

## OBSERVATIONS ON THE EFFECTS OF POLLUTION OF IZMIR BAY ON THE SEA STARS

(ECHINODERMATA : ASTEROIDEA)

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## INTRODUCTION :

The Bay of Izmir has constituted a part of the research area investigated during my Ph.D. work carried out between 1969-1973 which was concerning phylum Echinodermata occurring along the Turkish coasts of Aegean Sea. The above-mentioned research work which was completed more than a decade ago, has resulted in the identification of 63 echinoderm species, one of which belonged to Crinoidea, 14 to Holothuroidea, 20 to Asteroidea, 13 to Ophiuroidea and 15 to Echinoidea.

As is generally accepted, marine pollution constitutes an important part of environmental pollution. Hence, Izmir Bay which may be regarded as being an important and natural sink of sea products is seriously faced with the problem of pollution.

Research work has already been conducted on the factors of pollution and their effects on the Bay. Upon results obtained by such work, advices concerning the protective measures to be taken in this regard are given in order to revert Izmir Bay to its earlier, unpolluted and clean situation or to prevent its further pollution.

Within the present research work, carried out between 1973-1984, the migration from the Izmir bay of the species belonging to Asteroidea which are struggling to survive in these polluted waters has been investigated.

## MATERIAL AND METHODS :

Observations were also done during the course of other related studies for the last decade within Izmir Bay. In the present study, materials were collected at convenient places within the bay, that is wherever underwater was visible from depths down to ten metres using snorkel, palpebrates and goggles and from depths 30-40 m by scuba-diving. Collection was also made with beam-trawl and various dredges.

## RESULTS :

The Asteroidea species living within the inner Bay of Izmir as had been determined in my Ph.D. work (1973) were as follows : *Astropecten irregularis pentacanthus*, *A. johnstoni*, *A. aranciacus*, *Asterina gibbosa*, *A. pancerii*. Those living in the outer Bay had also been listed in the same work in the following way : *Astropecten irregularis pentacanthus*, *A. johnstoni*, *A. aranciacus*, *A. bispinosus*, *A. platyacanthus*, *A. spinulosus*, *Sphariodiscus placenta*, *Hacelia attenuata*, *Asterina gibbosa*, *A. pancerii*, *Echinaster sepositus*, *Coscinasterias tenuispina*, *Marthasterias glacialis* (fig. 1a).

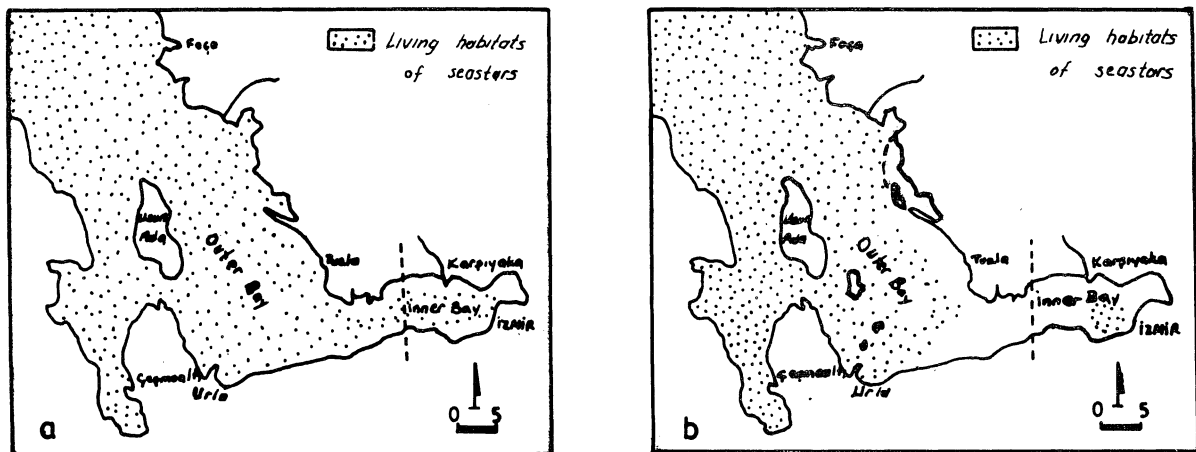


Figure 1. The distribution of Asteroidea in Izmir Bay during 1969-1973 and in 1984.

Our present study unfortunately reveals the disappearance of two from five species in the inner Bay, the remaining being *Astropecten irregularis pentacanthus* and *Asterina gibbosa*. The species which were observed to have survived since then have been determined as : *Astropecten i. pentacanthus*, *A. johnstoni*, *A. aranciacus*, *A. platyacanthus*, *Asterina gibbosa*, *Echinaster sepositus*, *Marthasterias glacialis* within the outer Bay where the water is less polluted (fig. 1b).

Summarizing, only seven of the thirteen species which were present in the Bay in early 1970 have survived since. This situation is a drastic demonstration of the deleterious effects of marine pollution on these organisms.