

# Bryozoa Cyclostomata from the northern and middle Kuril Islands

V.I. Gontar

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Twenty-two species of cyclostome bryozoans, including six new species (in press) are reported from the shelf of the northern and middle Kuril Islands. Of these, 21 species and subspecies represent the first records from this region. The fauna is composed mainly by species typical of relatively cold waters. Most species were found in the epifauna of Cheilostomata, Ctenostomata, and Hydrozoa, but a small number of species were found also on stones.

V.I. Gontar, Zoological Institute, Russian Academy of Sciences, Universitetskaya nab. 1, St.Petersburg 199034, Russia.

## Introduction

The species composition of cyclostome bryozoans in the Far Eastern Seas of Russia, in particular in the area of the Kuril Islands, has been insufficiently studied. Kussakin (1974) noted only one species, *Crisia eburnea* (L.), in the intertidal zone of Urup Island of the middle Kuril Islands. A taxonomic survey was therefore conducted of cyclostome bryozoans in the northern and middle Kuril Islands. This paper records 22 species and subspecies plus 11 forms not determined to the species level; they are distributed among 18 genera. Six species are new (Gontar, in press) and all of the species, except *C. eburnea* (L.), are recorded from the area of the northern and middle Kuril Islands for the first time.

The material was collected by the 1st, 2nd, and 3rd expeditions of the Institute of Marine Research, Far Eastern Centre, Russian Academy of Sciences and Pacific Institute of the Fishery Research using standard diving methods and ship gears (bottom trawl, dredger, etc.). Specimens were examined with light microscope and scanning electron microscope.

## List of expeditions and stations

Data are listed in the following order: Expedition, Station, Sample, Date, Island, Locality, Depth, Ground, Area (in sq.m), Collector. The names of collectors are abbreviated as follows: Chaplygina as C., Glushenko as G., Kashin as K., Kraynyuk as Kr., Lukin as L., Murachveri as M., Popov as P., Romanov as R., Shornikov S., Sirenko as Si., Skachkov as Sk.

### 1st expedition, 1969

12/24, 3.IX, Urup, Crab, Okchotsk coast, Shchukin Bay, 1.5 m, stony, 0.1, L.

18/37, 5.IX, Urup, Otkrytyi road, Neschast'aya Cape, 15 m, rocky, 0.2, G.

20/39, 8.IX, Urup, Crab, Shchukin Bay, 10 m, rocky, 0.2, L.

25/51, 7.IX, Urup, Shchukin Bay, more than 5 m, rocky, K.

29/64, 9.IX, Urup, Van der Linde Cape, 15 m, stony, 0.1, L.

37/83, 12.IX, Urup, Klyuchevoi Cape, 4-5 m, stony, pebble, 0.2, G.

39/86, 12.IX, Urup, Klyuchevoi Cape, 20 m, stony with sand, 0.2, G.

42/97, 13.IX, Urup, Petushkov, 5 m, rocky, 0.2, G.

43/98, 13.IX, Urup, Petushkov, 10 m, stony, 0.2, G.

45/101, 14.IX, Urup, Petushkov, 15 m, stony, 0.2, L.

46/104, 14.IX, Urup, strait between Urup and Petushkov Islands, 20 m, stony, 0.2, G.

47/107-109, 15.IX, Urup, Tigrovyy Cape, 5 m, stony, 0.1, L.

53/125, 17.IX, Urup, Ningio rock, 20 m, rocky, 0.2, L.

57/133, 18.IX, Urup, Temnyi Cape, 10 m, rocky, L.

58/136-137, 18.IX, Urup, Temnyi Cape, 15 m, rocky, 0.2, G.

66/150, 21.IX, Urup, Khiva Cape, 15 m, rocky, 0.2, L.

80/176, 25.IX, Urup, Sokol Cape, 5 m, rocky, 0.1, K.

118/240, 19.IX, Matua, Dvoinaya Bay, northern part, 10 m, boulders on sand, trawl, S.

### 2nd expedition, 1970

186/435, 11.VIII, Atlasov, Vladimir Peninsula, 7-10 m, boulder, L., C., Kr.

197/455, 21.VIII, Matua, Klyuv Cape, 10-17 m, rocky, L., M.

207/487, 25.VIII, Simushir, Brouton, 5 m, rocky, sandy, 0.1, L.

220/513-515, 3.IX, Urup, Krasnye Skaly Bay, 5 m, rocky, 0.1, M.

224/529, 4.IX, Chirpoi, Lapka Peninsula, 5 m, stony, 0.1, L.

226/533-534, 4.IX, Chirpoi, Lapka Peninsula, 15 m, stony, 0.1, M.

- 226/534-535, 4.IX, Chirpoi, Lapka Peninsula, 15 m, stony, 0.1, M.  
 227/538-539, 4.IX, Chirpoi, Lapka Peninsula, 20 m, stony, 0.1, Kr.  
 228/541, 4.IX, Chirpoi, Peschanaya Bay, 5 m, rocky, 0.1, M.  
 230/547, 4.IX, Chirpoi, Peschanaya Bay, 15 m, rocky, 0.1, P.  
 231/552, 4.IX, Chirpoi, Peschanaya Bay, 5 m, rocky, L.  
 239/578-579, 5.IX, Simushir, Melnik Cape, 20 m, rocky, 0.1, M.  
 244/596, 7.IX, Simushir, rock Krasnovataya, 5 m, stony, 0.1, L.  
 245/598-599, 7.IX, Simushir, rock Krasnovataya, 10 m, rocky, 0.1, L.  
 247/605-608, 7.IX, Simushir, rock Krasnovataya, 20 m, rocky, 0.1, M.  
 252/620, 8.IX, Ushishir, Yankich, Kraternyi Cape, 24 m, stony, 0.1, L.  
 256/632, 9.IX, Simushir, Srednyaya Bay, 20 m, rocky, 0.1, L.  
 257/636-637, 19.IX, Simushir, Polyanskii Cape, 5 m, rocky, 0.1, M.  
 258/622, 9.IX, Simushir, Srednyaya Bay, 5 m, stony and sandy, 0.1, L.  
 260/645-647, 10.IX, Simushir, Polyanskii Cape, 20 m, rocky, L.  
 260/649, 10.IX, Simushir, Polyanskii Cape, 20 m, rocky, L.  
 266/666, 11.IX, Simushir, Rolling Cape, 10 m, stony, 0.1, M.  
 267/670-671, 13.IX, Simushir, Nerpochka Cape, 15 m, stony, 0.1, M.  
 268/675, 13.IX, Simushir, Nerpochka Cape, 20 m, stony, 0.1, Kr.  
 269/676-678, 13.IX, Simushir, Nerpochka Cape, 30 m, rocky, 0.1, M.  
 283/720, 722, 16.IX, Urup, Lidin Cape, 10 m, rocky, 0.1, Kr.  
 285/728, 16.IX, Urup, Lidin Cape, 20 m, rocky, 0.1, M.  
 286/732, 17.IX, Urup, Okeanskaya Bay, 5 m, rocky, 0.1, Kr.  
 288/738, 17.IX, Urup, Okeanskaya Bay, 15 m, rocky, 0.1, Kr.  
 292/746, 18.IX, Urup, 3 Tair, strait Urup, 10 m, pebble and rocky, 0.1, Kr.  
 293/751-756, 18.IX, Urup, 3 Tair, strait Urup, 15 m, rocky, 0.1, M.  
 294/754, 18.IX, Urup, 3 Tair, strait Urup, 20 m, rocky, 0.1, Kr.  
 296/756, 18.IX, Urup, 3 Tair, strait Urup, 15 m, rocky, 0.1, M.  
 295/759, 19.IX, Urup, Natalia Bay, Obvalnyi Cape, 5 m, stony, 0.1, Kr.  
 296/760-762, 19.IX, Urup, Natalia Bay, Obvalnyi Cape, 10 m, stony, 0.1 sq.m, L.  
 297/765, 19.IX, Urup, Natalia Bay, Obvalnyi Cape, 15 m, stony, 0.1, L.  
 298/769, 9.IX, Urup, Natalia Bay, Obvalnyi Cape, 20 m, rocky, 0.1, M.  
 299/771, 19.IX, Urup, Natalia Bay, Obvalnyi Cape, 38 m, rocky, Kr.  
 311/804, 7.IX, Onekotan, Yagodnyi Cape, 10 m, rocky, 0.1, Si.  
 315/817-818, 8.IX, Onekotan, Gorelyi Cape, 10 m, rocky, 0.1, Si.  
 316/821-822, 8.IX, Onekotan, Gorelyi Cape, 15 m, rocky, 0.1, L.  
 317/827, 8.IX, Onekotan, Gorelyi Cape, 20 m, rocky, L.  
 319/832-835, 9.IX, Makanrushi, 10 m, rocky, 0.1, Si.  
 320/838, 9.IX, Makanrushi, 15 m, rocky, 0.1, Si.  
 322/845, 10.IX, Makanrushi, Vechernii Cape, 15 m, rocky, 0.1, Si.  
 322/846, 10.IX, Makanrushi, Vechernii Cape, 5 m, rocky, 0.1, Si.  
 322/847, 10.IX, Makanrushi, Vechernii Cape, 20 m, rocky, Si.  
 323/848, 10.IX, Makanrushi, Vechernii Cape, 10 m, rocky, 0.1, L.  
 325/857-858, 10.IX, Makanrushi, Vechernii Cape, 20 m, rocky, 0.1, Si.  
 325/859, 10.IX, Makanrushi, Vechernii Cape, 20-40 m, rocky, L., Si.  
 327/861, 11.IX, Onekotan, Nemo Cape, 5 m, rocky, 0.1, Si.  
 327/862, 11.IX, Onekotan, Nemo Cape, 5 m, rocky, 0.1, Si.  
 329/871, 11.IX, Onekotan, Nemo Cape, 15 m, rocky, 0.1, Si.  
 330/873, 11.IX, Onekotan, Nemo Cape, 20 m, pebble, 0.1, L.  
 336/893, 12.IX, Onekotan, Angibi Cape, 20 m, rocky, 0.1, Si.  
 337/894, 12.IX, Onekotan, Angibi Cape, 30 m, rocky and pebble, trawl, SK.  
 338/895, 12.IX, Charimkotan, Moru Cape, 8-12 m, rocky, Si.  
 341/898, 16.IX, Ekarma, Kruglyi Cape, 20 m, rocky, 0.1, Si.  
 342/899, 17.IX, Brouton, Sivuchii Cape, 10 m, rocky, R.  
 343/900, 17.IX, Rasshua, Temnyi Cape, 20-25 m, rocky, L., R.  
 345/902, 17.IX, Rasshua, Severnyi Cape, 22-32 m, rocky, Si.  
 346/903, 18.IX, Ketoi, Okruglyi Cape, 24-30 m, rocky, L.  
 347/904, 18.IX, Ketoi, Okruglyi Cape, 24-30 m, rocky, L.  
 349/906, 19.IX, Chirpoi, Snow Strait, 10-20 m, rocky, L.  
 350/908, 19.IX, Brouton, Sivuchii Cape, 10 m, rocky, R.  
 351/909, 19.IX, Brouton, Sivuchii Cape, 17-20 m, rocky with sand, L.

#### List of species and samples

Data are listed in the following order: Species, Sample(s).

**Vittatopora subrotunda** gen. et sp. n.: 676.

**Proboscina** sp.: 676, 898.

**Proboscina sigmata** Osburn: 83, 86, 762, 765, 795, 894.

**Oncousoecia** sp.: 83, 86, 762, 765, 795, 894.

**Tubulipora ventricosa** Busk: 605, 835, 904.

**Tubulipora duplicatocrenata** sp. n.: 909.

**Tubulipora** sp.: 97, 435, 455, 529, 535, 541, 552, 598, 608, 676, 769, 838, 902, 908, 909.

#### 3rd expedition, 1971

309/795, 5.IX, Shiashkotan, Grotovyi Cape, 20 m, rocky, 0.1, M.

- Fasciculipora pacifica** Osburn: 97.  
**Fasciculipora** sp.: 835.  
**Platonea** sp.: 598, 649, 671, 834, 857.  
**Pulvinatopora pastiliformae** gen. et sp. n.: 678.  
**Desmatelesia repens** sp. n.: 894.  
**Idmidronea fenestrata** (Busk): 539, 894, 900, 909.  
**Idmidronea** sp.: 607.  
**Diplosolen obelia arctica** (Waters): 538, 547, 827.  
**Berenicea** sp.: 859.  
**Defrancia lucernaria** M. Sars: 632, 728.  
**Crisiella chirpoensis** sp. n.: 541, 552.  
**Crisia eburnea** (L.): 39, 107, 133, 136, 176, 534, 535, 538, 541, 547, 552, 598, 637, 670, 675, 722, 728, 738, 746, 751, 752, 756, 804, 818, 827, 834, 835, 845, 846, 847, 861, 862, 873, 895, 898, 904, 906, 909.  
**Crisia eburneodenticulata** Smitt: 539, 605, 620, 647.  
**Crisia denticulata** (Lamarck): 547.  
**Crisia** sp.: 24, 51, 64, 435, 599, 605, 608, 636, 666, 728, 732, 759, 827, 859, 898, 902, 904.  
**Disporella buskiana** (Canu & Bassler): 86, 104, 125, 136, 137, 435, 538, 541, 552, 578, 579, 605, 608, 645, 646, 647, 649, 670, 676, 728, 761, 795, 817, 822, 827, 857, 859, 871, 898, 899, 902, 903, 904.  
**Disporella verucaria** (Fabricius): 83, 98, 109, 435, 671, 760, 752, 859.  
**Disporella radiata** (Audouin): 109, 455, 535, 596, 646, 722, 751, 760, 752, 818, 832, 859, 893, 898, 902.  
**Disporella buski** (Harmer): 771.  
**Disporella smitti** (Calvet): 97, 176, 538, 547, 751.  
**Disporella** sp.: 97, 98, 101, 107, 487, 541, 552, 676, 678, 738, 751, 769, 756, 904.  
**Heteropora alaskensis** (Borg): 533.  
**Heteropora urupi** sp. n.: 83, 136, 435, 535, 541, 605, 754, 835, 848, 857, 898, 904.  
**Heteropora** sp.: 756.  
**Borgella pustulosa asiatica** Androsova: 37, 83, 98, 150, 240, 513, 514, 515, 541, 598, 720, 751, 754, 756, 859, 894.  
**Borgella** sp.: 86, 97.

## Conclusion

The geographic distribution of cyclostomes in the shelf of the Kuril Islands depends on the temperature regime, because other factors do not vary significantly within this region. In the cyclostome fauna of the Kuril Islands, boreal-arctic, amphiboreal widespread, subasian widespread, boreal and high boreal species and subspecies are represented.

The cyclostome species were found in the sublittoral, at depths of 0 to 38 m. The greatest number of species was found from 15 to 20 m (12 species), and from 20 to 25 m (16 species); at greater depths, the number of species decreases. Most of the cyclostome species were found living as epibionts of cheilostomes, ctenostomes and hydrozoans, although a small number of species were also found on stones. The region of the Kuril Islands comprises predominantly stony and rocky grounds, and these, therefore, are the major habitats for the cyclostomes. This correlation may also be explained by the fact that most of the species of cheilostomes acting as substrates are found on stony and rocky grounds in the region of the Kuril Islands.

## References

- Gontar, V.I.** (in press). New species of Bryozoa Cyclostomata from the northern and middle Kuriles. *Species Diversity*.
- Kussakin, O.G.** 1974. List of animals of the littoral of the Kuril Islands. In: *Rastitel'nyi i zhivotnyi mir littorali Kuril'skikh ostrovov* [Plant and animal world of the littoral of the Kuril Islands]: 339-372. Novosibirsk. (In Russian).

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