

**AN INVESTIGATION ON FISHES OF SAROS BAY  
(NORTHERN AEGEAN SEA)**

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**ABSTRACT**

This investigation was carried out for determination of fish species living in Saros Bay (Northern Aegean Sea). Morphometric and meristic characters of fishes caught by using trawl and various nets from the bay between the years 1998-1999 were examined and some morphological properties, and local names of 30 determined species were given.

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

**SAROS KÖRFEZİ (KUZEY EGE DENİZİ) BALIKLARI ÜZERİNE BİR  
ARAŞTIRMA**

**ÖZET**

Bu araştırma Saros Körfezi'nde yaşayan balık türlerini belirlemek amacıyla yapılmıştır. 1997-1998 yıllarında körfezden trol ve çeşitli ağlar ile yakalanan balıkların morfolojik ve meristik karakterleri incelenmiş ve saptanan 30 türün bazı morfolojik özellikleri ve yerel isimleri verilmiştir.

**Anahtar kelimeler:** Balık türleri, Sistematik, Saros Körfezi

**1.INTRODUCTION**

The deep hole passing behind the Islands of Gökceada and Limni divides Saros Bay into two parts and influences bottom fisheries negatively. But, the northern of this hole, shallow and large area behind the island of Semadirek is suitable for deep fisheries and nutrients coming from Meriç River enable the biodiversity in rich in Saros Bay (1).

Studies carried out for the purpose of determining fish fauna of the seasurrounding Turkey have been started were with foreign scientists at the beginning of 20th century, and have intensified since 1940's by the Turkish workers. Some of the publications dealing with the fishes in the Aegean Sea are those by Akşiray (2-3), Tortonese (4), Geldiay (5, 6), Whitehead et al. (7), Fischer et al. (8), Mater (9), Mater and Kaya (10), Kaya and Mater (11), Papaconstantinou and Tsimenids (12), Papaconstantinou (13), Kaya et al. (14), Anonymus (15), Mater and Meriç (16). Kara and Gurbet (17) gave the estimates of stock size and abundance of some demersal fish species in Saros Bay but not the systematic status of them. Benli et al. (18) examined the species composition of catch, species diversity and estimation of the abundance of the commercial species and the average biomass of the demersal fish stocks of the Aegean Sea. Torcu and Aka (19) determined 68 species as new records for Edremit Bay. Eryılmaz (20) reported 15 cartilaginous fishes , 77 bony fishes for north Aegean Sea, respectively. Bilecenoğlu et al. (21) gave a list of fishes of Turkey. Mater et al., (22) gave a taxonomical information on the recent status of 415 marine fishes inhabiting Turkish Seas.

In spite of many fish fauna investigations carried out along the Turkish coasts, such an investigation has not been found in Saros Bay so far. The aim of this study by determining the fish species living in Saros Bay was to contribute to the diversity of fish in the north of Aegean Sea.

## 2.MATERIAL AND METHOD

Pelagic and benthic samples were collected by trawl and local gears off Erikli between the years of 1999-2000 (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 morphometric measurements [(disc length= DL), (disc width= DW), (total length= TL), (head length= HL), (eye diameter= ED), (body depth= BD)] were taken with a dial caliper of 0.05 mm accuracy and all of meristic characters [(dorsal= D), (anal= A), (pelvic= V), (pectoral= P) fin rays and (lateral line scales=LI.)] were counted under binocular microscope.

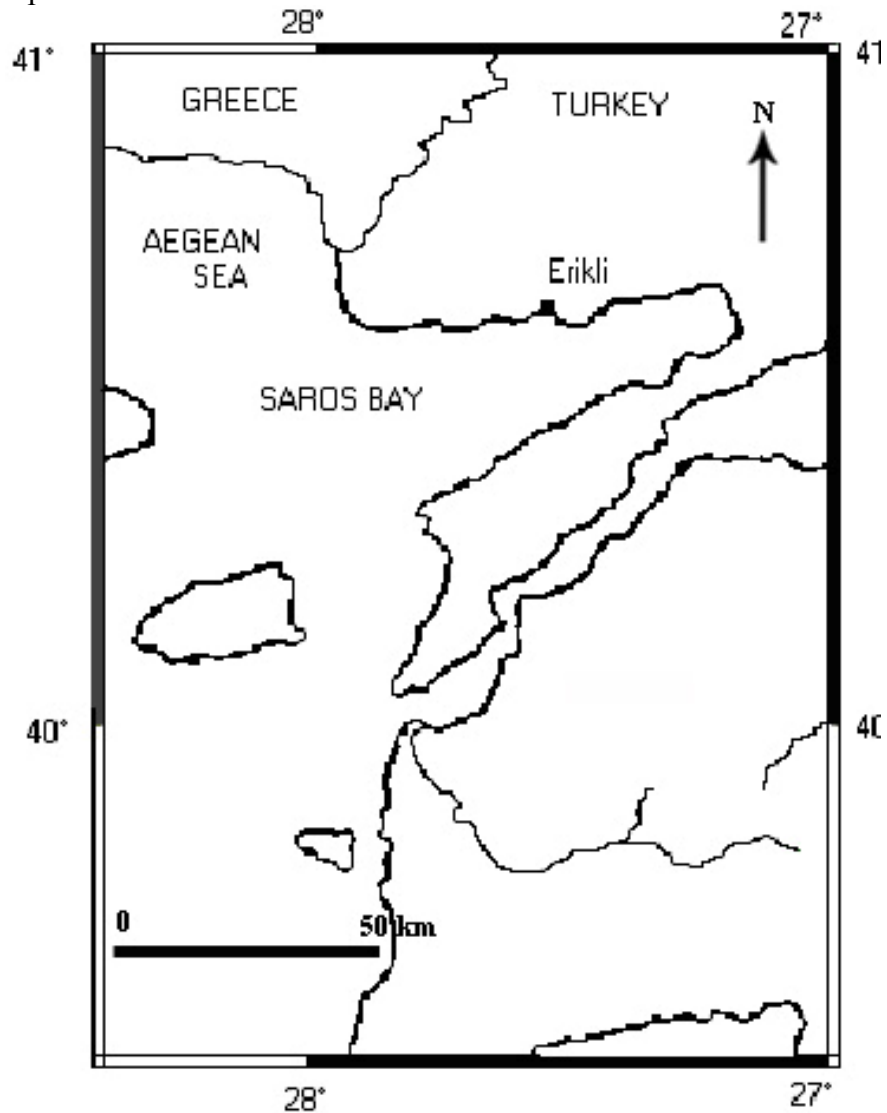


Fig. 1. Sampling area

### 3. RESULTS

From the total of 30 species belonging to 21 family, 3 cartilaginous and 27 bony were identified and are listed below. Systematic categories are given according to Whitehead et al. (7).

Distribution: An Atlanto-Mediterranean species (A-M),  
Cosmopolitan species (C),  
Endemic species for Mediterranean (M) (21, 22)

**Phylum:** Chordata

**Subphylum:** Vertebrata

**Superclassis:** Gnathostomata

**Classis:** Selachii (Chondrichthyes)

**Ordo:** Pleurotremata

**Fam:** SQUALIDAE

*Squalus acanthias* Linnaeus, 1758 -Spur dog (C)

Common synonyms: None

Local name: Mahmuzlu camgöz (n: 1)

Morphological Characters:

TL/BD: 5.25; TL/HL: 3.68; BD/HL: 0.7

**Fam:** SCYLORHINIDAE

*Scyliorhinus canicula* (Linnaeus, 1758)-Small-spotted dogfish (A-M)

Common synonyms: None

Local name: Kedibalıği (n: 1)

Morphological Characters:

TL/BD: 9.35; TL/HL: 5.24; BD/HL: 0.57; HL/ED: 4.45

**Ordo:** Hypotremata

**Fam:** RAJIDAE

*Raja radula* Delaroche, 1809-Rough ray (M)

Common synonyms: *Raja* (*Raja*) *radula* Delaroche, 1891

*Raja* (*Raja*) *atra* Capape&Deussoter (1979)

Local name: Kelebek vatoz (n: 1)

Morphological Characters:

TL/DW: 1.60; DW/DL: 1.16

**Class:** Osteichthyes

**Ordo:** Apodes (Anguilliformes)

**Fam:** CONGRIDAE

*Conger conger* (Linnaeus, 1758)-Conger eel (A-M)

Common synonym: None

Local name: Migrı (n: 1)

Morphological Characters:

TL/BD: 19.30; TL/HL: 7.15; BD/HL: 0.40; HL/ED: 6.10

**Ordo:** Anacanthini (Gadiformes)

**Fam:** MERLUCCIIDAE

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

Common synonyms: *Gadus merlangius* Linnaeus, 1758

Local name: Berlam, Bakalyaro (n: 1)

Morphological Characters:

D1: 10; D2: 39; A: 37; V: 7; P: 11

TL/BD: 5.68; TL/HL: 3.86; BD/HL: 0.71; HL/ED: 5.75

**Ordo:** Percomorphi (Perciformes)

**Fam:** SERRANIDAE

***Serranus scriba* (Linnaeus, 1758)-Painted comber (A-M)**

Common synonyms: None

Local name: Yazılı Hani, Çizgili Hani (n: 1)

Morphological Characters:

D: X, 15; A: III,7; V: 1,5; P: 12

TL/BD: 3.60; TL/HL: 3.19; BD/HL: 0.88; HL/ED: 5.2

**Fam:** MORONIDAE

***Dicentrarchus labrax* (Linnaeus, 1758)-European seabass (A-M)**

Common synonym: *Morone labrax*

*Labrax lupus*( Cuvier, 1828)

Local name: Levrek (n: 1)

Morphological Characters:

D1: VIII; D2: I,13; A: III,11; Ll. 68

TL/BD: 4.49; TL/HL: 4.01; BD/HL: 0.82; HL/ED: 5.53

**Fam:** POMATOMIDAE

***Pomatomus saltatrix* (Linnaeus, 1766)-Bluefish (A-M)**

Common synonym: *Temnodon saltator* Valenciennes, 1833

Local name: Lüfer (n: 1)

Morphological Characters:

D1: VII; D2: I,26; A: II,23; V: I,5; P: I,15; Ll. 101

TL/BD: 5.12; TL/HL: 4.10; BD/HL: 0.82; HL/ED: 5.53

**Fam:** CARANGIDAE

***Trachurus mediterraneus* (Steindachner, 1868)-Mediterranean horse-mackerel (A-M)**

Common synonym: *Trachurus mediterraneus ponticus* Aleev, 1956

*Trachurus furnestini* (Dardignac & Vincent)

Local name: Sarıkuyruk istavrit (n: 1)

Morphological Characters:

D1: VIII; D2: I,32; A: II+I,28; V: I,5; P: 39; Ll.78

TL/BD: 5.71; TL/HL: 4.15; BD/HL: 0.72; HL/ED: 3.38

**Fam:** SCIAENIDAE

***Umbrina sirrosa* (Linnaeus, 1758)-Shi-drum (A-M)**

Common synonym: None

Local name: Minakop, kötek balığı (n: 1)

Morphological Characters:

D1: X; D2: I,25; A: II,7

TL/BD: 3.73; TL/HL: 3.90; BD/HL: 1.04; HL/ED: 4.8

**Fam:** MULLIDAE

***Mullus surmuletus* Linnaeus, 1758-Striped red mullet (A-M)**

Common synonyms: None.

Local name: Tekir (n: 1)

Morphological Characters:.

D1: VII; D2: I,7; A: I,6; V: I,7; P: 16

TL/BD: 5.10; L/HL: 4.10; BD/HL: 0.82; HL/ED: 4.33

**Fam: MUGILIDAE*****Liza aurata* (Risso, 1810)-Golden grey mullet (A-M)**Common synonym: *Mugil auratus*

Local name: Altınbaş Kefal, Miksinarya (n: 1)

Morphological Characters:

D1: IV; D2: I,8; A: II,9; V: I,6

TL/BD: 5.48; TL/HL: 5.85; BD/HL: 0.98; HL/ED: 4.66

**Fam: SPARIDAE*****Boops boops* (Linnaeus, 1758)-Boque (A-M)**Common synonym: *Box boops* Linnaeus, 1758

Local name: Kupes, Kupa (n:1)

Morphological Characters:

D: XV,14; A: III,16; V: I,4; P: 15; Ll. 74

TL/BD: 5.15; TL/HL: 4.80; BD/HL: 0.9; HL/ED: 3.09

***Dentex macrophthalmus* (Bloch, 1791)-Large-eye dentex (A-M)**

Common synonyms: None.

Local name: İrigözsınagrit balığı (n: 1)

Morphological Characters:

D: XII,11; A: III,8; Ll. 52

TL/BD: 3.47; TL/HL: 3.86; BD/HL: 1.11; HL/ED: 3.31

***Diplodus vulgaris* (E. Geoffrey Saint-Hilaire, 1817)-Common two-banded sea bream (A-M)**

Common synonyms: None.

Local name: Karagöz (n: 2)

Morphological Characters:

D: XII,15; A: III,13; V: I,5; P: 14; Ll. 53

TL/BD: 2.77; TL/HL: 4.10; BD/HL: 1.47; HL/ED: 3.69

***Lithognathus mormyrus* (Linnaeus, 1758)-Striped sea bream (A-M)**Common synonyms: *Pagellus mormyrus* (Linnaeus, 1758)

Local name: mırmır (n: 1)

Morphological Characters:

D: XI,11; A: III,10; Ll. 62

TL/BD: 4.0; TL/HL: 3.75; BD/HL: 0.93; HL/ED: 7.01

***Oblada melanura* (Linnaeus, 1758)-Saddled bream (A-M)**

Common synonyms: None

Local name: melanura (n: 1)

Morphological Characters:

D: XI,14; A: III,13; Ll. 65

TL/BD: 3.53; TL/HL: 4.60; BD/HL: 1.30; HL/ED: 3.27

***Pagrus pagrus* (Linnaeus, 1758), Sea bream (A-M)**Common synonyms: *Sparus pagrus* (Linnaeus, 1758)*Pagrus vulgaris* Valenciennes, 1830

Local name: Fangri (n: 1)

Morphological Characters:

D: XI,10; A: III,8; Ll. 52

TL/BD: 3.7; TL/HL: 3.74; BD/HL: 1.0; HL/ED: 5.0

***Sarpa salpa* (Linnaeus, 1758)- Salema (A-M)**Common synonyms: *Boops salpa*

Local name: Salpa (n: 1)

Morphological Characters:

D: XI,16; A: III,14; V: I,6; P: 16; L1. 75

TL/BD: 3.5; TL/HL: 5.1; BD/HL: 1.46; HL/ED: 4.28

***Sparus aurata* Linnaeus, 1758-Gilt-head sea bream (A-M)**

Common synonyms: *Chrysophrys aurata* (Linnaeus, 1758) (non Bloch Schneider, 1801)

Local name: Çipura (n: 1)

Morphological Characters:

D: XI,14; A: III,11; V: III,11; P: 15; L1. 75

TL/BD: 3.3; TL/HL: 3.9; BD/HL: 1.19; HL/ED: 4.6

**Fam: LABRIDAE**

***Coris julis* (Linnaeus, 1758)-Rainbow wrasse (A-M)**

Common synonym: None

Local name: Gelin Balığı (n: 1)

Morphological Characters:

D: IX,12; A: III,12; V: 6; P: 13; L1. 75

TL/BD: 5.2; TL/HL: 3.95; BD/HL: 0.75; HL/ED: 5.68

**Fam: TRACHINIDAE**

***Trachinus draco* Linnaeus, 1758-Greater weever (A-M)**

Common synonym: None.

Local name: Trakonya (n: 1)

Morphological Characters:

D: VI; D2: 29; A: II,29; V: I,5; L1. 78

TL/BD: 6.1; TL/HL: 4.32; BD/HL: 0.68; HL/ED: 5.34

**Fam: URANOSCOPIDAE**

***Uranoscopus scaber* Linnaeus, 1758-Stargazar (A-M)**

Common synonym: None.

Local name: Tiryaki Balığı-Kurbağa Balığı (n: 1)

Morphological Characters:

D1: III; D2: 13; A: I,12; V: 5; P: 14

TL/BD: 6.38; TL/HL: 3.32; BD/HL: 0.66; HL/ED: 8.78

**Fam: SCOMBRIDAE**

***Scomber japonicus* Houttuyn, 1782-Chub mackerel (C)**

Common synonym: *Pneumatophorus colias* (Gmelin, 1788)

Local name: Kolyoz (n: 1)

Morphological Characters:

D1: VIII; D2: 12; A: 11; AP: 5; DP: 5; V: 7; P: 16

TL/BD: 6.37; TL/HL: 4.20; BD/HL: 0.66; HL/ED: 4.07

***Scomber scombrus* Linnaeus, 1758- Atlantic mackarel (A-M)**

Common synonyms: None.

Local name: Uskumru (n: 1)

Morphological Characters:

D1: XII; D2: 11; DP: 5; AP: 5; A: 12; V: 7; P: 17

TL/BD: 6.24; TL/HL: 4.2; BD/HL: 0.69; HL/ED: 4.9

**Ordo: Scleroparei (Scorpaeniformes)**

**Fam: SCORPAENIDAE**

***Scorpaena notata* Rafinesque, 1810-Petite rascasse (A-M)**

Common synonyms: *Scorpaena ustulata* Lowe, 1810

*Scorpaena notata afimbria* Slastenenko, 1934

Local name: Benekli iskorpit (n: 1)

Morphological Characters:

D: XII,9; A: III,5; V: I,5; P: 16

TL/BD: 3.62; TL/HL: 3.02; BD/HL: 0.84; HL/ED: 3.45

***Scorpaena porcus* Linnaeus, 1758-Blackscorpion fish (A-M)**

Common synonyms: None

Local name: İskorpit (n: 1)

Morphological Characters:

D: XII,9; A: III,6; V: I,5; P: 16

TL/BD: 3.4; TL/HL: 2.9; BD/HL: 0.85; HL/ED: 4.23

**Fam: TRIGLIDAE**

***Chelidonicthys lucernus* (Linnaeus, 1758)-Tub gurnard (A-M)**

Common synonyms: *Trigla lucerna* Linnaeus, 1758

*Trigla hirundo* (nec Linnaeus): Bloch,1785

*Trigla corvus* Risso,1810

*Trigla corax* Bonaparte, 1834

Local name: Kırlangıç Balığı (n: 1)

Morphological Characters:

D1: VIII; D2: 16; A: 15; V: I,5

TL/BD: 5.51; TL/HL: 4.04; BD/HL: 0.73; HL/ED: 5.46

**Ordo:** Heterosomata (Pleuronectiformes)

**Fam: SCOPHTHALMIDAE**

***Scophthalmus rhombus* (Linnaeus, 1758)-Brill (A-M)**

Common synonym: *Rhombus laevis* Turton, 1802

Local name: Dişi Kalkan, Çivisiz Kalkan (n: 1)

Morphological Characters:

D: 75; A: 59; V: 5; P: 12

TL/BD: 2.11; TL/HL: 3.54; BD/HL: 1.67; HL/ED: 5.16

**Fam: SOLEIDAE**

***Solea nasuta* (Pallas, 1814)-Snouted sole (M)**

Common synonym: *Pegusa nasuta*

Local name: Dil Balığı (n: 1)

Morphological Characters:

D: 75; A: 57; V: 3; P: 8, Ll. 120

TL/BD: 3.24; TL/HL: 5.40; BD/HL: 1.66; HL/ED: 5.41

#### 4. DISCUSSION

Akşiray (3) reported 443 fish species along the coasts of Turkey without indicating the seas which they live in. Mater and Meriç (16) gave 337 fish species in the Aegean Sea. Papaconstantinou (13) reported 447 fish species in Greek Seas. Mater and Kaya (10) determined 7 species belonging to 4 genus of the family Gobiidae in Izmir Bay. Torcu and Aka (19) reported 68 fish species belonging to 38 families from Edremit Bay in the northern Aegean Sea. Mater et al. (22) recorded 361 fish species in the Aegean Sea. Eryılmaz (20) determined 92 species belonging to 44 families from Bozcaada Island. *S. acanthias*, *S. canicula* and *R. radula* reported from Edremit Bay and Bozcaada Island (Northern Aegean

Sea) were also caught in Saros Bay. Their body ratios are similar to the previous reference (19, 20). From Sparidae, Mater (9) gave a list enumerating 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 Saros Bay.

Bilecenoğlu et al. (21) reported 388 fish species in Aegean Sea which 269 belonging to Atlanto-Mediterranean, 56 to Cosmopolitan, 44 to Mediterranean zoogeographical regions. Of the determined 30 fish species in this study, 26 are Atlanto-Mediterranean, 2 are Cosmopolitan and 2 are Mediterranean.

From Soleidae, *S. nasuta* is synonymized under *S. lascaris* at a worked named “A taxonomic reappraisal of the Atlanto-Mediterranean soles *Solea solea*, *S. senegalensis* and *S. lascaris*” by Ben Tuvia (23). *M. merluccius*, *M. surmuletus*, *T. trachurus*, *T. lyra*, *L. piscatorius*, *Z. faber*, *S. vulgaris*, and *S. canicula* and were informed to be the most abundant by means of appearance frequencies in trawl catches of the gulf of Saros (northern Aegean Sea) (15), while *M. merluccius*, *T. trachurus*, *T. lyra*, *B. boops*, *D. macrophthalmus*, *L. piscatorius*, *Z. faber* were shown to be more common in Aegean Sea (18). In the present study, only two species, *Z. faber* and *L. piscatorius* couldn't be gathered. As Eryılmaz (20) has only given total length ranges of 92 species from Bozcaada Island, any morphometric and meristic comparisons could not be made.

Our findings in all fish species confirm the previous literature (6, 7, 8, 19). But, for *P. pagrus* of the family Sparidae, number of dorsal fin rays has been given as 11-12 by Geldiay (5). In the present study, dorsal fin rays was found to be 10. The number of anal fin rays has been given as 9-10 by Geldiay (5) while anal fin rays was found to be 8. For *L. aurata* of the family Mugilidae, Geldiay (6) has given the number of anal spines as 3. In the present study, anal spines were found to be 2. Geldiay (6) has given ventral fin rays as 5, while ventral fin rays were found to be 6 in the present study. It may be considered as a result of different samples size.

In this investigation, any comparison of morphometric and meristic characters of fish species in Saros Bay couldn't be carried out because of no such study at the same locality in the past. In the future, it is possible that new fish species can be added to the present fish fauna in Saros Bay with better equipments and more chances. It is a hope that this investigation will lead to the further ones in Saros Bay.

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