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The first record of the speckled ray, *Raja (Raja) polystigma* REGAN, 1923 in the Seas of Turkey

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The speckled ray, Raja (Raja) polystigma *REGAN, 1923 was recorded for the first time in the seas of Turkey. One male specimen is described.*

Key words: Speckled ray, Seas of Turkey

INTRODUCTION

Little is known about the *Raja* species in the seas of Turkey and very few studies have been carried out on this subject (KUTAYGİL and BİLECİK, 1979; KABASAKAL, 1995). DEVEDJIAN (1926), ERAZI (1942), GELDİAY (1969), AKŞIRAY (1987) and MATER *et al.* (1989) provided a list of *Raja* species collected from the seas of Turkey, but there is no record of *Raja polystigma* in their papers.

Seventeen species of the Rajidae family have a significant place among the eighty elasmobranch species of the Mediterranean basin (BAUCHOT, 1987). *Raja polystigma* is a Mediterranean endemic species (CAPAPÉ and QUIGNARD, 1978). ŠOLJAN (1948) reported the presence of *Raja polystigma* in the Adriatic Sea, TORTONESE (1956) and BINI (1967) along the Italian coasts, ARBOCCO (1961) in the Gulf of Genoa, QUIGNARD and CAPAPÉ (1971) along the Tunisian coasts and PAPACONSTANTINOU (1986) in the Patraikos Gulf and the Ionian Sea. According to STEHMANN and BURKEL (1984), *Raja polystigma* is present only in the western parts of the Mediterranean Sea and is more common along the African coasts, but PAPACONSTANTINOU and TORTONESE (1980) reported the speckled ray in the Thermaikos Gulf which was the first recording of *Raja polystigma* in the Aegean Sea and E Mediterranean.

The purpose of the present study is to provide additional information to the studies on the ichthyofauna in the seas of Turkey.

Regular trawling surveys have been carried out by the Faculty of Aquatic Products, Department of Marine Biology at the University of Istanbul in the Turkish territorial waters of the north Aegean Sea since 1995, in order to study the species composition and biological aspects of the cartilaginous fishes in this area. On March 5, 1997, during the surveys a male specimen of *Raja polystigma* was caught off the northern coast of Bozcaada, which was the first ray recorded in the seas of Turkey. The speckled ray is well known in some parts of the Mediterranean Sea.

MATERIAL AND METHODS

The sample was caught by a commercial fishing trawler with a net opening of 22 mm from knot to knot. The depth of the capture was

70 m. The specimen was fixed and stored in 5 percent formaline solution. External measurements were taken according to the methods proposed by HUBBS and ISHIYAMA (1968). The total length and disc width were measured to the nearest 0.5 mm and remaining measurements to the nearest 0.05 mm with a vernier caliper. The taxonomic nomenclature follows the literature of STEHMANN and BURKEL (1984) and BAUCHOT (1987).

The material was preserved at the Faculty of Aquatic Products, Marine Biology Laboratory at the University of Istanbul.

RESULTS

Material examined: 39° 56' 28" N;25° 52' 32" E (Fig. 1); depth: 70 m, sandy-muddy bottom; 1 male specimen (Fig. 2).

Description

The snout is short; with a width between the nostrils (22.10 mm) of more than 70 % (21.07 mm) and a distance of 30.10 mm from nostril to snout tip; a line from the tip of snout to the pectoral wing-tip cuts in front margin of disc. The upper surface of the disc is prickly only on the snout. There are 10 orbital, 1 scapular (on the right scapular region) and 2 nuchal thorns; a middle row of 27 thorns on the tail and 1 thorn between the dorsal fins. The upper surface of the tail is also prickly. The upper surfaces of the disc and tail are light brown. There are many small black spots and several light spots on the upper surfaces of the disc and tail. A large eye-spot is found on each of the pectoral fins. They are much closer to the median axis of body than the tips of the pectoral fins. The cream coloured center of the eye-spot is first surrounded by a dark and broad ring, followed by a white and narrow ring and finally, a row of black dots (Fig. 3). The eye-spot is oval. There are four additional "8" shaped black spots on the upper surface of the disc (Fig. 3). Two of them are in front of the eye-spots and the other

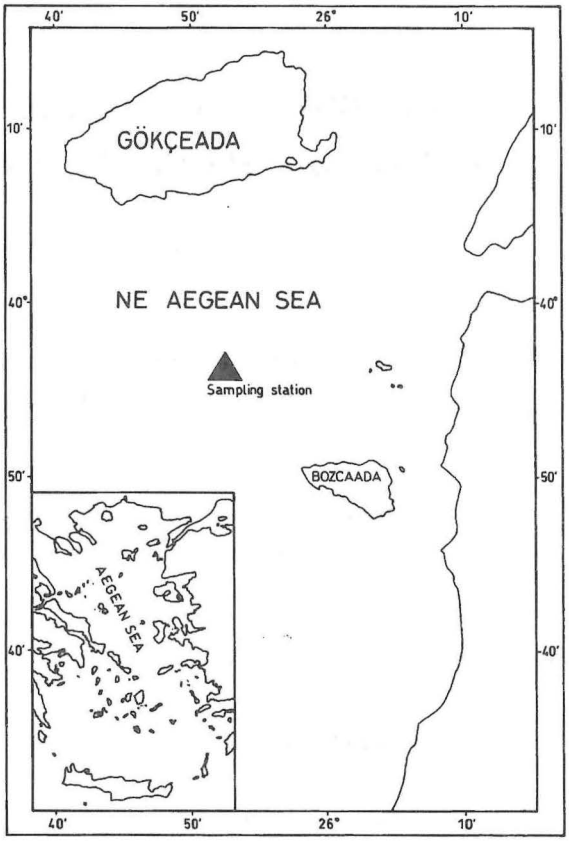

Fig. 1. Sampling station (39° 56' 28" N;25° 52' 32"E)

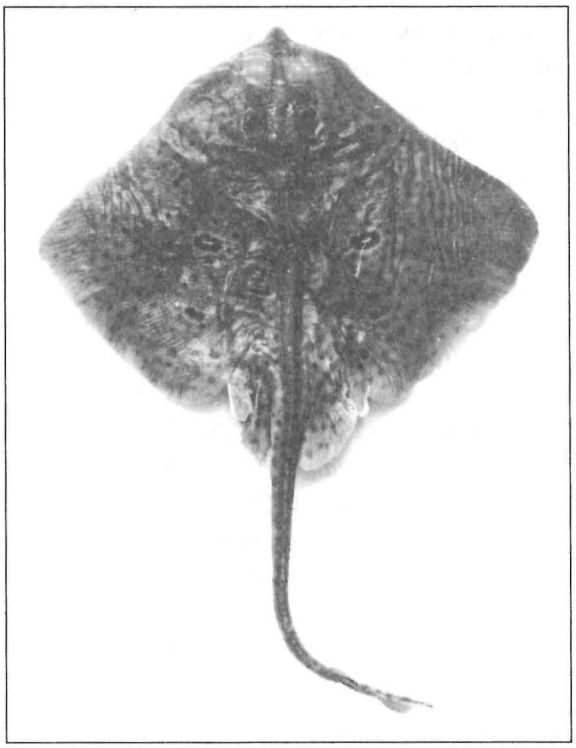

Fig. 2. Male specimen of Raja polystigma, *19.8 cm of disc width and 31.3 cm of total length*

Fig. 3. Eye-spot and additional spots on the upper surface of disc (right side)

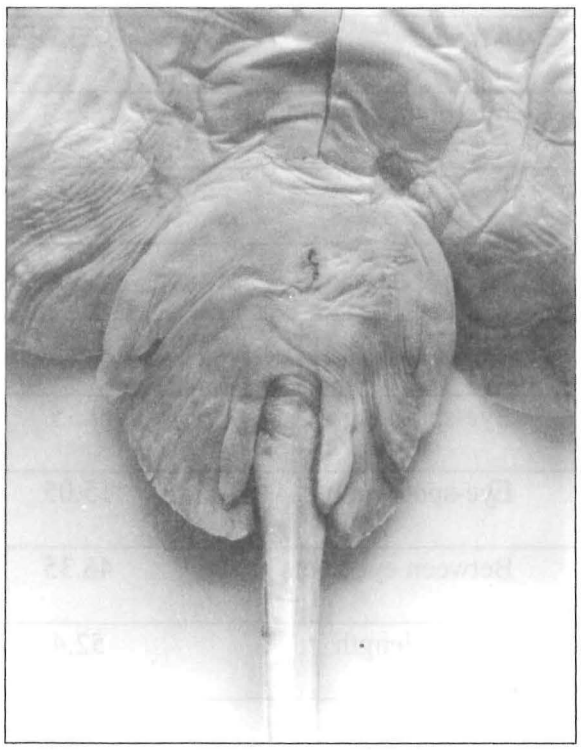

Fig. 4. Claspers of the male specimen

two are at the rear of the eye-spots. The underside of the disc is entirely smooth except for prickles on the snout and at the front margins of the disc. The underside of the disc is white. There are eight turns in the spiral valve. Selected measurements of the specimen are presented in Table 1.

Biology

According to CAPAPÉ and QUIGNARD (1978), sexual maturity is reached by the males at 34 cm of disc width and 53 cm of total length, and by the females at 40 cm of disc width and 63 cm of total length. CAPAPÉ and QUIGNARD (1978) also stated that males are sexually mature when their claspers are calcified. As is shown in Table 1, the disc width and total length of our male specimen are 19.8 cm and 31.3 cm respectively, and the claspers are not calcified (Fig. 4). Therefore, we can assume that it is not sexually mature.

DISCUSSION AND CONCLUSIONS

The present study indicates that the distribution limits of *Raja polystigma* in the eastern Mediterranean have reached Turkish coasts. In the study of MATER and MERİÇ (1996), which lists the marine fish from the seas of Turkey, the authors reported the presence of *Raja polystigma* along the Turkish coasts of the Aegean Sea. But in this report, no information was given by MATER and MERİÇ (1996) about the sampling locality, depth etc. of *Raja polystigma* specimen caught along the Turkish coasts of the Aegean Sea. Furthermore, there is no recording *Raja polystigma* in this area before the present study. Therefore, the specimen of *Raja (Raja) polystigma* REGAN, 1923, caught off the northern coast of Bozcaada (NE Aegean Sea) was considered as a new recording to the ichthyofauna in the seas of Turkey.

The eye-spot pattern of *Raja polystigma* includes some variations among the individuals and these have been described by ARBOCCO

Table 1. Selected measurements of the specimen

Measurements	mm	Measurements	mm
Total length	313	Nasal-curtain width	11.8
Disc width	198	Mouth width	24.15
Disc length	128	Eyeball length	13.55
Trunk length	68.95	Interorbital width	10.85
Precaudal length	304.3	Spiracle length	8.6
Tail length	185.5	Interspiracular width	21.25
Predorsal-tail length	262	Orbit+spiracle	17.4
D1 origin to tail tip	51.5	Gill slit length	
D1 basal length	16.65	1 st	4.5
D1 height	7.85	3 rd	3.8
D2 basal length	18.7	5 th	2.35
D2 height	7.95	Interbranchial width	
Distance D1/D2	7.65	1 st	40.95
Postdorsal length	9.15	3 rd	31.75
Head length	59.05	5 th	22.4
Preocular length	38.4	Eye-spot length	9.35
Preoral length	37.25	Eye-spot width	15.05
Prenarial length	28.5	Between eye-spots	46.35
Internarial distance	22.1	Clasper length	52.4
Nasal-curtain length	12.8	Clasper width	4.45

(1961) in the specimens from the Gulf of Genoa. In the descriptions of *Raja polystigma*, several authors reported that the dark center of the eye-spot is first surrounded by a light and narrow ring, followed by a dark and broad ring, and finally a row of black dots (ŠOLJAN , 1948; STEHMANN and BURKEL, 1984; BAUCHOT, 1987). However, in our specimen, the center of the eye-spot is cream coloured, surrounded by a dark and broad ring, followed by a light and narrow ring (Fig. 3). Although this unusual coloration of the eye-spot of our specimen seemed different from the description of *Raja polystigma*, this eye-spot pattern has also been observed by ARBOCCO (1961) in some specimens of the speckled ray caught in the Gulf of Genoa.

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Prvi nalaz raže crnožige, *Raja (Raja) polystigma* REGAN, 1923 u turskim morima

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SAŽETAK

Sjeverno od otoka Bozcaada u sjevernoistočnom dijelu Egejskog mora ulovljen je 5. ožujka 1997. u jednom potegu na 70 m dubine i pjeskovito-muljevitom dnu jedan mužjak raže crnožige, *Raja (Raja) polystigma* REGAN, 1923. To je prvi nalaz te sredozemnomorske endemske raže u turskim vodama. U radu se daje opis ulovljenog primjerka s obzirom na njegove morfometrijske karakteristike. Širina tijela (diska) primjerka bila je 19,8 cm, a ukupna duljina tijela 31,3 cm. Primjerak je bio spolno nezreo jer pterigopodij nije još bio kalcificiran i bio je kraći od trbušnih peraja.

Ovim radom se dokazuje da rasprostranjenost vrste *Raja (Raja) polystigma* u istočnom Sredozemnom moru uključuje i turske obale.