

THE DATE-SHELL *LITHOPHAGA LITHOPHAGA* L. COLONIZATION OF IMMERSED ROCKS AT THE EASTERN PART OF THE ADRIATIC SEA

Ivana Grubelic *, Ante Simunovic, Marija Despalatovic
Institute of Oceanography and Fisheries, Split, Croatia - * grubelic@izor.hr

Abstract

The aim of this paper is to show the mode and the time during which the date-shell penetrates an intact rock immersed into the sea, as well as its development and the structure of its population in various periods.

Key words: Lithophaga lithophaga, colonization, immersed rocks

Introduction

There are bibliographic data about the distribution of the date-shell (1), its reproductive cycle (2, 3), biology and ecology in the eastern part of the Adriatic (4), the method of burrowing the rock (5, 6). Because of its specific life in the rock and its inaccessibility, the date-shell is still partly unknown. Our results contribute to the new knowledge about the date-shell and help decide on the profitability of its farming in immersed rocks.

Materials and Methods

In order to identify the time and method of date-shell penetration into the rock habitat, and to monitor the development of its population in various periods, the rocky breakwaters of the marinas around Split were chosen, since the exact time of their immersion into the sea has been known. The research was conducted in ACY marina in 1986 (built in 1984), in marina Split (built in 1952 and 1986) in 1987, and in marina Zenta (built in 1979) in 1989. The research was repeated in the same sites in 2003. Sample collecting was done by scuba divers, using the method of direct collecting from the area of 1/4 m².

Results and Discussion

The results of the research show (Tab. 1) that after two years a sponge *Cliona sp.* was in the rock (ACY), and after ten years shellfish *Roccellaria dubia* was present (Zenta). Besides *Cliona sp.* and *R. dubia*, the population of *Lithophaga lithophaga* (Tab. 2) was well developed in the rock that has been in the sea for 35 years (Split). The biometric characteristic of the date-shell population is shown in Table 2. Dominate specimens were of 40-49 mm (28,6%), 60-69 mm (25,0%) and 50-59 mm (23,2%). The largest date-shell was 82,0 mm long, 23,0 mm wide and 25,31 g of weight. According to old data, it grew in the rock for about 25 years.

Table 1. The presence of *C. celata*, *R. dubia* and *L. lithophaga* in the rocks that were immersed at different times.

	<i>C.celata</i>	<i>R.dubia</i>	<i>L.lithophaga</i>
Split: 1986-1987	-	-	-
Split: 1986-2003	+	+	-
ACY: 1984-1986	+	-	-
ACY: 1984-2003	+	+	-
Zenta: 1979-1989	+	+	-
Zenta: 1979-2003	+	+	+
Split: 1952-1987	+	+	+
Split: 1952-2003	+	+	+

The research was repeated in September 2003, and the obtained results (Tab 1) are: *Cliona sp.* and *R. dubia* have developed in the rock that has been in the sea for 19 years (ACY). Both species completely penetrated the rock up to about 4 cm. However, the date-shell has not yet developed. Besides *Cliona sp.* and *R. dubia*, the population of date-shell was found in the rocks that has been in the sea for 24 years (Zenta) and for 51 years (Split). The biometric characteristics of the date-shell populations are shown in Table 2. Dominate specimens in

Table 2. Biometrics characteristics of the population of *L. lithophaga* in the rocks of different immersion time (1/4 m²).

	N	Min	Max	X	SD
Zenta: 1979-2003	58	26,1	87,0	57,8	14,4
Split: 1952-1987	56	32,0	82,0	53,1	12,3
Split: 1952-2003	36	23,8	75,5	49,7	11,9

Zenta (1979-2003) were of 60-69 mm (31,0%) and 50-59 mm (22,4%). The largest date-shell was 87,0 mm long, 23,9 mm wide and 21,1 g of weight. According to old data, it grew in the rock for about 14 years. Dominate specimens in Split (1952-2003) were of 40-49 mm (30,6%), 50-59 mm (27,8%) and 30-39 mm (22,2%). In this population were 6 empty shells (16,7%). The largest date-shell was 75,5 mm long, 19,7 mm wide and 17,5 g of weight. According to old data, it grew in the rock for about 41 years.

It can be concluded that the populations of the date-shell, that lived in the rocks immersed into the sea 24 and 35 years ago, have the characteristics of a healthy population, while the population of the date-shell in the rock immersed 51 years ago, showed the signs of decay and absence of renewal.

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