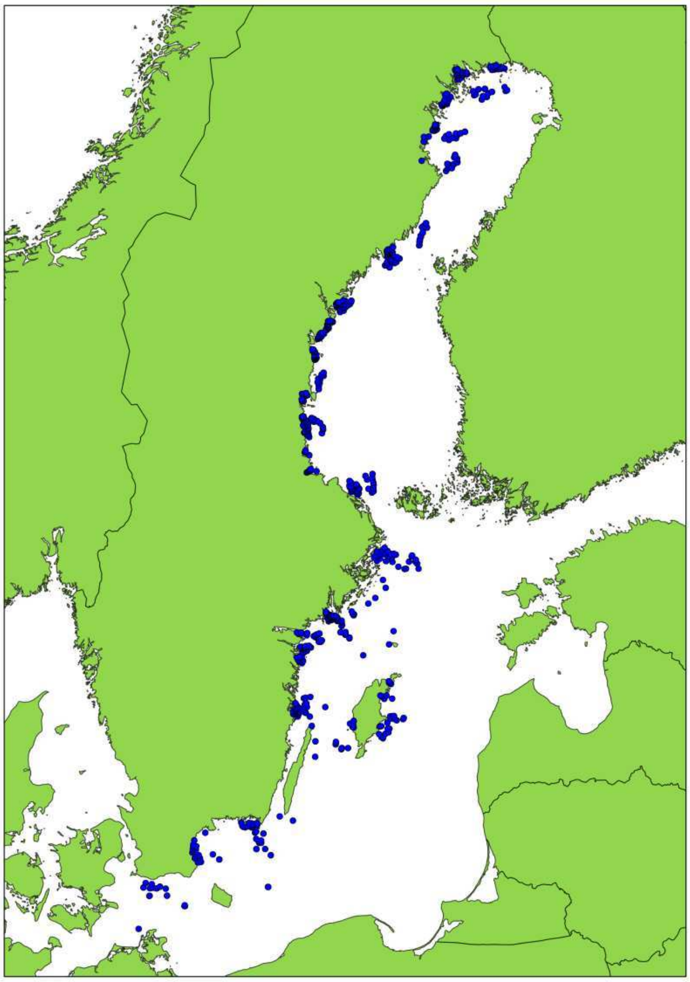
AquaBiota Notes 2011:4



Biotope classification of Swedish zoobenthos data for the Baltic EUNIS

Author: Johan Näslund
AquaBiota Water Research

September 2011

STOCKHOLM, 14 SEPTEMBER 2011

Title:
Biotope classification of Swedish zoobenthos data for the Baltic EUNIS

Funding:
The preparation of this report was funded by Swedish EPA.

Author:
Johan Näslund

Contact:
johan.naslund@aquabiota.se
AquaBiota Water Research
Löjtnantsgatan 25, SE-115 50 Stockholm
Phone: (+46) 8 52230250

This report is available for download at www.aquabiota.se

Aquabiota Notes 2011:4

Table of contents

Introduction

It was proposed in the Baltic Sea Action Plan (BSAP) that a universal biotope classification system should be developed for the Baltic Sea region by 2011. A classification system such as this is needed for marine spatial planning purposes as well as for the reporting required by the EU Directives, including the Marine Strategy Framework Directive (EC 2008). A biotope classification system is also needed for identification of valuable and threatened biotopes in the Baltic Sea, presently addressed by the HELCOM Red List of Species and Habitats/Biotopes project.

The HELCOM Red List project has two major aims: 1) Producing a complete Red List of Baltic Sea species and 2) Updating the current Red Lists of Baltic habitats/biotopes and biotope complexes (HELCOM 1998) for the HELCOM area by 2013, as agreed by the contracting parties in the Baltic Sea Action Plan. The marine (benthic and pelagic) part of the HELCOM Red List of Baltic Sea biotopes and biotope complexes needs to be updated. This includes an improvement of the current biotope classification. A proposed biotope classification for the Baltic Sea was developed by an EU-funded project, EUSeaMap (Wikström et al. 2010). The proposed biotope classification from EUSeaMap is a EUNIS compatible biotope classification system for the Baltic Sea. The proposal was made through analysis of Finnish and Swedish data as well as taking existing biotope classifications from Poland, Lithuania, Latvia, Germany and Estonia into account. The existing HELCOM Red List biotope classification (HELCOM 1998, 2007) and EUNIS marine habitat classification (Davies et al. 2004) were also considered.

The proposal made by Wikström et al. (2010), however, contained gaps in the classification of sediment infaunal communities. To enable the achievement of the HELCOM Red List project goals, HELCOM called upon biotope experts of the Baltic Sea area to share their data and propose biotopes for a further development of the Baltic EUNIS classification.

The purpose of this work was to classify the sediment infaunal datasets available from Swedish national monitoring in order to complement the proposed biotope list for Baltic EUNIS classification developed by Wikström et al. (2010).

Materials and Methods

Data collection and preparation

The sediment zoobenthic dataset used for this classification work was supplied by SMHI through the Swedish national database portal for marine biology monitoring data (available at http://www.smhi.se/klimatdata/oceanografi/Havets-fysik-kemi-och-biologi/marina_miljoovervakningsdata). Sediment infaunal zoobenthic data from 2000-2010 were included in the analysis. If data from several years were available for a specific station, only the most recent year was included in the classification analysis. A total of 1635 samples were analysed. See Figure 1 for a map of the geographical distribution of the samples.

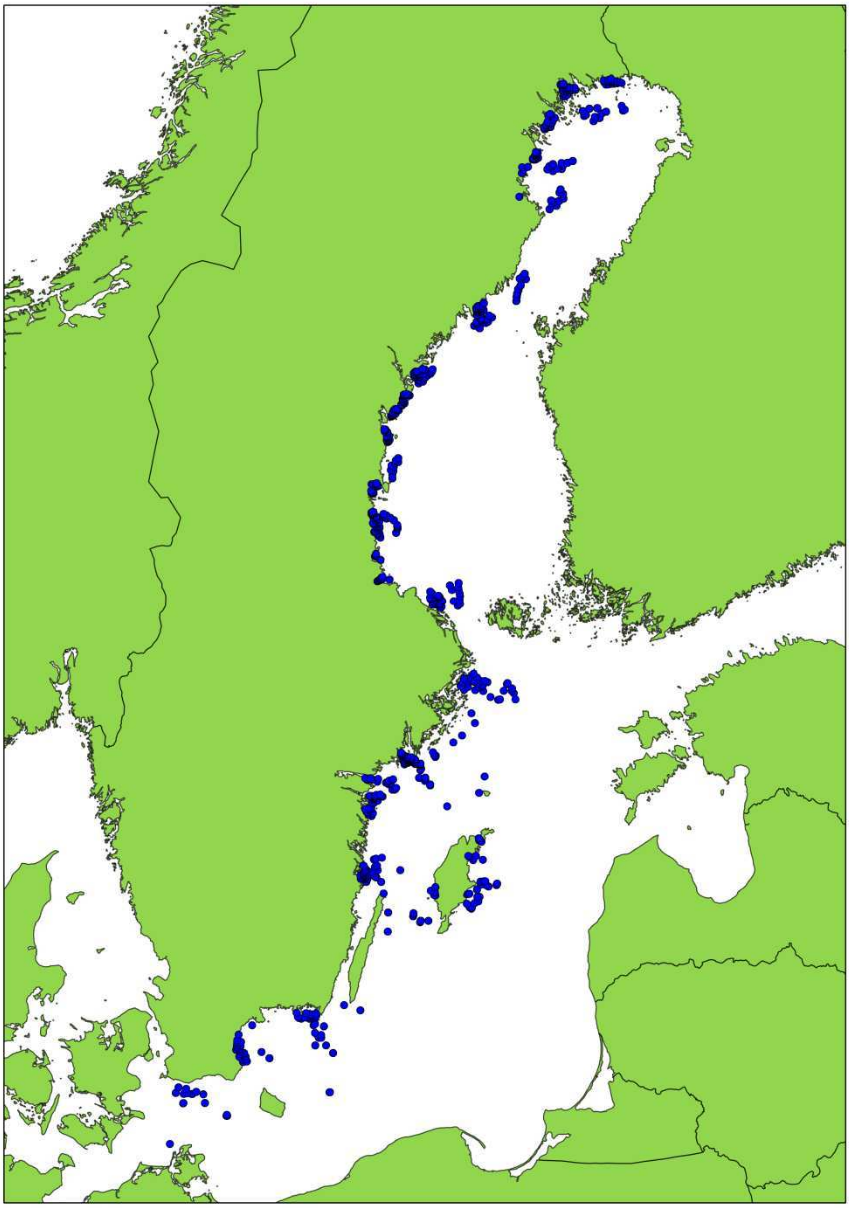


Figure 1. Map showing the geographical distribution of the data.

The majority of samples in the dataset were collected following the Swedish national guidelines (see Leonardsson, 2004) as well as the HELCOM COMBINE guidelines (HELCOM 2001). The infaunal data was collected by van Veen grabs of ca. 0.1 m^2 sampling area. Animals were preserved in formalin and wet weight determined after blotting on a filter paper. The data also included depth, coordinates and for most samples a description of the substrate class.

The information on substrate was re-classified according to the EUNIS categories (Davies 2004), where a sediment composition with a silt and mud content above 30 % is classed as "Mud"; ≥ 50 % coarse sand and larger grain size is classified as "Coarse sediment"; sand (up to 1 mm particle size) is classified as "Sand". If a description of the sediment type was not available (240 samples in total), the substrate class was taken from the nearest sample up to a maximum distance of 0.01° (85 samples in the circalittoral and 29 in the infralittoral). If no data was available within 0.01°, data from the EUSeaMap GIS layers (provided by JNCC) were used (16 samples in circalittoral above the halocline and 110 samples in the infralittoral). From these samples, 228 were classified as mud, 8 as sand and 4 as coarse sediment.

Data on if samples were collected above or below the halocline and within the circa- or infralittoral were taken from the EUSeaMap GIS layers (provided by JNCC). Data on bottom salinity were taken from GIS layers produced within the BALANCE project (BALANCE 2008). Data on wave exposure were taken from GIS layers developed within the EUSeaMap project (Wijkmark and Isaeus, 2010). The wave exposure (SWM) were recalculated to wave exposure at the seafloor according to Bekkby et al. (2008).

The shell free dry weight (SFDW) was estimated from wet weight by using conversion factors listed in Ankar and Elmgren (1978). The SFDW was used for classification and data analysis.

All GIS work was made using open source software: GRASS 6.4.0 (GRASS Development Team 2010).

Data analysis

The dataset was analyzed using a BalMar analysis according to procedures used in the EUSeaMap project (Alleco 2005, Backer et al. 2004, Wikström et al. 2010). In this approach, biotopes are classified in a hierarchal system, where environmental factors determine the upper levels (level 2-4) and dominant communities/species the lower levels (level 5-6). The samples were separated into the EUNIS compatible classes down to level 4 and analyzed. See Table 1 for a summary of the proposed EUNIS compatible sediment classes from the EUSeaMap project down to level 4.

Level 2		Level 3	Level 4	
Vertical zone	Substrate type	Substrate type	Energy/ halocline	Habitat name (provisional)
Infralittoral	Sediment (AD)	Coarse sediment (AD.1)	High energy (AD.11)	AD.11 Baltic high energy infralittoral coarse sediment
			Moderate energy (AD.12)	AD.12 Baltic moderate energy infralittoral coarse sediment
			Low energy (AD.13)	AD.13 Baltic low energy infralittoral coarse sediment
		Sand (AD.2)	High energy (AD.21)	AD.21 Baltic high energy infralittoral sand
			Moderate energy (AD.22)	AD.22 Baltic moderate energy infralittoral sand
			Low energy (AD.23)	AD.23 Baltic low energy infralittoral sand
		Mud (AD.3)	High energy (AD.31)	AD.31 Baltic high energy infralittoral mud
			Moderate energy (AD.32)	AD.32 Baltic moderate energy infralittoral mud
			Low energy (AD.33)	AD.33 Baltic low energy infralittoral mud
Circalittoral	Sediment (AF)	Coarse sediment (AF.1)	Above halocline (AF.11)	AF.11 Baltic circalittoral coarse sediment above halocline
			Below halocline (AF.12)	AF.12 Baltic circalittoral coarse sediment below halocline
		Sand (AF.2)	Above halocline (AF.21)	AF.21 Baltic circalittoral sand above halocline
			Below halocline (AF.22)	AF.22 Baltic circalittoral sand below halocline
		Mud (AF.3)	Above halocline (AF.31)	AF.31 Baltic circalittoral mud above halocline
			Below halocline (AF.32)	AF.32 Baltic circalittoral mud below halocline

Table 1. A summary of the proposed EUNIS compatible sediment classes from the EUSeaMap project.

Dominance was determined by using the relative biomass (shell free dry weight, SFDW) of the species. A single species forming at least 50% of the total biomass (SFDW), classifies the biotope alone. If none of the species reaches the 50% limit, the second species with highest biomass is added and the biotope is named according to both species with “AND” in between.

In some cases, data were not available at species level (e.g. many Chironomdae, Oligochaeta). In these cases the higher taxa listed in the data were treated as species in the BalMar analysis.

Results

The classification in BalMar produced 154 suggestions for biotope types (See Appendix 1 for a complete list) which could potentially be described as biotopes at the EUNIS level 6 and in some cases at the EUNIS level 5. Of the 154 suggestions, 91 biotopes occurred only in one sample. The majority of samples were from mud, likely because this is the most dominant sediment type in Swedish part of the Baltic Sea and that monitoring efforts are mainly directed towards this sediment type.

The most dominant species were *Macoma balthica* (dominance in 563 samples), *Monoporeia affinis* (dominance in 257 samples), *Saduria entomon* (dominance in 190 samples), *Marenzelleria sp*. (dominance in 162 samples) and Chironomidae (dominance in 86 samples). 81 samples were azoic (no fauna present) and were characteristic for circalittoral mud below the halocline.

Discussion

Many of the suggested biotopes listed in Appendix 1 are irrelevant, because they do not represent distinct ecological entities, and in some cases represent chance catches of species normally not occurring in samples from that environment. The list in Appendix 1 thus needs to be shortened in order to only include relevant biotopes. Some biotopes should be omitted because of their rarity, and some should be combined due to their similarity. In the case of omitting rare biotopes from the list, it is important to note that this should not cause conflict with the purpose of mapping and listing rare and/or endangered biotopes. Mainly, the list reflects potential EUNIS level 6 biotopes but these can be combined in order to constitute potential EUNIS level 5 biotopes.

It is also worth noting that it in many cases is possible to combine data/results from the infra- and circalittoral classes as this habitat division is of much higher relevance for phytobenthic habitats than zoobenthic. However, this is not always the case (some zoobenthic groups, e.g. Hydrobiidae are to large extents dependent on benthic diatoms, which exist in the infralittoral), which should be considered if this is done. The data layer used to divide the samples into infra- and circalittoral were also of relatively poor resolution, which provides another argument for not adhering strictly to the division of this dataset into infra- and circalittoral samples. This is especially true for relatively deep infralittoral samples, which also were common in the collected dataset. Relatively shallow infralittoral samples (shallower than ca 10 m) were uncommon in the Swedish national zoobenthos database. Data from these environments probably exist but is widely scattered (held by various research institutions, researchers and companies) and is likely difficult to access.

It is also important to note that the samples were relatively clustered spatially (see Figure 1), and that samples from high energy environments, coarse sediments as well as sand were uncommon. The scarcity of samples from high energy environments could, possibly, also be explained by that these environments are rare or not existing (i.e. at large depths, the energy from wave exposure is low). For this work I chose to use a depth correction for SWM, which was not used in EUSeamap. The main argument for using the correction formula developed by Bekkby et al (2008) was that, without it, most of the samples from the infralittoral would have been classified as high energy environments although they were in reality situated in low energy environments (i.e. low energy from wave exposure).

The complete list in Appendix 1 should **NOT** be seen as a list of proposed biotopes, but as a list of dominant infauna species in recently collected samples from Swedish Baltic Sea waters. The list and the species data may also be used to complete the descriptions of the final Baltic EUNIS classes (e.g. descriptions of commonly co-occuring species). It is worth noting that the data used for this analysis is lacking data from the shallow infralittoral.

An international expert group should evaluate the list in Appendix 1 together with data/suggested biotopes from other areas of the Baltic Sea (e.g. Leinikki, 2011) in order to suggest a list of ecologically relevant Baltic Sea biotopes compatible with the EUNIS system.

References

Alleco 2005: Baltic Marine Biotope Classification Tool (BalMar), definitions and EUNIS compatibility. Version May 25th, 2005. Electronic document is downloadable at: www.alleco.fi.

Ankar, S. and Elmgren R. 1978: The Benthic Macro-and Meiofauna of the Askö-Landsort Area (Northern Baltic Proper): A Stratified Random Sampling Survey. 2nd edition. Contributions from the Askö Laboratory 11. Askö laboratory, Trosa, Sweden.

Backer, H., Leinikki, J. & Oulasvirta, P. 2004: Baltic Marine Biotope Classification System (BMBCS) - definitions, methods and EUNIS compatibility. Alleco report 47 p., 5 app.

BALANCE. 2008: BALANCE Technical Summary Report, part 2: Baltic Sea marine landscapes and habitats - mapping and modeling. Leth J. (editor).

Bekkby, T., Isachsen, P. E., et al. (2008). "GIS modelling of wave exposure at the seabed – a depth-attenuated wave exposure model." Marine Geodesy 31: 1-11.

Davies, C.E., Moss, D. and Hill, M.O. 2004: EUNIS Habitat Classification. Report to the European Topic Centre on Nature Protection and Biodiversity, Paris for European Environment Agency, Copenhagen. October 2004 (http://eunis.eea.europa.eu/upload/EUNIS_2004_report.pdf). 6

EC 2008: Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) Official Journal of the European Union 164 , 25/06/2008 P. 0019 – 0040.

GRASS Development Team (2010). Geographic Resources Analysis Support System (GRASS) Software, Version 6.4.0., Open Source Geospatial Foundation. http://grass.osgeo.org.

HELCOM 1998: Red List of Marine and Coastal Biotopes and Biotope Complexes of the Baltic Sea, Belt Sea and Kattegat—including a comprehensive description and classification system for all Baltic marine and coastal biotopes. Baltic Sea Environmental Proceedings 75, 106 pp.

HELCOM 2001: Manual for Marine Monitoring in the COMBINE Programme of HELCOM.

HELCOM 2007: HELCOM lists of threatened and/or declining species and biotopes/habitats in the Baltic Sea area. Baltic Sea Environmental Proceedings 113, 17 pp.

Leonardsson, K., 2004: Metodbeskrivning för provtagning och analys av mjukbottenlevande makroevertebrater i marin miljö. Umeå universitet, Institutionen för ekologi och geovetenskap, 26 s (in Swedish).

Leinikki, J., 2011: Biotope classification of German and Polish data for the Baltic EUNIS. Report by Alleco Ltd for HELCOM, April 2011.

Wijkmark, N. & Isæus M. 2010: Wave exposure calculations for the Baltic Sea, AquaBiota Report 2010:02. ISBN: 978-91-85975-07-5. Electronic document is downloadable at: www.aquabiota.se.

Wikström, S., Daunys, D, and Leinikki, J. 2010: A proposed biotope classification system for the Baltic Sea. AquaBiota Report 2010:06. ISBN: 978-91-85975-11-2. Electronic document is downloadable at: www.aquabiota.se.

Appendices

Appendix 1: A summary of the output from the classification of Swedish zoobenthos data in BalMar. The list needs to be reviewed by an expert group together with other data in order to suggest a list of ecologically relevant Baltic Sea biotopes compatible with the EUNIS system.

	Number of Occurences	Average depth (±SD)	Min depth	Max depth	Average salinity (±SD)	Min salinity	Max salinity	Average surface wave exposure, SWM (±SD)	Min SWM	Max SWM	Average depth compensated SWM (±SD)	Min depth compensated SWM	Max depth compensated SWM
AD Baltic Infralittoral Sediment													
AD.1 Baltic Infralittoral Coarse sediment	**7**	**17.2 ± 5.4**	**11.6**	**25.4**	**6.3 ± 0.8**	**4.8**	**7.2**	**328005 ± 140311**	**89630**	**453285**	**12789 ± 15227**	**71**	**42391**
AD.11 Baltic high energy Infralittoral Coarse sediment	**0**												
AD.12 Baltic moderate energy Infralittoral Coarse sediment	**0**												
AD.13 Baltic low energy Infralittoral Coarse sediment	**7**												
AD.132 Baltic low energy Infralittoral Coarse sediment dominated by faunal communities	**7**	**17.2 ± 5.4**	**11.6**	**25.4**	**6.3 ± 0.8**	**4.8**	**7.2**	**328005 ± 140311**	**89630**	**453285**	**12789 ± 15227**	**71**	**42391**
Macoma balthica	2	19.6 ± 8.2	13.8	25.4	5.5 ± 1.1	4.8	6.3	244450 ± 218949	89630	399270	1596 ± 2156	71	3120
Macoma balthica AND Mytilus edulis	2	20.9 ± 4.1	18.0	23.8	6.3 ± 0	6.3	6.3	405640 ± 9008	399270	412009	9223 ± 7053	4235	14210
Macoma balthica AND Cerastoderma sp.	1	13.5 ± 0	13.5	13.5	7.2 ± 0	7.2	7.2	453285 ± 0	453285	453285	42391 ± 0	42391	42391
Mya arenaria	1	14.2 ± 0	14.2	14.2	7.1 ± 0	7.1	7.1	376063 ± 0	376063	376063	22350 ± 0	22350	22350
Mytilus edulis AND Macoma balthica	1	11.6 ± 0	11.6	11.6	6.1 ± 0	6.1	6.1	166506 ± 0	166506	166506	3143 ± 0	3143	3143
AD.2 Baltic Infralittoral sand	**100**	**17.5 ± 6**	**5.2**	**28.2**	**5.2 ± 1.4**	**2.7**	**8.5**	**326647 ± 178694**	**11**	**674292**	**13401 ± 25248**	**0**	**220109**
AD.21 Baltic high energy Infralittoral sand	**0**												
AD.22 Baltic moderate energy Infralittoral sand	**3**												
AD.222 Baltic moderate energy Infralittoral sand dominated by faunal communities	**3**	**9.9 ± 4.4**	**5.7**	**14.5**	**7 ± 1.2**	**6.3**	**8.5**	**530373 ± 34551**	**492786**	**560750**	**127835 ± 82400**	**61603**	**220109**
Hydrobiidae AND Mya arenaria	1	5.7 ± 0	5.7	5.7	8.5 ± 0	8.5	8.5	537583 ± 0	537583	537583	220109 ± 0	220109	220109
Macoma balthica	1	14.5 ± 0	14.5	14.5	6.3 ± 0	6.3	6.3	560750 ± 0	560750	560750	61603 ± 0	61603	61603
Macoma balthica AND Marenzelleria sp.	1	9.5 ± 0	9.5	9.5	6.4 ± 0	6.4	6.4	492786 ± 0	492786	492786	101792 ± 0	101792	101792
AD.23 Baltic low energy Infralittoral sand													
AD.232 Baltic low energy Infralittoral sand dominated by faunal communities	**97**	**17.8 ± 5.9**	**5.2**	**28.2**	**5.2 ± 1.4**	**2.7**	**7.3**	**320346 ± 177672**	**11**	**674292**	**9861 ± 9697**	**0**	**45592**
Macoma balthica	66	18.5 ± 5.8	7.1	28.2	5.2 ± 1.2	3.4	7.3	324648 ± 186673	11	674292	8649 ± 9264	0	45592
Saduria entomon	7	13.9 ± 6.7	7.8	26.0	3.6 ± 1.1	2.7	5.1	211868 ± 178971	33251	547001	7812 ± 10266	11	22473

	Number of Occurences	Average depth (±SD)	Min depth	Max depth	Average salinity (±SD)	Min salinity	Max salinity	Average surface wave exposure, SWM (±SD)	Min SWM	Max SWM	Average depth compensated SWM (±SD)	Min depth compensated SWM	Max depth compensated SWM
Monoporeia affinis	5	11.9 ± 3.4	10.0	18.0	3 ± 0.7	2.7	4.2	304631 ± 56399	279409	405520	20669 ± 4652	13494	24761
Mytilus edulis	3	23.6 ± 3.6	19.9	27.0	6.9 ± 0.6	6.2	7.3	497376 ± 43880	458600	545009	11040 ± 5711	7265	17610
Marenzelleria sp.	3	23.4 ± 3.9	19.0	26.6	5.9 ± 1.6	4.2	7.3	431141 ± 18009	412009	447763	7062 ± 4253	3537	11786
Marenzelleria sp. AND Oligochaeta	2	18.7 ± 2.8	16.7	20.6	6.8 ± 0.7	6.3	7.2	446134 ± 48259	412009	480258	16465 ± 2343	14808	18122
Chironomidae	1	16.5 ± 0	16.5	16.5	6.5 ± 0	6.5	6.5	271966 ± 0	271966	271966	4639 ± 0	4639	4639
Chironomidae AND Oligochaeta	1	5.2 ± 0	5.2	5.2	2.7 ± 0	2.7	2.7	84828 ± 0	84828	84828	5212 ± 0	5212	5212
Macoma balthica AND Cerastoderma sp.	1	11 ± 0	11.0	11.0	6.6 ± 0	6.6	6.6	329232 ± 0	329232	329232	30182 ± 0	30182	30182
Macoma balthica AND Mytilus edulis	1	13 ± 0	13.0	13.0	5.9 ± 0	5.9	5.9	54695 ± 0	54695	54695	5 ± 0	5	5
Mytilus edulis AND Macoma balthica	1	21 ± 0	21.0	21.0	6.1 ± 0	6.1	6.1	436200 ± 0	436200	436200	9939 ± 0	9939	9939
Oligochaeta	1	16 ± 0	16.0	16.0	7.3 ± 0	7.3	7.3	379311 ± 0	379311	379311	16051 ± 0	16051	16051
Saduria entomon AND Macoma balthica	1	25 ± 0	25.0	25.0	4.8 ± 0	4.8	4.8	81637 ± 0	81637	81637	0 ± 0	0	0
Saduria entomon AND Diastylis rathkei	1	16 ± 0	16.0	16.0	7.3 ± 0	7.3	7.3	408698 ± 0	408698	408698	20163 ± 0	20163	20163
Halicryptus spinulosus AND Chironomidae AND Monoporeia affinis	1	14.8 ± 0	14.8	14.8	5.9 ± 0	5.9	5.9	54695 ± 0	54695	54695	1 ± 0	1	1
Macoma balthica AND Marenzelleria sp.	1	17.5 ± 0	17.5	17.5	4.2 ± 0	4.2	4.2	405520 ± 0	405520	405520	14832 ± 0	14832	14832
Marenzelleria sp. AND Macoma balthica	1	14 ± 0	14.0	14.0	6.6 ± 0	6.6	6.6	455996 ± 0	455996	455996	39444 ± 0	39444	39444
AD.3 Baltic Infralittoral mud	**690**	**14.1 ± 6.4**	**2.0**	**29.7**	**4.3 ± 1.5**	**1.7**	**6.6**	**135813 ± 157485**	**11**	**716272**	**10967 ± 45133**	**0**	**552967**
AD.31 Baltic high energy Infralittoral mud	**0**												
AD.32 Baltic moderate energy Infralittoral mud	**32**												
AD.322 Baltic moderate energy Infralittoral mud dominated by faunal	**32**	**8 ± 3.5**	**2.0**	**16.0**	**4.9 ± 0.8**	**2.3**	**6.6**	**548267 ± 75711**	**375953**	**716272**	**183776 ± 108741**	**60350**	**552967**
Macoma balthica	9	7.7 ± 3	4.1	13.0	5.1 ± 0.6	4.8	6.5	514760 ± 72176	375953	559517	170358 ± 98759	61405	298454
Chironomidae	8	6.7 ± 1.9	3.0	8.8	4.9 ± 0.2	4.8	5.3	526877 ± 58965	406028	559517	186288 ± 29197	143320	230383
Azoic	5	10.5 ± 0.5	9.7	10.8	4.8 ± 0	4.8	4.8	572266 ± 0	572266	572266	119151 ± 8501	112928	133626
Macoma balthica AND Mya arenaria	2	16 ± 0	16.0	16.0	6.6 ± 0	6.6	6.6	611151 ± 0	611151	611151	61204 ± 0	61204	61204
Marenzelleria sp.	2	3.8 ± 2.5	2.0	5.5	2.3 ± 0	2.3	2.4	716272 ± 0	716272	716272	452279 ± 142395	351591	552967
Asellus aquaticus	1	4.2 ± 0	4.2	4.2	4.8 ± 0	4.8	4.8	559517 ± 0	559517	559517	294385 ± 0	294385	294385
Chironomidae AND Macoma balthica	1	8.7 ± 0	8.7	8.7	4.9 ± 0	4.9	4.9	553752 ± 0	553752	553752	145538 ± 0	145538	145538
Monoporeia affinis	1	10.6 ± 0	10.6	10.6	4.8 ± 0	4.8	4.8	572266 ± 0	572266	572266	116373 ± 0	116373	116373
Saduria entomon	1	9.2 ± 0	9.2	9.2	5 ± 0	5.0	5.0	375953 ± 0	375953	375953	60350 ± 0	60350	60350
Theodoxus fluviatilis AND Asellus aquaticus	1	3.6 ± 0	3.6	3.6	4.8 ± 0	4.8	4.8	559517 ± 0	559517	559517	323092 ± 0	323092	323092

	Number of Occurences	Average depth (±SD)	Min depth	Max depth	Average salinity (±SD)	Min salinity	Max salinity	Average surface wave exposure, SWM (±SD)	Min SWM	Max SWM	Average depth compensated SWM (±SD)	Min depth compensated SWM	Max depth compensated SWM
Asellus aquaticus AND Chironomidae	1	4.2 ± 0	4.2	4.2	4.8 ± 0	4.8	4.8	559517 ± 0	559517	559517	294834 ± 0	294834	294834
AD.33 Baltic Low energy Infralittoral mud	**658**												
AD.332 Baltic Low energy Infralittoral mud dominated by faunal communities	**658**	**14.4 ± 6.4**	**4.1**	**29.7**	**4.3 ± 1.5**	**1.7**	**6.6**	**115754 ± 130577**	**11**	**596260**	**2562 ± 7281**	**0**	**54526**
Macoma balthica	270	16.8 ± 6.3	4.1	29.0	5.2 ± 1	2.3	6.6	147660 ± 151813	11	569045	3338 ± 8726	0	54526
Chironomidae	72	10.1 ± 4	4.8	27.5	3.3 ± 1.5	1.7	6.5	65410 ± 66906	637	354752	2413 ± 6896	0	35226
Marenzelleria sp.	62	16.3 ± 6.8	4.2	29.6	4.5 ± 0.9	1.7	6.4	96042 ± 98045	11	405520	1248 ± 5540	0	42575
Saduria entomon	52	13.1 ± 6.6	5.3	29.7	3.1 ± 1	1.7	4.8	82231 ± 92257	35	534811	912 ± 3473	0	23055
Oligochaeta	51	11.8 ± 4.3	4.7	19.8	2.4 ± 0.5	1.7	5.0	75240 ± 89305	35	456868	1768 ± 7442	0	51512
Monoporeia affinis	31	14.4 ± 6.4	5.4	27.8	3.3 ± 1.1	1.8	5.3	61458 ± 57244	35	217211	126 ± 247	0	894
Mytilus edulis	23	14.4 ± 5.2	9.0	28.0	6.1 ± 0.2	5.5	6.5	260382 ± 137668	35182	511052	7623 ± 4801	1	23519
Azoic	9	11.6 ± 2.6	8.5	15.8	2.2 ± 0.2	1.7	2.2	49400 ± 2991	46553	54531	25 ± 40	0	120
Mytilus edulis AND Macoma balthica	8	13.9 ± 7.2	7.0	27.5	6 ± 0.3	5.6	6.3	186612 ± 153156	53254	436200	3776 ± 3821	0	9332
Hydrobiidae	6	9.4 ± 1.4	7.6	11.5	2.3 ± 0.2	2.1	2.6	46384 ± 11643	35841	68329	111 ± 247	5	615
Macoma balthica AND Saduria entomon	6	18.7 ± 6.4	10.8	26.5	5 ± 0.6	4.1	5.8	111982 ± 184169	11	463416	1146 ± 1956	0	4736
Chironomidae AND Oligochaeta	5	8.7 ± 3.1	5.3	13.3	2.4 ± 0.3	2.2	2.7	58027 ± 59829	35	153905	379 ± 533	0	1271
Gammarus sp.	5	8.5 ± 4.5	5.3	16.4	3.2 ± 1.1	2.7	5.2	49202 ± 59199	35	152209	111 ± 160	0	393
Chironomidae AND Monoporeia affinis	3	9.6 ± 0.5	9.1	10.0	3.4 ± 2	2.2	5.8	30153 ± 21485	5344	42557	10 ± 9	0	19
Chironomidae AND Saduria entomon	3	8 ± 2.3	5.3	9.6	2.8 ± 0.6	2.2	3.4	69798 ± 60346	3358	121209	2344 ± 2479	0	4939
Macoma balthica AND Chironomidae	3	8.6 ± 1	7.5	9.3	6 ± 0.7	5.2	6.4	38923 ± 33990	661	65623	203 ± 305	0	554
Mysidae	3	19.2 ± 3.6	16.7	23.3	2.4 ± 0.5	1.9	2.7	163383 ± 46697	133736	217211	201 ± 64	151	273
Macoma balthica AND Monoporeia affinis	2	9.4 ± 0.5	9.0	9.7	5.1 ± 0.1	5.1	5.2	16678 ± 22651	661	32694	1 ± 1	0	2
Macoma balthica AND Mytilus edulis	2	22 ± 0	22.0	22.0	6.1 ± 0	6.1	6.1	436200 ± 0	436200	436200	8301 ± 0	8301	8301
Nemertea	2	19.5 ± 4.5	16.3	22.6	2.5 ± 0.3	2.2	2.7	133422 ± 118496	49632	217211	167 ± 236	0	334
Sphaeriidae	2	8.1 ± 0.2	7.9	8.2	2 ± 0.2	1.8	2.1	34937 ± 22928	18724	51149	54 ± 76	0	108
Macoma balthica AND Marenzelleria sp.	2	21 ± 4.9	17.5	24.5	4.5 ± 0.4	4.2	4.8	156805 ± 46542	123894	189715	86 ± 2	84	87
Marenzelleria sp. AND Macoma balthica	2	10.9 ± 3	8.8	13.0	3.9 ± 0.3	3.7	4.1	110721 ± 86722	49399	172042	4519 ± 6388	2	9036
Arachnida	1	7.7 ± 0	7.7	7.7	2.2 ± 0	2.2	2.2	50319 ± 0	50319	50319	145 ± 0	145	145
Asellus aquaticus	1	6.1 ± 0	6.1	6.1	2.7 ± 0	2.7	2.7	27263 ± 0	27263	27263	25 ± 0	25	25
Chironomidae AND Corophium volutator	1	11 ± 0	11.0	11.0	5.8 ± 0	5.8	5.8	5694 ± 0	5694	5694	0 ± 0	0	0
Chironomidae AND Gammarus sp.	1	7.4 ± 0	7.4	7.4	2.7 ± 0	2.7	2.7	35 ± 0	35	35	0 ± 0	0	0
Chironomidae AND Macoma balthica	1	10.7 ± 0	10.7	10.7	4.9 ± 0	4.9	4.9	280223 ± 0	280223	280223	21064 ± 0	21064	21064
Corophium volutator	1	7.7 ± 0	7.7	7.7	2.2 ± 0	2.2	2.2	50319 ± 0	50319	50319	145 ± 0	145	145

	Number of Occurences	Average depth (±SD)	Min depth	Max depth	Average salinity (±SD)	Min salinity	Max salinity	Average surface wave exposure, SWM (±SD)	Min SWM	Max SWM	Average depth compensated SWM (±SD)	Min depth compensated SWM	Max depth compensated SWM
Corophium volutator AND Monoporeia affinis	1	11 ± 0	11.0	11.0	5.9 ± 0	5.9	5.9	3643 ± 0	3643	3643	0 ± 0	0	0
Gammarus sp. AND Asellus aquaticus	1	5.1 ± 0	5.1	5.1	2.7 ± 0	2.7	2.7	27263 ± 0	27263	27263	80 ± 0	80	80
Gammarus sp. AND Monoporeia affinis	1	6.7 ± 0	6.7	6.7	2.7 ± 0	2.7	2.7	33251 ± 0	33251	33251	40 ± 0	40	40
Gastropoda	1	8.3 ± 0	8.3	8.3	2.2 ± 0	2.2	2.2	50319 ± 0	50319	50319	92 ± 0	92	92
Halicryptus spinulosus	1	19.5 ± 0	19.5	19.5	6.5 ± 0	6.5	6.5	7633 ± 0	7633	7633	0 ± 0	0	0
Hediste diversicolor AND Macoma balthica	1	11 ± 0	11.0	11.0	6.5 ± 0	6.5	6.5	209233 ± 0	209233	209233	8255 ± 0	8255	8255
Macoma balthica AND Cerastoderma sp.	1	20 ± 0	20.0	20.0	6.3 ± 0	6.3	6.3	596260 ± 0	596260	596260	32027 ± 0	32027	32027
Macoma balthica AND Mya arenaria	1	8 ± 0	8.0	8.0	6.4 ± 0	6.4	6.4	106516 ± 0	106516	106516	2667 ± 0	2667	2667
Monoporeia affinis AND Macoma balthica	1	21 ± 0	21.0	21.0	4.5 ± 0	4.5	4.5	11571 ± 0	11571	11571	0 ± 0	0	0
Monoporeia affinis AND Oligochaeta AND Chironomidae	1	11.5 ± 0	11.5	11.5	5.7 ± 0	5.7	5.7	5694 ± 0	5694	5694	0 ± 0	0	0
Monoporeia affinis AND Saduria entomon	1	12.4 ± 0	12.4	12.4	2.7 ± 0	2.7	2.7	284706 ± 0	284706	284706	14641 ± 0	14641	14641
Mya arenaria AND Cerastoderma sp.	1	10 ± 0	10.0	10.0	6.5 ± 0	6.5	6.5	355734 ± 0	355734	355734	45203 ± 0	45203	45203
Mya arenaria AND Macoma balthica	1	8 ± 0	8.0	8.0	6.3 ± 0	6.3	6.3	83439 ± 0	83439	83439	1088 ± 0	1088	1088
Nemertea AND Chironomidae	1	10 ± 0	10.0	10.0	2.2 ± 0	2.2	2.2	87863 ± 0	87863	87863	465 ± 0	465	465
Insecta (non-Chironomidae)	1	5.3 ± 0	5.3	5.3	2.7 ± 0	2.7	2.7	33251 ± 0	33251	33251	165 ± 0	165	165
Saduria entomon AND Chironomidae	1	15.8 ± 0	15.8	15.8	3.7 ± 0	3.7	3.7	83185 ± 0	83185	83185	16 ± 0	16	16
Saduria entomon AND Gammarus sp.	1	5.4 ± 0	5.4	5.4	2.7 ± 0	2.7	2.7	33251 ± 0	33251	33251	149 ± 0	149	149
Saduria entomon AND Macoma balthica	1	21.6 ± 0	21.6	21.6	4.5 ± 0	4.5	4.5	11571 ± 0	11571	11571	0 ± 0	0	0
Saduria entomon AND Monoporeia affinis	1	7.8 ± 0	7.8	7.8	2.7 ± 0	2.7	2.7	27263 ± 0	27263	27263	4 ± 0	4	4
Saduria entomon AND Mytilus edulis	1	23 ± 0	23.0	23.0	6.5 ± 0	6.5	6.5	511052 ± 0	511052	511052	12301 ± 0	12301	12301
Saduria entomon AND Oligochaeta	1	6.4 ± 0	6.4	6.4	2.7 ± 0	2.7	2.7	84828 ± 0	84828	84828	2752 ± 0	2752	2752
Valvata macrostoma	1	7.3 ± 0	7.3	7.3	2.2 ± 0	2.2	2.2	30382 ± 0	30382	30382	13 ± 0	13	13
Valvata macrostoma AND Nemertea	1	8.7 ± 0	8.7	8.7	2.2 ± 0	2.2	2.2	30382 ± 0	30382	30382	3 ± 0	3	3
Macoma balthica AND Hediste diversicolor	1	21.5 ± 0	21.5	21.5	6.1 ± 0	6.1	6.1	231006 ± 0	231006	231006	624 ± 0	624	624
Marenzelleria sp. AND Saduria entomon	1	19.8 ± 0	19.8	19.8	4.1 ± 0	4.1	4.1	102995 ± 0	102995	102995	9 ± 0	9	9
Corophium volutator AND Gammarus sp. AND Marenzelleria sp. AND Monoporeia affinis	1	11.3 ± 0	11.3	11.3	5.8 ± 0	5.8	5.8	35182 ± 0	35182	35182	1 ± 0	1	1
Monoporeia affinis AND Marenzelleria sp.	1	10.5 ± 0	10.5	10.5	5.6 ± 0	5.6	5.6	2521 ± 0	2521	2521	0 ± 0	0	0
Chironomidae AND Sphaeriidae	1	4.8 ± 0	4.8	4.8	2.1 ± 0	2.1	2.1	24818 ± 0	24818	24818	72 ± 0	72	72

	Number of Occurences	Average depth (±SD)	Min depth	Max depth	Average salinity (±SD)	Min salinity	Max salinity	Average surface wave exposure, SWM (±SD)	Min SWM	Max SWM	Average depth compensated SWM (±SD)	Min depth compensated SWM	Max depth compensated SWM
AF Baltic Circalittoral Sediment													
AF.1 Baltic circalittoral coarse sediment	**5**	**47.2 ± 9.1**	**35.0**	**57.0**	**6.3 ± 0.9**	**4.8**	**7.2**	**534241 ± 140428**	**449631**	**781519**	**678 ± 808**	**24**	**1973**
AF.11 Baltic circalittoral coarse sediment above halocline	**5**	**47.2 ± 9.1**	**35.0**	**57.0**	**6.3 ± 0.9**	**4.8**	**7.2**	**534241 ± 140428**	**449631**	**781519**	**678 ± 808**	**24**	**1973**
Macoma balthica	5	47.2 ± 9.1	35.0	57.0	6.3 ± 0.9	4.8	7.2	534241 ± 140428	449631	781519	678 ± 808	24	1973
AF.12 Baltic circalittoral coarse sediment below halocline													
AF.2 Baltic circalittoral sand	**55**	**43.8 ± 24.9**	**14.1**	**137.0**	**6 ± 1.1**	**3.0**	**7.8**	**543348 ± 242761**	**6952**	**945430**	**3790 ± 5870**	**0**	**38564**
AF.21 Baltic circalittoral sand above halocline	**55**	**43.8 ± 24.9**	**14.1**	**137.0**	**6 ± 1.1**	**3.0**	**7.8**	**543348 ± 242761**	**6952**	**945430**	**3790 ± 5870**	**0**	**38564**
Macoma balthica	32	34.5 ± 8.7	14.1	49.0	6.4 ± 0.9	3.4	7.8	588378 ± 207464	139665	945430	5471 ± 7109	23	38564
Saduria entomon	12	71.9 ± 40.9	31.0	137.0	4.7 ± 0.9	3.0	6.3	413751 ± 254717	6952	686263	325 ± 903	0	3096
Monoporeia affinis	5	44.6 ± 2.6	40.5	47.6	6.1 ± 0.9	4.5	6.6	601405 ± 332068	11571	771590	2419 ± 1352	0	3028
Monoporeia affinis AND Macoma balthica	2	33.9 ± 3	31.8	36.0	5.8 ± 1.1	5.0	6.6	603302 ± 144079	501422	705181	4544 ± 2586	2715	6373
Chironomidae	1	35 ± 0	35.0	35.0	6.3 ± 0	6.3	6.3	412009 ± 0	412009	412009	591 ± 0	591	591
Macoma balthica AND Mytilus edulis	1	36.5 ± 0	36.5	36.5	6.5 ± 0	6.5	6.5	665900 ± 0	665900	665900	4681 ± 0	4681	4681
Saduria entomon AND Macoma balthica	1	31.8 ± 0	31.8	31.8	4.5 ± 0	4.5	4.5	6952 ± 0	6952	6952	0 ± 0	0	0
Saduria entomon AND Mytilus edulis	1	46 ± 0	46.0	46.0	7 ± 0	7.0	7.0	792555 ± 0	792555	792555	3041 ± 0	3041	3041
AF.22 Baltic circalittoral sand below halocline	**0**												
AF.3 Baltic circalittoral mud	**779**	**65.4 ± 26.5**	**10.0**	**136.0**	**4.9 ± 1.4**	**2.2**	**7.9**	**476605 ± 205963**	**166**	**945430**	**532 ± 2908**	**0**	**58242**
AF.31 Baltic circalittoral mud above halocline	**744**	**64.4 ± 25.9**	**10.0**	**136.0**	**4.8 ± 1.4**	**2.2**	**7.9**	**462924 ± 199611**	**166**	**945430**	**534 ± 2970**	**0**	**58242**
Monoporeia affinis	215	79.1 ± 21.9	13.1	128.0	3.7 ± 1.1	2.2	6.7	444971 ± 144211	6952	890727	47 ± 269	0	3028
Macoma balthica	174	41.4 ± 12.5	10.7	89.6	5.9 ± 1	2.3	7.9	424536 ± 229157	6957	930816	1621 ± 5707	0	58242
Saduria entomon	118	75.8 ± 25.2	12.1	136.0	4.6 ± 0.9	2.2	6.6	521276 ± 135556	166	790903	185 ± 1543	0	16761
Marenzelleria sp.	95	60.9 ± 24.1	10.2	129.0	4.5 ± 0.8	2.2	6.6	432516 ± 216555	6957	930816	419 ± 1753	0	14992
Azoic	44	77.7 ± 20.3	13.2	108.0	6 ± 1	2.2	7.1	614881 ± 195218	49223	903091	43 ± 93	0	491
Macoma balthica AND Saduria entomon	7	41.7 ± 12.9	26.5	60.0	4.9 ± 1.4	2.7	6.2	464261 ± 114522	294161	620655	631 ± 705	119	1766
Marenzelleria sp. AND Saduria entomon	6	49.8 ± 21.9	30.4	86.3	4.8 ± 0.9	4.2	6.5	410539 ± 292102	6952	756711	199 ± 268	0	592
Monoporeia affinis AND Marenzelleria sp.	6	62 ± 14.4	40.0	81.6	4.9 ± 0.3	4.5	5.2	398914 ± 230058	6952	585836	277 ± 637	0	1577

	Number of Occurences	Average depth (±SD)	Min depth	Max depth	Average salinity (±SD)	Min salinity	Max salinity	Average surface wave exposure, SWM (±SD)	Min SWM	Max SWM	Average depth compensated SWM (±SD)	Min depth compensated SWM	Max depth compensated SWM
Mysidae	6	103.3 ± 18.6	73.5	127.0	3 ± 0	2.9	3.0	439877 ± 25644	414663	488092	0 ± 0	0	0
Saduria entomon AND Marenzelleria sp.	6	73.2 ± 26.3	35.0	101.0	4.6 ± 1	2.6	5.2	548648 ± 102801	423150	659558	144 ± 270	0	681
Marenzelleria sp. AND Monoporeia affinis	5	63.3 ± 8.1	53.0	74.3	5.3 ± 0.8	4.5	6.6	479369 ± 279724	6952	756711	225 ± 444	0	1019
Saduria entomon AND Monoporeia affinis	5	64.5 ± 18.4	32.5	79.5	4.8 ± 0.3	4.5	5.2	423112 ± 236632	6952	568555	7 ± 8	0	18
Chironomidae	4	25.1 ± 18.6	10.0	48.1	3 ± 1.2	2.2	4.8	114918 ± 146248	8599	318578	63 ± 125	0	250
Halicryptus spinulosus	4	57 ± 16.6	40.5	80.0	6.9 ± 0.7	6.2	7.8	575078 ± 201769	333506	826190	697 ± 806	2	1500
Macoma balthica AND Marenzelleria sp.	4	42.7 ± 7	34.7	49.0	5.8 ± 0.6	5.1	6.6	173506 ± 177182	9038	423150	180 ± 360	0	720
Monoporeia affinis AND Saduria entomon	4	62 ± 13.4	45.0	77.8	4.9 ± 1.5	2.8	6.6	572673 ± 157405	386489	771590	770 ± 1506	2	3028
Saduria entomon AND Macoma balthica	4	53.8 ± 24.1	32.0	81.8	4.7 ± 0.5	4.1	5.1	514364 ± 104629	423150	614033	467 ± 564	4	1205
Macoma balthica AND Monoporeia affinis	3	41.8 ± 10.2	32.3	52.5	5.5 ± 0.8	4.6	6.2	188934 ± 139143	33336	301412	12 ± 19	0	33
Mytilus edulis	3	54 ± 33.5	27.0	91.5	6.6 ± 0.6	6.2	7.2	503619 ± 167020	368443	690334	607 ± 864	4	1597
Pontoporeia femorata	3	71.2 ± 10.4	60.0	80.5	6 ± 0.2	5.8	6.2	802808 ± 132884	655996	914851	477 ± 675	10	1252
Macoma balthica AND Halicryptus spinulosus	2	72.8 ± 19.4	59.0	86.5	5.8 ± 0.9	5.2	6.5	713928 ± 108859	636953	790903	314 ± 438	4	624
Macoma balthica AND Mytilus edulis	2	29.8 ± 3.2	27.5	32.0	7.1 ± 1.2	6.2	7.9	455268 ± 122788	368443	542092	2575 ± 1600	1444	3707
Saduria entomon AND Halicryptus spinulosus	2	81.5 ± 41.7	52.0	111.0	5.9 ± 1	5.2	6.6	702672 ± 60972	659558	745785	534 ± 755	0	1068
Arctica islandica AND Nephtys ciliata	1	49 ± 0	49.0	49.0	7.4 ± 0	7.4	7.4	731234 ± 0	731234	731234	1408 ± 0	1408	1408
Astarte sp.	1	56 ± 0	56.0	56.0	7.2 ± 0	7.2	7.2	651292 ± 0	651292	651292	289 ± 0	289	289
Corophium volutator	1	12 ± 0	12.0	12.0	2.6 ± 0	2.6	2.6	27257 ± 0	27257	27257	0 ± 0	0	0
Macoma balthica AND Arctica islandica	1	48.5 ± 0	48.5	48.5	7.4 ± 0	7.4	7.4	731234 ± 0	731234	731234	1500 ± 0	1500	1500
Macoma balthica AND Nemertea	1	33 ± 0	33.0	33.0	6.6 ± 0	6.6	6.6	17764 ± 0	17764	17764	0 ± 0	0	0
Macoma balthica AND Nephtys ciliata	1	48 ± 0	48.0	48.0	7.4 ± 0	7.4	7.4	731234 ± 0	731234	731234	1599 ± 0	1599	1599
Macoma balthica AND Pontoporeia femorata	1	64 ± 0	64.0	64.0	5.8 ± 0	5.8	5.8	915003 ± 0	915003	915003	807 ± 0	807	807
Macoma balthica AND Scoloplos armiger	1	41 ± 0	41.0	41.0	7.7 ± 0	7.7	7.7	622596 ± 0	622596	622596	1840 ± 0	1840	1840
Marenzelleria sp. AND Macoma balthica	1	38.5 ± 0	38.5	38.5	4.8 ± 0	4.8	4.8	585836 ± 0	585836	585836	1969 ± 0	1969	1969
Monoporeia affinis AND Macoma balthica	1	37 ± 0	37.0	37.0	6.1 ± 0	6.1	6.1	220438 ± 0	220438	220438	6 ± 0	6	6
Monoporeia affinis AND Mysidae	1	58.5 ± 0	58.5	58.5	2.9 ± 0	2.9	2.9	456325 ± 0	456325	456325	17 ± 0	17	17
Monoporeia affinis AND Pontoporeia femorata	1	53.5 ± 0	53.5	53.5	6.2 ± 0	6.2	6.2	301412 ± 0	301412	301412	1 ± 0	1	1
Mytilus edulis AND Macoma balthica	1	36 ± 0	36.0	36.0	7.9 ± 0	7.9	7.9	543782 ± 0	543782	543782	2017 ± 0	2017	2017
Oligochaeta	1	10 ± 0	10.0	10.0	2.2 ± 0	2.2	2.2	8599 ± 0	8599	8599	0 ± 0	0	0
Pholoe baltica	1	91.5 ± 0	91.5	91.5	7 ± 0	7.0	7.0	903091 ± 0	903091	903091	36 ± 0	36	36
Pontoporeia femorata AND Bylgides sarsi	1	65 ± 0	65.0	65.0	5.9 ± 0	5.9	5.9	945430 ± 0	945430	945430	872 ± 0	872	872

	Number of Occurences	Average depth (±SD)	Min depth	Max depth	Average salinity (±SD)	Min salinity	Max salinity	Average surface wave exposure, SWM (±SD)	Min SWM	Max SWM	Average depth compensated SWM (±SD)	Min depth compensated SWM	Max depth compensated SWM
Pontoporeia femorata AND Macoma balthica	1	60 ± 0	60.0	60.0	6.1 ± 0	6.1	6.1	681620 ± 0	681620	681620	223 ± 0	223	223
Saduria entomon AND Pontoporeia femorata	1	66 ± 0	66.0	66.0	5.8 ± 0	5.8	5.8	901125 ± 0	901125	901125	592 ± 0	592	592
Mysidae AND Saduria entomon AND Marenzelleria sp.	1	38.8 ± 0	38.8	38.8	6.3 ± 0	6.3	6.3	30920 ± 0	30920	30920	0 ± 0	0	0
Pontoporeia femorata AND Halicryptus spinulosus	1	60 ± 0	60.0	60.0	5.7 ± 0	5.7	5.7	72214 ± 0	72214	72214	0 ± 0	0	0
Pontoporeia femorata AND Marenzelleria sp.	1	48 ± 0	48.0	48.0	5.7 ± 0	5.7	5.7	155216 ± 0	155216	155216	0 ± 0	0	0
Mysidae AND Marenzelleria sp.	1	51.4 ± 0	51.4	51.4	2.5 ± 0	2.5	2.5	406989 ± 0	406989	406989	25 ± 0	25	25
AF.32 Baltic circalittoral mud below halocline	**35**	**87.5 ± 29.5**	**38.5**	**126.0**	**6.9 ± 0.5**	**6.3**	**7.7**	**767437 ± 93806**	**607328**	**911113**	**490 ± 863**	**0**	**2879**
Azoic	23	103.2 ± 16.3	71.5	126.0	6.6 ± 0.3	6.3	7.1	788198 ± 66621	690358	905436	20 ± 63	0	304
Bylgides sarsi	4	89.1 ± 20.1	63.0	112.0	6.9 ± 0.3	6.5	7.0	892701 ± 26400	853510	911113	172 ± 289	4	605
Macoma balthica	4	41 ± 2.3	38.5	44.0	7.7 ± 0.1	7.5	7.7	634926 ± 38903	607328	689852	2068 ± 564	1629	2879
Arctica islandica	1	44 ± 0	44.0	44.0	7.5 ± 0	7.5	7.5	689852 ± 0	689852	689852	2012 ± 0	2012	2012
Halicryptus spinulosus	1	43 ± 0	43.0	43.0	7.6 ± 0	7.6	7.6	648096 ± 0	648096	648096	1694 ± 0	1694	1694
Macoma balthica AND Terebellides stroemi	1	40 ± 0	40.0	40.0	7.7 ± 0	7.7	7.7	635194 ± 0	635194	635194	2333 ± 0	2333	2333
Scoloplos armiger	1	43 ± 0	43.0	43.0	7.6 ± 0	7.6	7.6	648096 ± 0	648096	648096	1694 ± 0	1694	1694
All samples	**1636**	**39.9 ± 31.6**	**2.0**	**137.0**	**4.7 ± 1.5**	**1.7**	**8.5**	**325490 ± 249861**	**11**	**945430**	**5882 ± 30520**	**0**	**552967**