GROWTH RATE OF *RAPANA THOMASIANA* (GASTROPODA) ALONG BULGARIAN BLACK SEA COAST

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Rapana thomasiana is introduced into Black sea probably by ships from Japan sea. This far-sea species is now the biggest of the Black sea snails, which predominantly are caracterized with small sizes. More detailed investigations on the life cycle of *Rapana thomasiana* (feeding, growth, age, reproduction) are carried out along the ICC (Ukraine) Black sea coast (ZENKEVICH, 1947; CHUKHCHIN, 1961; IVANOV, RUDENKO, 1969). For the Bulgarian Black sea coast, this species is reported by KANEVA-ABADJIEVA, 1957).

Each sample of *Rapana thomasiana* was separated in size groups according to the shell lenght (the distance from the top of the shell to the end of the siphon channel) at 5 mm interval. The lenght is measured by slide-gauge. After that the following parameters of each size group are measured : total number, total fresh weight (g), total boiled useful meat weight (after 5 minutes boiling), total shell weight (g), age of each speciments. The investigations of growth rate of *Rapana thomasiana* are based on 283 samples from 10 regions and total of 3031 speciments.

The relationship between length and total fresh weight is estimated according the equation :

(1) $W = a.L^n$

Growth parameters of *Rapana thomasiana* are obtained by von Bertalanffy's equations :

(2) $Lt = Linf \{ 1- \exp [- k (t - to)] \}$

(3) $Wt = Winf \{ 1- \exp [- k (t - to)] \}^n$

where : k = growth coefficient, t = age, Linf and Winf are maximum values of length and weight respectively.

The mean value of natural mortality coefficient is established by the methods of KUTTY, QUASIM (1965), ALVERSON, CARNEY (1975), RICHTER, EFANOV (1976).

(4) $tc = [\ln (n.k + M) - \ln M] / k + to$ Kutty, Quasim

(5) $M = 3.k / [\exp (Tmb. k) - 1]$ Alverson, Carney

(6) $M = 1.521 / X^{0.720} - 0.155$ Richter, Efanov

From total investigated area (214.9 sq.km.) the greatest weight and meat density (t/sq.km.) was registered in Kamchia region (19,9 tons), followed by Shkorpilovsti (5.45 tons) and Aladja (5.04 tons) regions. The length and weight compositions varied from 40 to 115 cm. and from 18.39 to 309.58 g. respectively. The mean length and weight values ranged from 70 (Kaliakra region) to 92 cm (Shkorpilovsti) and from 80 to 172 g., respectively.

The parameter values in equation (1) are : a = 0.0005114 n = 2.8135208.

The age composition of *Rapana Thomasina* is given in Table 1

Length	Weight	AGE GROUPS								
[mm]	[g]	2	3	4	5	6	7	8	9	Total
40	18.38		2							2
45	23.24	4	28	10	1					43
50	28.82	4	47	45	5					101
55	35.33	11	44	47	5					107
60	45.61	4	53	46	12					115
65	59.64	4	40	75	34					153
70	75.22	2	34	121	37	16	1			211
75	91.70	1	21	15	96	21	1			255
80	110.35		10	90	183	42	7			332
85	134.80		2	61	176	100	13	1		353
90	159.06			24	155	154	58	6	1	398
95	185.58			9	68	130	94	15	2	318
100	211.59			1	26	88	82	30	2	229
105	242.43				9	21	52	14	1	97
110	272.12				1	9	27	12	4	53
115	309.58						3	5	4	12
Total		30	281	644	808	581	338	83	14	2779
%		1.08	10.11	23.17	29.08	20.91	12.16	2.99	0.50	100.00
Ml		56.67	59.84	70.68	82.86	90.81	97.87	101.40	106.10	
Mg		42.00	50.70	82.70	128.30	165.20	199.80	221.40	262.40	

According to these data, the parameters of Bertalanffy's equations was established:

Linf = 123.98 Winf = 423.75

k = 0.2142202 k = 0.1988782

to = -0.0822087 to = -0.2202925

The values of natural mortality coefficient (M) was estimated by the above mentioned methods (equations 4-6). The mean value is about 0.5.

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