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MONOTHALAMOUS FORMAMINIFERA FROM COASTAL AND SHELF SITES IN THE BLACK SEA

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Soft-shelled, monothalamous foraminifera ('allogromiids') were studied in three highly polluted, semi-closed bays (Balaklava, Sevastopol and Kazach'ya Bays) and more pristine, open coastal zones (Uchkuevka-Lyubimovka and Laspi) near Sevastopol (1-25 m water depth), as well as several stations on the Caucasus, Bosporus, and Bulgarian shelf (2-250 m) (Table 1).

Table 1. The distribution of soft-shelled foraminifera in the Caucasus, Bulgarian and Bosporus regions (Cruise of RV Kovalevsky #102)

Psammophaga simplora			
Station number	Water depth (m)	Number (sp./m^2)	Biomass (mg/m^2)
61	105	1100	3,3
90 (Bosporus)	90	1100	3,3
60	85	3300	10
67	25	6600	20
76	-	550	1,7
72	80	550	1,7
81 (Bosporus)	93	2750	8,3
Vellaria pellucidus			
61	105	2200	2,2
Tinogullmia lukyanovae			
56	50	550	2,2
45	20	550	2,2
67	25	3850	15,4
54	30	5000	20
Allogromiidae gen. sp. B			
61	105	550	1
115 (Bulgarian)	94	550	1

Average densities at some stations reached several hundreds of thousands of individuals per m^2. A total of 11 species, 6 of which can be assigned to known genera, was recognized (Figure 1, 2).

The most common species, *Psammophaga simplora*, inhabits silty sediment between 6 and 110 m depth on the Bulgarian, Caucasus and Crimean shelf and Sevastopol coastal zone at densities of up to >100,000 ind./m2. Members of this genus are distributed worldwide in coastal environments and are characterised by the presence of dark mineral grains within the cytoplasm.

Vellaria is represented by three species, all with the flared, trumpet-like aperture characteristic of this genus. *Vellaria pellucidus* is the most widespread, occurring in all studied areas (depth range 3-105 m) at densities of up to 2200 ind./m^2. It is the dominant species in Balaclava Bay and the Laspi and Uchkuevka-Lyubimovka areas. *Vellaria sacculus* is smaller than *V. pellucidus*, more rounded in shape with a surface sprinkling of fine agglutinated particles. It occurs in the same areas as *V. pellucidus* but is less common. Both species were originally described from the Vellar Estuary, India. *Vellaria* sp. nov. has a much more elongate test than other known species of this genus. The genus *Tinogullmia*, in which the elongate test has two terminal apertures, is represented by two species. *Tinogullmia* sp. has an elongate test up to 1.5 mm long and closely resembles the type species *T. hyalina*. It occurs rarely at a site (78 m depth) SW of the Crimean Peninsula.

Tinogullmia lukyanovae is more oval in shape and widely distributed; one individual was found at a 250-m deep site below the oxic/anoxic interface on the Caucasas margin.

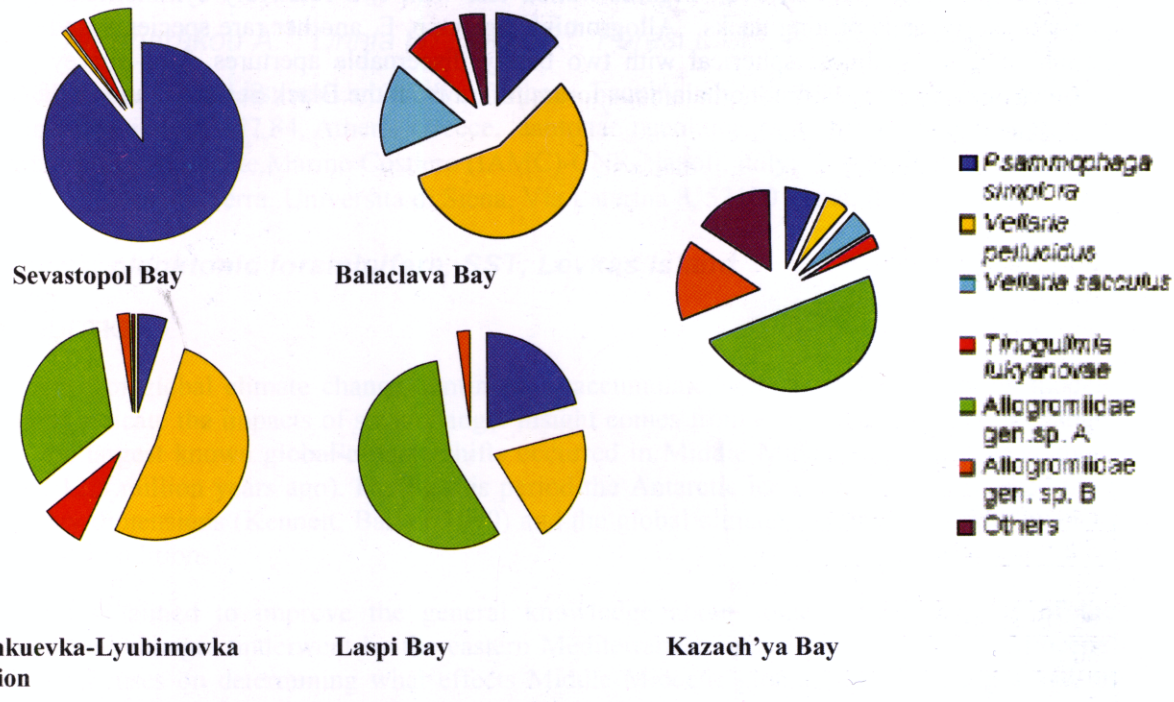

Figure 1. Biomass proportions of allogromiids species in the Sevastopol region and Laspi Bay.

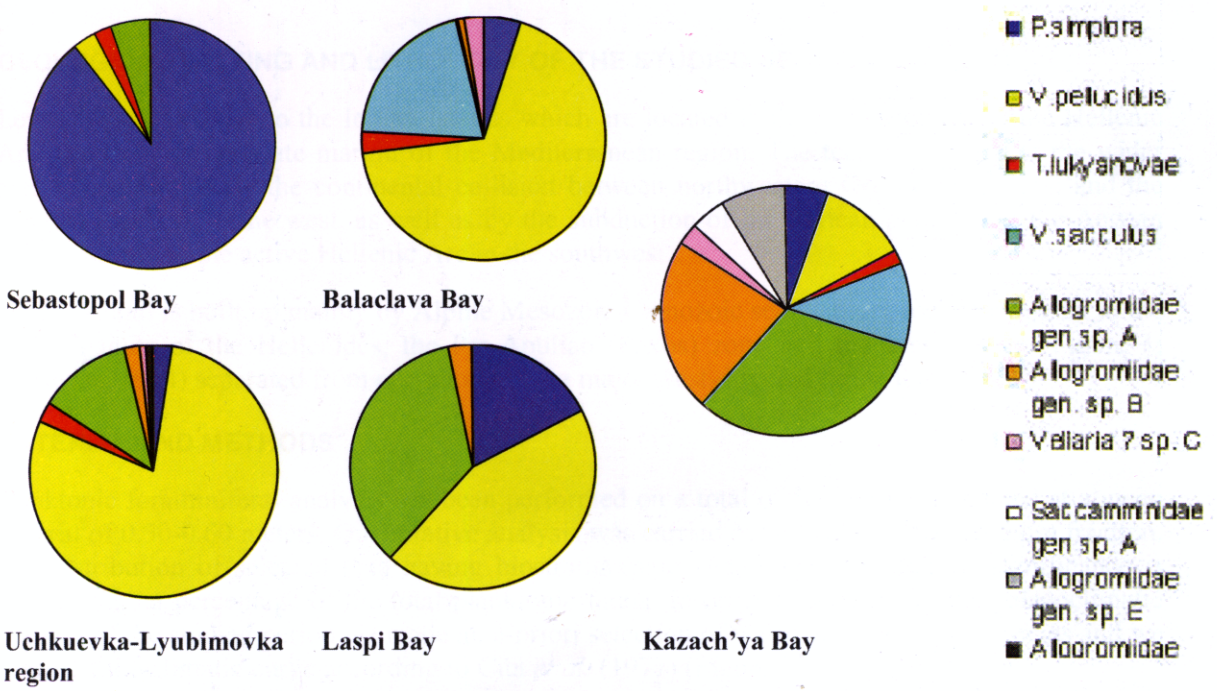

Figure 2. Proportions of allogromiid species in the Sevastopol region and Laspi Bay.

The remaining species are all new and cannot be assigned to known genera. Saccamminidae gen sp. A has a grey, spindle-shaped test with two terminal apertures, a finely agglutinated outer layer and elongate, protoplasmic inclusions. It is confined to Kazach'ya Bay where its density is ~1,000 ind./ m^2. Allogromiidae gen., sp. nov. A has a transparent test, filled with stercomata and with a single, symmetrically placed aperture. It occurs between 2 and 20 m depth and is a dominant species (500-10,000 ind/m^2) in Laspi and Kazach'ya Bays. Allogromiidae gen. sp. B is characterised by a thin, transparent test wall, a rather variable, elongate, asymmetrical test shape,

and cytoplasm devoid of large inclusions. It is found in all studied regions, except Sevastopol Bay, with highest densities (2480 ind./m^2) in Kazach'ya Bay. Allogromiidae gen. sp. D, represented by only two specimens, has an oval, organic-walled test with two relatively symmetrically-placed apertures on the ends of long necks. Allogromiidae gen. sp. E, another rare species found only in Kazach'ya Bay, is almost spherical with two barely discernable apertures. This survey greatly improves our knowledge of monothalamous foraminifera from the Black Sea coast and shelf.