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Economic Fish and Fisheries at Homa Lagoon

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Abstract

The fish and the present condition of fishing activities at Homa Lagoon, which is located in the northwest of the Gulf of Izmir, on the location of Çamaltı Saltpan and Izmir Bird Paradise and whose operation was transferred to the Faculty of Fisheries at Ege University in 1986, have been determined. Gilthead sea bream (*Sparus aurata*) and various types of mullet such as Flathead Mullet (*Mugil cephalus*), Thinlip Mullet (*Liza ramada*), Thicklip Grey Mullet (*Mugil saliens*) and Golden Grey Mullet (*Mugil auratus*) as well as Sole (*Solea solea*), Sea Bass (*Dicentrarchus labrax*) and Eel (*Anguilla anguilla*), fewer in amount, are caught.

The annual fisheries productivity of the lagoon, which has a total area of 1,824 ha, has varied between 3 to 65 tons since 1986. By means of the improvement activities carried out recently, the annual productivity has been 30 tons of fish and 70 kilograms of caviar on average.

Key words: Homa, Lagoon, fisheries

Introduction

When the lagooner zones located on the coasts of Turkey are considered, it has been stated that there are 72 lagooner zones in total, 14 of which are on the coasts of the Black Sea, 12 of which are on the coasts of Marmara, 29 of which are on the coasts of the Aegean and 17 of which are on the coasts of the Mediterranean (STM., 1997). It is said that 43 of the lagooner zones have maintained their structural characteristics while production of sea products are still continuing through hunting in 29 fish traps (Emiroğlu *et al*., 2001).

Being the mixture areas of fresh water and salt water, the lagooner zones are special water ecosystems which have an important role in the nutrition of the fish living in both media. The species such as types of Mullet, Sea Bass, Gilthead sea bream, Eel and Sole, which originate from the sea and move to lagooner zones for reproduction and nutrition, are caught abundantly in the fish traps, set up on the migration routes.

Homa Lagoon is located 25 kilometeres to the northwest of the Gulf of Izmir and within the borders of the town of Menemen (Figure 1). Located adjacent to Çamaltı Saltpan and Izmir Bird Paradise, the lagoon has a surface area of 1824 ha and its management was transferred to the Faculty of Fisheries at Ege University in 1986 (Alpbaz and Kınacıgil, 1988). Thus, Homa Lagoon has become the only active fish trap in the Gulf of Izmir since the Ragıppaşa Lagoon was destroyed in 2002.

The depth of the fish trap is maximum 1.5 meters and its depth mostly varies between 0.5 and 1 meter. Annual fish production varies between 3 to 65 tons. During 1986-1987, 65 tons of production was achieved (Alpbaz, 1990). There are five straits (gates), including the fish trap region, where fishing is still carried out actively in the fish trap and the straits and fish traps are opened in December and they are closed again at the beginning of June (Elbek *et al*., 2003).

Materials and Methods

Fish traps were established on one of the straits which help passage between the lagoon and the sea for fishing in Homa lagoon (Figure 2). Fish traps were assembled in water-resistant wooden stakes and they were established by weaved canework.

A reverse fish trap was added to the fish traps, which had 4 normal traps in the previous years, and besides catching the fish moving from the fish trap to the sea, it is aimed to catch the fish, which try to enter the fish trap from the sea during the period the fish trap is closed by means of the reverse fish trap system.

Moreover, fishing has been carried out in the lake of fish trap by cane nets.

Results

When the fishing data was kept regularly in 4 years time between 2001 and 2004, by the related unit of the Faculty of Fisheries at Ege University, it is observed that a production of 25,447 kilograms in total, comprising juvenile gilthead sea bream, Mullet types, Sea Bass, Eel and Sole, was achieved in 2001.

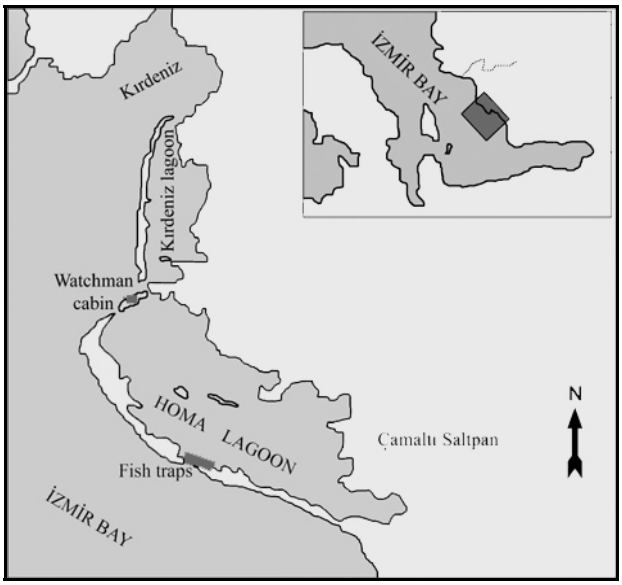

Figure 1. Location of Homa Lagoon.

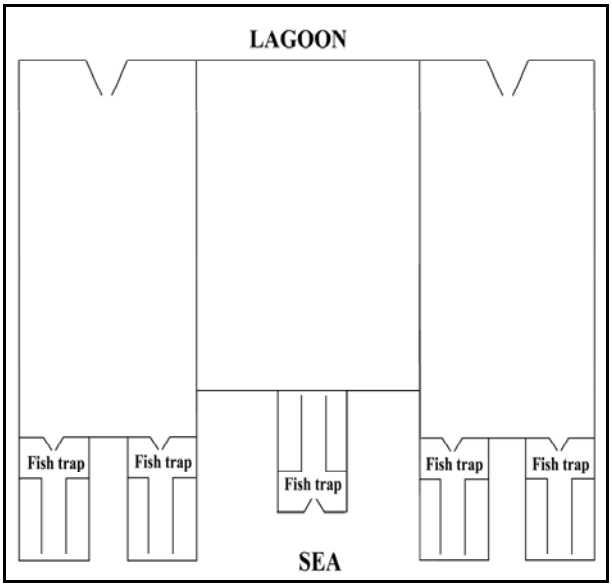

Figure 2. Drawing of Homa Lagoon's fish traps.

It is pointed out that 75 kilograms of mullet caviar and 80,330 alive juvenile gilthead sea bream were obtained within the same year. The fact that together with juvenile gilthead sea bream, Mullet types and other economic fish species, the total production reached 23,606 kilograms in 2002, the following production period, took place in the records. Moreover, 4,150 juvenile gilthead sea bream were transferred alive to the growing ponds at Urla facilities within this period for fattening purposes. Since the fish traps and the straits were damaged extensively by the climatic conditions in 2003, only 5,635 kilograms of fish were caught and 11 kilograms of caviar production was obtained. During the fishing period in 2004, a total fish production of 33,051 kilograms composed of Mullet types, juvenile gilthead sea bream, Sea Bass and Sole were achieved. Moreover, 4,166 juvenile gilthead sea bream were transferred alive so as to be grown in the net cages at Urla facilities of the Faculty. The production of mullet caviar in this fishing period was 63 kilograms (Table 1).

Discussion

It is stated that the production amounts of the economic species in Homa Lagoon in 1986 was 64,921 kilograms in total, 37,854 kilograms of which

Table 1. Fish yield (kg) of Homa fish traps

Fish species	Years			
	2001	2002	2003	2004
Mugil cephalus	1,440	30	44	32
Mugil ssp.	18,165	4,947	3,630	23,026
Dicentrarchus labrax	45	6	-	414
Sparus aurata	5,685	18,620	1,841	9,410
Solea solea	3	-	110	169
Anguilla anguilla	109	3	10	-
Total yield	25,447	23,606	5,635	33,051

were *Sparus aurata*, 10,701 kilograms of which were *Anguilla anguilla* and 16,366 kilograms of which were *Mugil* ssp. (Alpbaz and Kınacıgil, 1988). However, the production amounts in the following years declined due to reasons such as shallowing and extreme salification. Nevertheless, the annual production was achieved to become approximately 30 tons on average by some improvement activities carried out recently at the fish trap.

One of the most important problems at Homa Lagoon is the problem of shallowing increasing year by year in the lagoon lake and its straits. It is stressed in a study carried out on the depth varieties in the lagoon that the depth varies between 0.5 and 1.0 meter and that there are depths which do not exceed 20 centimeters in some places (Kınacıgil *et al*., 1991). The view that it will be appropriate to dig holes and canals of 3 to 4 meters in depth in the lagoon so as to prevent this shallowing and even to help overwintering the fish at least during the cold period is mentioned in the same study. The physico-chemical changes taking place in this area express great values by seasons due to the fact that the lagoon is shallow. It is considered that the fish amounts to be obtained on the condition that the area of lagoon is deepened for the elimination of this negativity will increase.

The shallowness of the lagoon causes another problem. that is easily explained by the abnormally increased salinity, which thus causes the lagoon to become quite a sensitive ecosystem for the fish as evaporation accelerates due to extreme hot weather especially during the months in the summer. It is stated in a study that salinity in the lagoon reached 60.84‰ between 1990 and 1992 especially during the months in summer and even salinity rate increased up to 100‰ in 1993 (Sunlu and Egemen, 1998). This may cause especially fish massacres and the death of the other water living creatures. Since expansion of sea water and fresh water entrance to the lagoon will prevent excessive salification, it will help the fish stay longer in the lagoon and help more productivity. With this aim, apart from the existing straits in the lagoon, two bridged passages were constructed.

In conclusion, being the only active lagoon in the Gulf of Izmir, Homa lagoon is an important production area for the region with its annual fish production of approximately 25 to 30 tons on average. It is true that significant increases in the fish amount to be obtained will increase when the most important problems such as shallowing and excessive salification increasing year by year are eliminated and the fish traps are modernized (Balık, 2006).

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