GHOST FISHING EFFECTS OF GILL NETS SUSPENDED ON ROCKS

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Abstract
In this study, for how long the continuation of fishing by gill nets which were suspended between two rock masses and for how many marine organisms to be killed by them were investigated. Lost nets were observed for 120 days. It was observed from the data that the lost nets continued to fishing for 90 days and 310 marine organisms from each panel were found to be death in that period of time.

Keywords: Fisheries, Iskenderun Bay, Mortality, North-Eastern Mediterranean

Ghost fishing refers to derelict fishing gear, either lost or abandoned, which continues to function in the water; continuing to induce mortality of aquatic organisms without human control (1). Not every lost fishing gear has an effect on ghost fishing. For example, active fishing gears such as trolls and seines will have lost their fishing capacity after being lost. However, passive fishing gears such as gill nets, trammel nets and pots will still have their fishing capacity for a time after being lost (2). Therefore the main topic of the ghost fishing consists of these fishing gears. However, the information about these gears on how long they continued to fishing and how many deaths that they have caused are extremely limited. In this study which was conducted at Iskenderun Bay, for how long the continuation of fishing by gill nets which were suspended between two rock masses and for how many marine organisms to be killed by them was determined experimentally. To this end, two panels of gill net dragged by a boat (as drifted by a storm) are attached to the rocks in the depths of 6-10 m. Then the changes on 24 hour catch with respect to time were monitored. In the days of the sampling, diving at 08:00 in the morning, the organisms that were found on the net were marked by plastic markers. Next day, diving again at 08:00, the species of the non-marked individuals were identified and their sizes were measured. Thus the number of individuals caught in 24 hours was determined. Using the length-weight relationships of the captured species, total biomass of the captured in 24 hours was calculated. Also in the days of sampling, around the area of the lost nets, commercial operations were conducted at night. For this, 5 panels of commercial gill nets were set at 17:00 and the next day they were hauled at 05:00 in the morning. Also the species of these organisms that were captured by these nets were identified and length and weight measurements were recorded. Thus an opportunity of a comparison on the changes of the catch by lost nets depending on the time and commercial nets was formed. In addition, the differences between the species compositions caught by lost nets and commercial nets were also observed. Lost nets were observed for 120 days. In this period, 24 hour catch was determined by underwater observations which were carried out for 25 times. In these observations, 120 individuals were captured by a panel of lost gill net and the total biomass of these individuals were calculated as 23070 g. At the same time, it was observed that a panel of commercial gill net was captured 240 individuals and the total biomass of these was calculated as 29309 g. The resulting data showed that the 24 hour catch of the lost nets was rapidly decreased depending on the time. However, in the first 15 day period, it was observed that the catch of a panel of lost gill net and commercial gill net was quite close to each other. On the 30th day of the study, it was determined that the catch of a lost gill net was 50% of the commercial gill net in terms of both numerically and biomass. This ratio was dropped below 30% in day 60, 15 % in day 75 and 5% in day 90. After the 90th day of the study, death of the lost nets was not observed. In figure 1, the changes on 24 hour catch with respect to time on lost and commercial nets were shown.

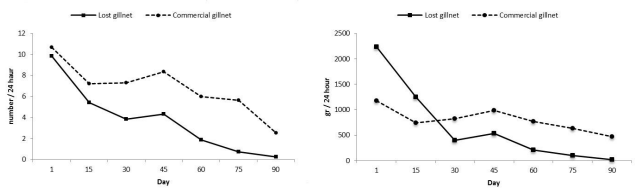

Fig. 1. The changes on 24 hour catch with respect to time on lost and commercial nets.

The changes on 24 hour catch with respect to time for a panel of lost gill net was fit with an exponential function (Figure 2). According to the calculation made by using this function, a panel of gill net in a 90 day period caused the death of 310 individuals. The total biomass of these was calculated as 53700 g.

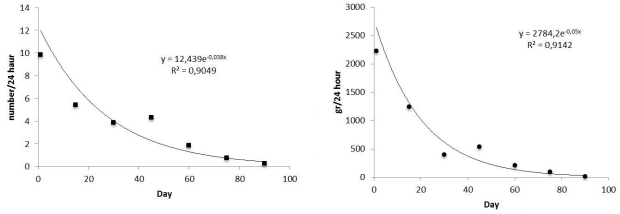

Fig. 2. The exponential model of the changes on 24 hour catch with respect to time.

During the study, the number of captured species to the lost and commercial nets was identified as 26. Of those species, 14 of them were captured by both net types, only 8 of them were captured by commercial nets and only 4 of them were captured by lost nets. Besides, it was observed that the amount of the captured groups by lost and commercial nets was also differed. For example, for Sparidae family species in teleosts; while 14% was observed in commercial nets, 41% was observed in lost nets. Similar situations were also observed with Crustaceans. For example, while the proportion of the *Callinectes sapidus* captured by commercial nets was 60% in the total crustaceans, it was 29% with the lost nets. For *Atergatis roseus*, it was determined that while the proportion was 5% with the commercial nets, it was 21% with the lost nets. Another determination with relation to crustaceans was that there seemed to be differences between the sizes of the species captured by lost and commercial nets. Another topic studied was that if there were any differences between the sizes of the species captured by both lost and commercial nets. The results that were obtained showed that there were statistically significant differences between the mean sizes of *Callinectes sapidus* and *Carcinus mediterraneus* ($p<0.01$). Despite that, it was found out that there was statistically no significant differences between the mean lengths of the teleost species captured by lost and commercial nets

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