

**First examination and identification of the optimum operation period of fyke-nets with two funnels and a 42 mm mesh size in order to catch Sepia (Sepia officinalis) in Izmir Bay**

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In Izmir Bay, Sepia (*Sepia officinalis*) is caught using trammelnets, fyke-nets with 12 mm mesh size, and lines. This study represents the first time that fyke-nets with a 42 mm mesh size are examined. The sheme of these fyke-nets used may be observed in Fig. 1. 72 units of the before mentioned fyke-nets were used in this study, which were set at sunset and hauled by morning, approximately 12 hours afterwards.

According to the result of this study, the before mentioned fyke-nets were successful catching Sepia. In 27 days, 352 Kg of Sepia were caught. At the same time these fyke-nets are more selective than those with a 12 mm mesh size, because the crabs are not taken by them.

The amount of 114 units of fyke-nets were divided into three groups for this study:

38 units were set at sunset and hauled in the morning, 12 hours later. The amount of Sepia caught in 25 days was 352 kg.

38 units more were set at sunset and hauled after 36 hours, at the same station, resulting the amount caught in 25 days 449 Kg.

In the third group, 48 units of fyke-nets were hauled 48 hours after setting, in which 453 Kg were caught. Besides of not obtaining any increase in the productivity, this group also meant death for the Sepia.

As a results, the optimum operation period using fyke-nets was indentificated as the 36-hour one, increasing the productivity in a 24% compared to the first group.

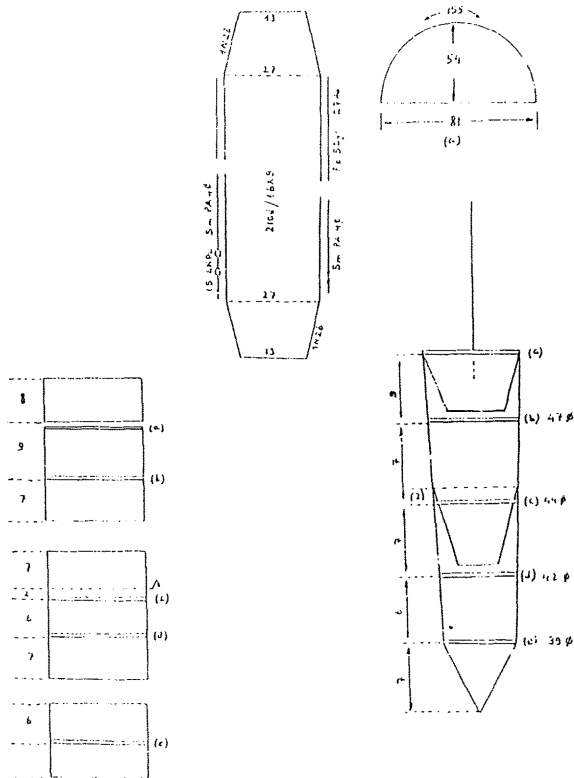


Fig. 1. Scheme of fyke nets for catching sepia

**REFERENCES**

KINACIGIL T., KARA A., ÇIRA E., 1991.- Comparison of Catching Production of fyke nets of three and two funnels with 42 mm mesh size used in the catching of Sepia (*Sepia officinalis*) in Izmir Bay. The Rotary Club of Beyoğlu Symposium of Fish Catching and Processing, Istanbul, Turkey.  
KINACIGIL T., KARA A., ALPBAZ A. & ÇIRA E., 1990.- The Comparison of catching production of fyke nets which is 42 mm and 12 mm mesh size sith three funnels in the catching of Sepia (*Sepia officinalis* L.). Aegean Univ. Fisheries College. The Symposium of Fishery in 10th Training Year., Izmir, Turkey.  
BRANDTS A.V., 1972.- Fish Catching Methods of the World. Fishing News Ltd. 110 Fleet Street, London Es 4, England.

**Stock dimensions and species composition of Demersal Fish biomass in Izmir Bay**

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The purpose of this study is to determine the demersal fish stock living in different depths, between 20 and 70 mtrs, of the south and east parts comprised respectively between the following coordinates: 38°40'48"N and 26°28'20"E and 38°41'29"N and 26°42'42"E, which connect the eastern borderlands of Karaburun and Eski Foça successively.

The Izmir Bay, where in this study was carried out, has a muddy and orgillaceous ground, which is suitable for trawling.

This study was carried out with the reseach boat Hippocampus, which belongs to the Ege University Fisheries College. The bottom trawl net used during the survey had a codend mesh size of 40 mm with a high opened mouth.

The amount of demersal fish was estimated by bottom trawl and the amounts caught by this method in unit time. The different depth levels (20-40-60-70m), as well as the homogeneous distribution of distances between the stations, were considered determinating the twenty trawl stations for the study.

The species of trawl samples were selected at the end of each trawling. The main commercial fish as *Mullus barbatus*, *Pagellus erythrinus*, *Solea vulgaris*, *Merluccius merluccius*, *Trisopterus minutus capelanus* were biologically analysed.

The examination and estimation of demersal fish stock was made according to ALVERSON et al. (1964).

Recording to RICKER (1940) and GULLAND (1964), the total population of demersal species in an area can be estimated with the help of trawling area, catching capacity of the trawl and the catching density.

The stock dimensions in the research area can be expressed as biomass of the demersal fish, and its amount found out by measuring the commercial demersal fish.

In this study, the biomass distribution of demersal fish was found dense in the area between the exit of the interior bay and the exterior bay, estimating an amount of 2.8 tones per square mile. In the exterior bay, and the Gülbahçe Bay these amounts were estimated as 1.4 and 1.5 tones per square mile, respectively (Table 1, Fig.1).

| Study Region | Average Depth (m.) | Scanning Ground (m <sup>2</sup> /h.) | Study Area (mile/square) | Catching of Mile Square (tone) | Production of The Ground (tone) |
|--------------|--------------------|--------------------------------------|--------------------------|--------------------------------|---------------------------------|
| Interior Bay | 50                 | 37 x 10 <sup>3</sup>                 | 7.19                     | 4.600                          | 33.070                          |
|              | 40                 | 37 x 10 <sup>3</sup>                 | 10.59                    | 3.700                          | 39.180                          |
|              | 30-40              | 37 x 10 <sup>3</sup>                 | 11.69                    | 2.780                          | 32.500                          |
|              | 20-30              | 37 x 10 <sup>3</sup>                 | 10.71                    | 2.320                          | 24.850                          |
|              | 20-25              | 37 x 10 <sup>3</sup>                 | 6.00                     | 1.850                          | 11.100                          |
| Exterior Bay | 20                 | 37 x 10 <sup>3</sup>                 | 8.56                     | 1.400                          | 11.980                          |
|              | 50                 | 37 x 10 <sup>3</sup>                 | 10.04                    | 1.850                          | 18.570                          |
|              | 60-70              | 37 x 10 <sup>3</sup>                 | 46.44                    | 1.400                          | 65.020                          |
| Gülbahçe Bay | 40-50              | 37 x 10 <sup>3</sup>                 | 6.41                     | 0.920                          | 5.900                           |
|              | 28-30              | 37 x 10 <sup>3</sup>                 | 1.32                     | 4.600                          | 6.070                           |
| Total        | 28-30              | 37 x 10 <sup>3</sup>                 | 9.93                     | 1.400                          | 13.900                          |
|              | 28-30              | 37 x 10 <sup>3</sup>                 | 1.98                     | 1.480                          | 0.950                           |
| <b>Total</b> |                    |                                      | <b>130.86</b>            |                                | <b>263.090</b>                  |

It was observed, that the depth levels in which the fish biomass has a stronger density, were between 40 and 50 mtrs in the interior bay, 50 and 70 mtrs in the exterior bay and 28 and 30 mtrs in the Gülbahçe Bay (Table 2).

Fortyfive species were determined by the trawl surveys made in the research area. These species are composed as follows: 3 Pelagic, 5 Selachii, 2 Crustacea, 4 Cephalopoda and 31 Demersal fish.

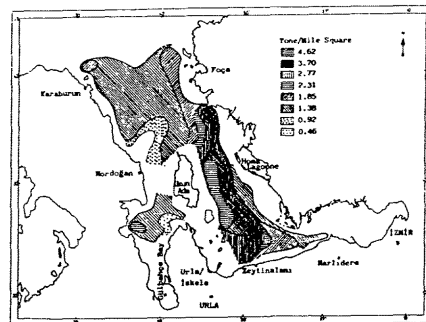


Fig. 1.- Distribution of Demersal Biomass in the Sub-Regions

| Study Region | Average Depth (m.) | Scanning Ground (m <sup>2</sup> /h.) | Average Catching (tone) | A catch of Mile Square (mile square) | Study Area of the Area (mile square) | A Production of the Area (tone) |
|--------------|--------------------|--------------------------------------|-------------------------|--------------------------------------|--------------------------------------|---------------------------------|
| Interior Bay | 30-50              | 37 x 10 <sup>3</sup>                 | 0.05                    | 4.6                                  | 8.11                                 | 37.300                          |
| Gülbahçe     | 30-40              | 37 x 10 <sup>3</sup>                 | 0.04                    | 3.7                                  | 10.59                                | 39.180                          |
| Exterior Bay | 30                 | 37 x 10 <sup>3</sup>                 | 0.03                    | 2.8                                  | 11.69                                | 32.500                          |
| Exterior Bay | 20-30              | 37 x 10 <sup>3</sup>                 | 0.025                   | 2.3                                  | 10.71                                | 24.630                          |
| Exterior Bay | 40-50-70           | 37 x 10 <sup>3</sup>                 | 0.02                    | 1.8                                  | 18.04                                | 33.380                          |
| Exterior Bay | 30-60              | 37 x 10 <sup>3</sup>                 | 0.015                   | 1.4                                  | 64.93                                | 91.000                          |
| Exterior Bay | 50                 | 37 x 10 <sup>3</sup>                 | 0.01                    | 0.9                                  | 6.41                                 | 5.970                           |
| <b>TOTAL</b> |                    |                                      |                         |                                      | <b>130.86</b>                        | <b>263.090</b>                  |

**REFERENCES**

ALVERSON D.L., PRUTER A.T. & RONHOLT L.L., 1964.- A study of demersal fishes and fisheries of Northeastern Pacific Ocean. H.R. MacMillan Lectures in Fisheries, Vancouver, University of British Columbia, 190 pp.  
State Statics Institute of Turkey, 1989.- Fisheries Statistics. Prime Ministeries Office.  
GULLAND A.J., 1964.- Catch per unit effort: a measure of abundance. *Rapp. P.V. Reun. Cons. Perm. Int. Explor-Med.* 155, p. 4-8.  
RICKER, W.E., 1940.- Relation of "Catch-Per Unit Effort" to abundance and rate of exploitation. *J. Fish. Res. Bul. Can.*, 5, p. 43-70.