.9 cm.

***Microchirus variegatus* (Donovan, 1808)**

Thickback sole, Dil balığı (A-M)
Material examined: 1 specimen. TL: 7.9 cm.

***Monochirus hispidus* Rafinesque, 1814**

Whiskered sole, Dil balığı **(A-M)**
Material examined: 1 specimen. TL: 9.5 cm.

***Solea impar* Bennett, 1831**

Adriatic sole, Dil balığı **(A-M)**
Material examined: 2 specimen. TL: 12.5-12.8 cm.

***Solea vulgaris* Quensel, 1806**

Common sole, Dil balığı (A-M)
Material examined: 4 specimen. TL: 20.0-20.3 cm.

**FAM: ECHENEIDAE**

***Echeneis naucrates* Linnaeus,1758**

Sharksucker, Vantuz Balığı **(C)**
Material examined: 3 specimen. TL: 35.0-37.7 cm.

**FAM: BALISTIDAE**

***Balistes carolinensis* Gmelin,1789**

Grey triggerfish, Domuz balığı **(A-M)**
Material examined: 5 specimen. TL: 20.0-22.4 cm.

**FAM: MONACANTHIDAE**

***Stephanolepis diaspros*** **Fraser-Brunner, 1940**

**Çütre Balığı (**L)
Material examined: 4 specimen. TL: 12.7-13.3 cm.

**FAM: LOPHIIDAE**

***Lophius piscatorius*** **Linnaeus, 1758**

Anglerfish, Fener balığı **(A-M)**
Material examined: 1 specimen. TL: 18.4 cm.

## 4. DISCUSSION

Akşiray (14) reported 443 fish species along the coasts of Turkey without indicating their habitats. Mater and Meriç (19) gave 337 fish species in the Aegean Sea. Papaconstantinou (35, 36) reported the lessepsian fish migrants spreading into the Aegean Sea. Papaconstantinou (5) reported 447 fish species in Greek Seas. Mater and Kaya (16) determined 7 species belonging to 4 genus of the family Gobiidae in Izmir Bay. Torcu and Aka (22) reported 68 fish species belonging to 38 families from Edremit Bay in the northern Aegean Sea. Mater et al. (27) recorded 361 fish species in the Aegean Sea. Eryılmaz (28) determined 92 species belonging to 44 families from Bozcaada Island. *S. acanthias*, *S. canicula*, *M. mustelus* and *R. radula* which were reported from Edremit Bay, Bozcaada, and Saros Bay were also caught in Gökova Bay. Of Sparidae family, Mater (37) listed 16 species from İzmir Bay. Of these mentioned above, *B. boops*, *D. macrophthalmus*, *D. vulgaris*, *L. mormyrus*, *O. melanura*, *P. pagrus*, *S. salpa*, *S. aurata* were also caught from Gökova Bay.

Bilecenoğlu et al., (26) reported 388 fish species in Aegean Sea which of 269 belonging to Atlanto-Mediterranean, 56 to Cosmopolitan, 44 to Mediterranean zoogeographical regions. Of the determined 144 fish species in this study, 109 are Atlanto-Mediterranean, 17 are Cosmopolitan, 6 are Mediterranean and 12 are Lessepsian migrants

*M. merluccius*, *M. barbatus*, *T. trachurus*, *P. erythinus, B. boops*, *Spicara* sp. were informed to be the most abundant by means of apparence frequencies in trawl catches of the bay of Gökova (southern Aegean Sea) (20), while *M. merluccius, T. trachurus,* T. *lyra, B. boops*, *D. macrophtalmus*, *L. piscatorius*, *Z. faber* were shown to be more common in Aegean Sea (21). As Eryılmaz (28) has only given total length ranges of 92 species from Bozcaada Island, any morphometric and meristic comparisons could not be made.

Our findings in the most of fish species confirm the previous literature (10,11, 22, 23, 38, 39, 40, 41). For *M. merluccius* belonging to Merluccidae, the number of first dorsal fin rays has been given as 8-11 by Fischer et al. (11), 9-11 by Slastenenko (42), 9-11 by Tortonese (4), 8-10 by Eryılmaz, S. (39), and 9 by Torcu Koç (40). In the present study, the number of first dorsal fin rays was found to be 8-10. Whitehead et al. (10), Fischer et al. (11), Eryılmaz, S. (39), and Torcu Koç (40) have given the number of second dorsal fin rays have given 35-40. In the present study, the number of second dorsal fin rays was found to be 37. Our findings confirm the previous literature.

For *M. merlangius* belonging to Gadidae, the number of first dorsal fin rays has been given as 16-20; the number of the first anal fin rays as 27-32 by Slastenenko (42); the number of first dorsal fin rays as12-15; the number of the first anal fin rays as 33-9 by Fischer et al. (11); the number of second dorsal fin rays as 16-19; the number of the third dorsal fin rays as 18-22, and the number of first anal fin rays as 28-32 by Tortonese (4); the number of the first dorsal fin rays as 13-16, and the number of first anal fin rays as 25-32 by Eryılmaz, S. (39). the number of the first dorsal fin rays as 13-15, the number of the second dorsal fin rays as 18-20, the number of the third dorsal fin rays as 19-22, and the number of first anal fin rays as

30-32, the number of second anal fin rays as 21-22 by Torcu Koç (40). In the present study, the number of the first dorsal fin rays was found to be 12-14, the number of the second dorsal fin rays as 20-25, the number of the third dorsal fin rays as 19-21 and the number of first anal fin rays as 30-34, the number of first anal fin rays as 21-23. Our results confirm the previous literature, except for the second dorsal fin rays from those given by Eryılmaz, S. (39).

For *B. belone gracilis* belonging to Belonidae, the number of dorsal fin rays has been given as16-20; the number of the anal fin rays as 19-23 by Whitehead et al. (10) and Fischer et al. (11), Torcu and Aka (22), Torcu Koç (40). Our results confirm the previous literature.

For *Z. faber* belonging to Zeidae, the number of dorsal fin rays has been given as 21-25; the number of the anal fin rays as 20-24 by Whitehead et al. (10) and Fischer et al. (11), Torcu and Aka (22), and Torcu Koç (40). In the present study, the number of dorsal fin rays was found to be 21-24 and the number of the anal fin rays was found to be 20-24. The findings confirm the previous literature.

For *S.scriba* belonging to Serranidae, the number of dorsal fin rays has been given as 15 by Torcu and Aka (22). In the present study, the number of dorsal fin rays was found to be 14-16.

For *S.hepatus* belonging to Serranidae, the number of dorsal fin rays has been given as 12 by Torcu and Aka (22) and Eryılmaz, S. (39). In the present study, the number of dorsal fin rays was found to be 11-12. The number of anal fin rays has been given as 7 by Torcu and Aka (22) and Eryılmaz, S. (39). In the present study, the number of anal fin rays was found to be 6-7. the number of lateral line scales has been given as 46-48 by Torcu and Aka (22) and 46-50 by Eryılmaz, S. (39). In the present study, the number of lateral line scales was found to be 45-50.

For S.*cabrilla* belonging to Serranidae, the number of dorsal fin rays has been given as 13-14 by Torcu and Aka (22). In the present study, the number of dorsal fin rays was found to be 13-15. The number of lateral line scales has been given as 75-76 by Torcu and Aka (22). In the present study, the number of lateral line scales was found to be 72-76. Our findings confirm the previous literature.

The 9 Lessepsian species spreading into the Aegean Sea (5, 25, 35, 36), with the exception of *Pempheris vanicolensis*, *Lagocephalus spadiceus*, *Atherinomorus lacunosus*, and *Paraxocoetus mento* (5, 23, 35, 36) were also determined in this study. *Hemiramphus far* reported from Gökova Bay before (23) could not be obtained in this study. *O. papuensis*, *S. commerson* and *P. Pelycus,* reported from eastern Mediterranean Sea were also caught from Gökova Bay (43, 23, 44). For *S. rubrum* belonging to Holocentridae, the number of dorsal fin rays has been given as 12-13; the number of the anal fin rays as 9 by Torcu and Mater (23). For *S. undosquamis* belonging to Synodonthidae, the number of dorsal fin rays has been given as 11-13; the number of the anal fin rays as 10-13, the number of lateral line scales as 45-54 by Torcu and Mater (23).The morfometric and meristic characters confirm the previous literature (10, 45, 46, 47, 48).

Mater et al. (31) recorded 10 deep sea species (*Capros aper*, *Lesuerigobius friesii*, *Hymenocephalus italicus*, *Gadiculus argenteus*, *Micromesistus poutassou*, *Phycis blennoides*, *Lepidorhombus boscii*, *Nezumia aclerorhyncus*, *Hoplostethus mediterraneus*, *Microichthys coccoi*, *Lepidorhombus whiffiagonis)* for Gökova Bay. Except *L. boscii,* other species have not been caught in this study. Meriç (33) recorded, *Chimaera monstrata*, *Etmopteus spinax*, *Squatina oculata*, *Argyropelecus hemigymnus*, *Chloropthalmus agassizi*, *Caelorinchus caelorinchus*, *Hoplostethus mediterraneus*, *Trachurus picturatus*, *Synchiropus phaeton* for Gökova Bay. But in this study, these species could not been found.

Gücü and Güre (49) listed 25 poisonous fishes for Aegean and mediterranean coasts of Turkey. 12 of the 25 poisonous fish; *D. pastinaca, M. aquila, T. marmorata, S. notata, S. porcus, S. scrofa, T. draco, T. radiatus, T. araneus, S. luridus, S. rivulatus* and *U. scaber* were also found from Gökova Bay in this study. Torcu and Aka (22) carried out a study in Edremit Bay and 68 species were determined. Of these, *Raja asterias, Raja miraletus, Raja radula, Trisopterus minutus cepelanus, Atherina hepsetus, Peristedion cataphractum, Blennius ocellaris, Callionymus maculatus, Callionymus risso, Callionymus lyra,Lepudopus caudotus, Arnoglossus thori, Scopthalmus rhombus* and *Solea lascaris* could not caught in Gökova Bay.

During the study, the fish species which have economic importance and are used as source of income have been also determined. These are *B. boops*, *M. barbatus*, *M.surmuletus*, *M. merlangus*, *S. scrofa*, *S.notata*, *S. sarda*, *D. macrophtalmus*, *P.eryhtrinus*, *S. scomber*, *M. merluccius*, *U. moluccensis*, *S. undosquamis*, *S. rivulatus*, *S.luridus* (21, 23, 28).

**The most important result of this research is that the lessepsian species such as *L. klunzingeri, O. papuensis, P. pelycus, S. rubrum, S. undosquamis, S. commerson, S. luridus, S. rivulatus, S. chrysotaenia, S. diaspros, U. pori and U. moluccensis*, except for *H. far* are spreading westward to the northern Aegean Sea, following the Asiatic coast.**

In the future, new lessepsian fish species may be added to the fish fauna of Gökova Bay with better equipment. It is hopeful that this investigation will be a step for the further studies in Gökova Bay.

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