

## Checklist of benthic molluscus of Gipsvika (Isfjorden, Svalbard)

Molluscs are an important component of coastal waters of Svalbards both from ecological and zoogeographical points of view.

Gipsvika is one of the inner bays of Isfjorden. In 1989 thorough hydrological and biological research of Gipsvika waters was conducted by the team headed by Dr. J.M. Węśławski.

The material for this study was taken at 12 stations on the 3rd-4th of August and on the 30th of August to 5th of September 1989. To collect the samples a rectangular dredge was used with the opening of  $80 \times 30$  cm. The data characterizing each station and the collected material are presented in Table 1. The distribution of sampling stations in Gipsvika is shown in Fig. 1.

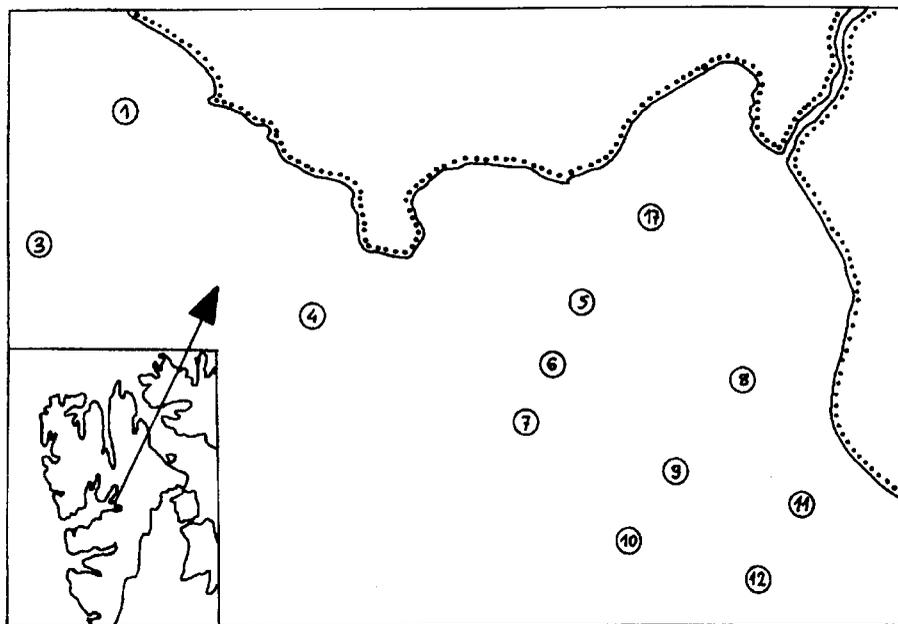


Fig. 1. The geographical position of Gipsvika and distribution of sampling stations

In the collected material 33 species of Mollusca were identified. They belonged to three molluscan classes: Polyplacophora (2 species), Gastropoda (8 species) and Bivalvia (23 species) (Tab. 2). Altogether 519 individuals of

Table 1.

| Characteristics of benthic stations |           |                 |
|-------------------------------------|-----------|-----------------|
| St. no.                             | Depth [m] | Substrate       |
| 1                                   | 20        | sand            |
| 3                                   | 68        | silt            |
| 4                                   | 58        | silt and stones |
| 5                                   | 16        | silt and sand   |
| 6                                   | 48        | silt            |
| 7                                   | 54        | silt            |
| 8                                   | 18        | mud             |
| 9                                   | 47        | silt            |
| 10                                  | 57        | silt            |
| 11                                  | 25        | silt and stones |
| 12                                  | 56        | silt            |
| 17                                  | 6         | mud and stones  |

Mollusca were collected; bivalves were most numerous (91.0% of material), next were chitons (7,3%); gastropods constituted only 1,7% of all collected specimens.

The most common species were bivalves: *Astarte montagui*, *Thyasira flexuosa*, *Nuculana pernula*, *Astarte borealis*, *Nuculana tenuis*, *Yoldiella lenticula* and *Thyasira ferruginea* (Tab. 2).

Table 2.

Checklist of Mollusca of Gipsvika and their zoogeographical characteristics (Z). D% — dominance in the whole material (519 ind.=100%); F% — frequency of occurrence in stations (12=100%).

Underlined are most common species of the frequency over 33%.

| Taxa   | D%          | F%          | Z   |
|--|-------------|-------------|---|
| <b>POLYPLACOPHORA</b>                              |             |             |   |
| <i>Tonicella marmorea</i> (Fabricius, 1780)        | 6.55        | 25.0        | Boreal-Arctic                               |
| <i>Tonicella rubra</i> (Fabricius, 1780)           | 0.77        | 8.3         | Boreal, Atlantic                            |
| <b>GASTROPODA</b>                                  |             |             |   |
| <i>Acmaea rubella</i> (Fabricius, 1780)            | 0.38        | 16.6        | low Arctic, circumpolar                     |
| <i>Lepeta caeca</i> (Müller, 1776)                 | 0.19        | 8.3         | Arctic-Boreal, circumpolar                  |
| <i>Margarites groenlandicus</i> (Gmelin, 1791)     | no data     |             | Arctic-Boreal, circumpolar                  |
| <i>Lacuna pallidula</i> (da Costa, 1778)           | 0.19        | 8.3         | Boreal                                      |
| <i>Lunatia pallida</i> (Broderip et Sowerby, 1829) | 0.38        | 16.0        | Boreal-Arctic, circumpolar                  |
| <i>Admete viridula</i> (Fabricius, 1780)           | 0.19        | 8.3         | Arctic, circumpolar                         |
| <i>Cylichna alba</i> (Brown, 1827)                 | 0.19        | 8.3         | Boreal-Arctic, circumpolar                  |
| <i>Cylichna occulta</i> (Mighels et Adams, 1824)   | 0.19        | 8.3         | low-Arctic, circumpolar                     |
| <b>BIVALVIA</b>                                    |             |             |   |
| <u><i>Nuculana tenuis</i> (Montagu, 1808)</u>      | <u>7.70</u> | <u>33.3</u> | Arctic-Boreal, widely distributed           |
| <u><i>Nuculana pernula</i> Müller 1779</u>         | <u>3.37</u> | <u>58.3</u> | Arctic-Boreal, circumpolar                  |
| <i>Portlandia arctica</i> (Gray, 1824)             | 0.19        | 8.3         | high-Arctic, Atlantic circumpolar           |
| <i>Yoldia hyperborea</i> Torell, 1859              | 0.96        | 25.0        | Arctic, Pacific, discontinuous distribution |

Table 2. c.d.

| Taxa   | D%    | F%      | Z  |
|--|-------|---------|--|
| <i>Yoldiella fraterna</i> Verril et Bush, 1898   | 0.19  | 8.3     | low-Arctic, Atlantic, circumpolar          |
| <i>Yoldiella lenticula</i> (Moller, 1824)        | 1.35  | 33.3    | Boreal-Arctic, Atlantic widely distributed |
| <i>Musculus corrugatus</i> (Stimpson, 1851)      | 1.35  | 8.3     | high-Arctic, Pacific, circumpolar          |
| <i>Dacrydium vitreum</i> (Moller, 1842)          | 1.73  | 16.6    | Boreal-Arctic, Atlantic (?)                |
| <i>Arctinula groenlandica</i> (Sowerby, 1842)    |       | no data | high-Arctic, Atlantic                      |
| <i>Thyasira flexuosa</i> (Montagu, 1803)         | 3.46  | 66.6    | Boreal-Arctic                              |
| <i>Thyasira ferruginea</i> (Forbes, 1851)        | 3.66  | 33.3    | Arctic-Boreal                              |
| <i>Astarte borealis</i> Schumacher, 1817         | 2.89  | 50.0    | Boreal-Arctic, Atlantic, circumpolar       |
| <i>Astarte crenata</i> (Gray, 1824)              | 1.15  | 16.6    | Panarctic, circumpolar                     |
| <i>Astarte montagui</i> (Dillwyn, 1817)          | 25.01 | 83.3    | Arctic-Boreal, Atlantic, circumpolar       |
| <i>Ciliatocardium ciliatum</i> (Fabricius, 1780) | 1.35  | 16.6    | Arctic, Pacific, circumpolar               |
| <i>Serripes groenlandicus</i> (Bruguiere, 1798)  | 0.77  | 16.6    | Arctic, Pacific, circumpolar               |
| <i>Macoma calcarea</i> (Gmelin, 1790)            | 24.47 | 25.0    | Arctic-Boreal, Pacific                     |
| <i>Macoma moesta</i> (Deshayes, 1854)            | 0.57  | 16.6    | low-Arctic, Pacific, circumpolar           |
| <i>Macoma torelli</i> Jensen, 1904               | 0.19  | 8.3     | low-Arctic, Atlantic, circumpolar          |
| <i>Mya pseudoarenaria</i> Schlesch, 1931         | 4.23  | 33.3    | Panarctic, Atlantic (?)                    |
| <i>Mya truncata</i> Linne, 1758                  | 0.96  | 25.0    | Boreal-Arctic, Atlantic, circumpolar       |
| <i>Hiatella arctica</i> (Linne, 1767)            | 3.46  | 25.0    | cosmopolitan                               |
| <i>Cuspidaria subtorta</i> (G.O. Sars, 1878)     | 0.19  | 8.3     | Arctic, Atlantic                           |

The most abundantly occurring molluscs were three bivalve species: *Astarte montagui*, *Macoma calcarea* and *Nuculana tenuis* and a chiton — *Tonicella marmorea*, together constituting about 65% of the whole material.

In each station there occurred from 4 to 10 species of Mollusca. The least diversity of molluscan fauna (4–5 species) was noted at the stations 9, 11 and 12. The highest diversity (9–10 species) was noted at the stations: 3, 5, 6, 7 and 8 (Tab. 1, Fig. 1). On average in Gipsvika there was 7.4 mollusc species per one station. Half of the molluscan species of Gipsvika (50%) can be classified as Arctic; Boreal-Arctic and Arctic-Boreal forms constituted 21.9% each and Boreal ones — 6.2%. Taxa of Atlantic origin dominated (44%), those of the Pacific origin make 19%. The origin of the remaining 12 species (47%) is unknown.

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