

A NEW METHOD FOR THE INVASIVE WHELK (*RAPANA VENOSA*) FISHERY IN THE BLACK SEA

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Abstract

A new method, utilising pots, was successfully applied for the Rapa whelk fishery in the Black Sea. Blue mussel and fish offal were used as bait to attract whelks. In addition to food preference, additional experiments on whelk speed and pot attraction are conducted. A monthly sampling program has been set up to understand effectiveness of this new gear throughout the year. The advantages and disadvantages of this method are discussed.

Keywords : *Gastropods, Fisheries, Black Sea.*

Introduction

The veined Rapa whelk, *Rapana venosa* (syn. *R. thomasiana*) is one of the most important species in the Black Sea after its introduction in 1946 [1] from the far-east. By voraciously feeding mainly on mussels, oysters and other bivalves, its damage on the benthic ecosystem of the Black Sea is devastating. From the Black Sea, it is believed to be transported to Chesapeake Bay where it is also causing great ecological damage.

Ironically, because of its export value for the far-eastern countries, it became also an important fishery target, and there are regulations to protect its abundant stocks in the southern Black Sea. There are two main methods to catch this species: dredging and diving. The former method damages many other benthic species, and the latter is very risky for the fishermen's health.

We tested "Pots" to catch this species in the Black Sea. Pots were extensively used for the fishery of common whelk in the northern Atlantic [2]. Its use was first mentioned by the first author to local scientists in the 1993, however, its successful application in the Black Sea was realised first time in September 2003, in Sinop Harbour.

Material and Methods

Since April 2006, monthly sampling using pot system has been performed in this region. Three sets of 10 pots are being used for this aim. The bait used includes bivalve, fish offal and mixture of these.

Each pot is basically a 30 lt hard, thick (4 cm) plastic container (32x28x42 cm) having cement weight in their bottom (10 cm high), to keep the pot always at upright position) and a sole opening at the top covered with an inward net to prevent exit of caught whelks (see Fig. 1).



Fig. 1. General view of the pot.

The walls of the pot has been drilled with tens of holes (12 mm in diameter) around, both to let the smell of bait and to let smaller individuals go. The distance between a set of 10 pots is 10 m. Further details on this gear will be given in the final report. The pots are generally left at sea for three days, at 15, 25 and 35 m depths simultaneously.

Results and Discussion

Whelks were successfully caught with the trap (Table 1). Attracted to the bait smell, whelks climbed up along the outside pots, and entered through the net.

Tab. 1. Monthly average numbers and weights of whelks caught during 2006.

| Months | Depth (m) | | | | Total W (g) | Avr (g) |
|-----------|-----------|----|----|-----|-------------|---------|
| | 15 | 25 | 35 | T | | |
| April | 170 | 38 | 7 | 215 | 13328 | 61 |
| May | 87 | 50 | 15 | 152 | 11769 | 77 |
| June | 150 | 6 | 5 | 161 | 12372 | 76 |
| July | 52 | 9 | 27 | 88 | 7866 | 89 |
| August | 132 | 3 | 5 | 140 | 9942 | 71 |
| September | 271 | 40 | 91 | 402 | 23096 | 57 |
| Average | 144 | 24 | 25 | 193 | 13062 | 72 |
| StdDev | 75 | 19 | 32 | 110 | 5283 | 10 |

The smallest whelk caught was 12.8 mm in width, confirming that smaller ones were possibly able to get out. Average number of whelks caught monthly in April-September 2006 was 193 and about 13 kg from a total of 30 pots. Although this number is smaller than those caught by a daily diving and individual dredging operation (589 and 1618 ind. in August 2006), the new method has the advantage of (a) environmentally-friendly for the sea bottom (b) no risk to human life, (c) fishing of targeted whelk size and (d) very few by-catch individuals. However, lower catch rates and the use of bivalve as bait are the disadvantages of the pot method. Our efforts are continuing to overcome these disadvantages.

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References

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