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Further Results of Tagging Experiments on
Lobster (*Homarus vulgaris*) in Norway

by
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Introduction

Three tagging methods with external tags which persist through moulting was described in detail by Gundersen (1964).

One of these methods showed promising results. In short the tag and tagging operation is as follows:
The tag consists of two roughly oblong plastic tags with rounded ends, joined by a double nylon thread, the smaller 14 x 3 x 0,5 mm being inserted through a small slit made by a surgical knife in the soft skin between carapace and abdomen on the dorsal side, and the larger 20 x 4 x 0,5 mm remaining outside.

Results and discussion

Table I shows the results of this tagging method on 18 lobsters. By this experiment 2 lobsters died, death occurring within a week after tagging and obviously caused by the tagging operation. The remaining 16 lobsters started moulting and all of them had moulted once during the summer. Up to this date 58 moultings have occurred, and 7 animals are still alive. Loss of animals during the experiment are caused by disease 1, unknown mortality 1, water failure 5 and shedding of the tag 1.

Table II shows the result of a tagging experiment using an internal tag of stainless steel. In this case 2 of the animals died within a week caused by the tagging operation. The remainder moulted once during 1963. As in the first case the number of tagged animals have been reduced during the time between 1963 and up to this date. In one case mortality was caused by disease, 2 animals died a few days after moulting and water failure reduced the number further with 8 animals. 5 animals shed their tag during the moult and 15 animals are still alive.

Table III shows the result of survivors from a tagging experiment of small lobsters in a pond for salmon and trout. The main purpose with the experiment was to study the improvement of lobster under special conditions with a surplus of food.

88 lobsters were placed in the pond with 145 untagged lobster.

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During the first 14 days after tagging the pond was inspected and 12 tagged lobsters were found dead. Because of the size of the pond it was difficult to inspect the pond daily, therefore the lobsters were left getting their food along with the fish.

Unfortunately in June 1964 the pumps for water supply failed and a great deal of the lobsters died. The survivors were collected by the inspector of the pond and placed in a box in the sea.

In the beginning of the experiment the claws were tied on all animals. In the time between tagging in April 1963 and the accident in June 1964 most of the lobsters had moulted, and their claws were no longer secured. Therefore the survivors were extremely damaged when they reached the laboratory and were placed in individual rooms.

According to Table III, 5 of the most wounded lobsters died within the next few days, while the others recovered and started moulting. Up to this date 202 moultings have occurred in this group, and one of them has moulted eight times.

Loss of animals from June 1964 and up to this date are caused by disease 1, unknown mortality 2, injuries 5, water failure 14 and shedding of the tag 6.

Tagging mortality:

Of 139 tagged individuals it is obvious that 16 or 11.5 % died because of the tagging operation. As previously mentioned the tag was inserted through the soft skin dorsally between carapace and abdomen. This, however, is probably not the best place. Sometimes it was observed that cutting here caused heavy bleeding. Later the cutting has been made more dorsal-lateral, and this causes less bleeding.

Disease mortality:

Death caused by disease was observed in only 3 cases of 99 tagged animals. A closer examination of these dead animals showed heavy infection in the digestive gland. This disease makes the digestive gland look as if it is filled with tiny needles. A further study of this gave the impression of fungi imperfecti.

Unknown mortality:

This includes those animals where it was impossible to establish the cause of death on the basis of what information was on hand.

Injury mortality:

Here are included those animals which died as a result of visible injuries they had received.

Moulting mortality:

This occurred six times, and the lobster died during or close after the moult.

Water failure:

Here was definitely the cause of the greatest losses, but that does not influence the usefulness of the tagging method.

Shedding the tag occurred on 12 animals of 95 or 12.6 %. On the other hand here have been 398 moultings including the 12 sheddings. This makes the lobster's chance of shedding its tag during the moult 3 %.

A closer study showed that where shedding occurred the tag seemed to be "swimming" in the dorsal cavity between carapace and abdomen.

As previously mentioned bleeding and tagging mortality would possibly be reduced if placing the slit for inserting the tag more lateral. Investigations of all dead lobsters in this experiment showed that internal tags which had lodged in muscle tissue was perfectly capsulated.

Reference

Gundersen, K.R., 1964. Tagging Experiments on Lobster (*Homarus vulgaris*) I.C.E.S. Shellfish Comm. C.M. 1964.No.152.

Table I. 18 lobsters tagged 15/3-63.
 Internal tag of plastic.
 2 lobsters died after tagging operation.

	Number of moults					
	1	2	3	4	5	6
<u>Number of animals</u>	16	13	11	8	7	2
Mortality:						
Disease			1			
Unknown			1			
Water failure	3			1		1
Shedding of the tag during moult			1			

Table II. 33 lobsters tagged 18/5 - 17/7 - 27/8 -63.
 Internal tag of stainless steel.
 2 lobsters died after tagging operation.

	Number of moults							
	1	2	3	4	5	6	7	8
<u>Number of animals</u>	31	28	26	24	19	7	2	1
Mortality:								
Disease					1			
Moulting	1	1						
Water failure	2			2	2	1		1
Shedding of the tag during molt		1	2	1	1			

Table III. 48 lobsters tagged 30/4-63.
 Internal tag of plastic.

	Number of molts							
	1	2	3	4	5	6	7	8
<u>Number of animals</u>	48	43	40	36	26	6	2	1
Mortality:								
Disease				1				
Unknown		1	1					
Injury	5							
Moulting		2	2					
Water failure				4	6	3		1
Shedding of the tag during molt			1	2	2	1		