



**HAF- OG VATNARANNSÓKNIR**  
*MARINE AND FRESHWATER RESEARCH IN ICELAND*

Mollusca (Bivalvia, Gastropoda, Polyplacophora  
and Scaphopoda) around Iceland:  
Sampling effort in research surveys in 2013-2015

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## Upplýsingablað

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| <b>Titill:</b> Mollusca (Bivalvia, Gastropoda, Polyplacophora and Scaphopoda) around Iceland: sampling effort in research surveys in 2013-2015   |   |  |
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| <p><b>Ágrip</b></p> <p>Í júní 2010 hófst áralangt samstarf milli sérfræðinga hjá Hafrannsóknastofnun og belgískra sérfræðinga í lindýrum. Samstarfið hefur leitt af sér umfangmestu skráningar lindýra í kringum Ísland síðan verkefnið Botndýr á Íslandsmiðum (BIOICE, 1991-2004) fór fram. Þessi skýrsla kynnir niðurstöður söfnunar í sex rannsóknaleiðöngrum frá 2013 til 2015 þar sem alls voru greindar 95 tegundir frá fjórum ættbálkum lindýra (samlokur, sæsniglar, sætennur og nökkvar).</p> <p><b>Abstract</b></p> <p>In June 2010, a collaboration between scientists of the Marine and Freshwater Research Institute and Belgian mollusc specialists was initiated. This collaboration has led to the most extensive registration and sampling of Mollusca around Iceland since the Benthic Invertebrates in Icelandic waters (BIOICE) project (1991-2004). This report presents the results of the sampling during six research surveys in 2013 to 2015 where a total of 95 species of four Mollusca classes (Bivalvia, Gastropoda, Scaphopoda and Polyplacophora) have been collected and identified.</p> |   |  |
| <b>Lykilorð:</b> Mollusca, by-catch, Bivalvia, Gastropoda, Scaphopoda, Polyplacophora, distribution  |   |  |
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## Introduction

In June 2010, a Belgian mollusc specialist and an Icelandic fisheries scientist at the Marine Research Institute (MRI; currently Marine and Freshwater Research Institute, MFRI) met by coincidence during Fisherman's Day in Iceland. This meeting led to a collaboration where the fisheries scientist, with access to surveys and material, and the identification skills of the mollusc specialist came together and initiated the most extensive registration and sampling of Mollusca around Iceland since the Benthic Invertebrates in Icelandic waters (BIOICE) project (1991-2004).

Besides the publications on Zoology of Iceland by Thorson (1941) and Madsen (1949), Ingimar Óskarsson (1892-1981), a botanist and shell expert, published a book on Icelandic Bivalvia in 1952 and on Gastropoda in 1962. These books were then published together in a single volume with additions (Óskarsson, 1982). More recent revisions have been published in scientific publications on specific groups within Mollusca based on the BIOICE material sampled around Iceland. These revisions are based on samples from the shallow to the deep waters within the Icelandic EEZ (Exclusive Economic Zone).

This report presents the results of the sampling during six research surveys in 2013 to 2015 where a total of 95 species of four Mollusca classes (Bivalvia, Gastropoda, Scaphopoda and Polyplacophora) have been collected and identified.

## Material and methods

### Collection and identification of the material

Molluscs were collected by Jónbjörn Pálsson (J.P.) during six surveys conducted by the Marine Research Institute in 2013-2015 (Figure 1). The samples were collected as by-catch when bottom trawling for fish and lobster, the stomach and gut contents were investigated from various fish species [*Anarhichas* (wolffish), *Hippoglossoides platessoides* (long rough dab) and *Melanogrammus aeglefinus* (haddock)] and molluscs therein were collected. In addition, remains of crushed shells, sponges, and other benthic material in the trawl ("sweep ups") were examined for molluscs. As this collection of molluscs was outside the general data collection conducted in the surveys, mollusc material was only collected when J.P. was on shift. Thus, the distribution of individual mollusc species found in a survey does not necessarily show the total distribution in that particular survey.

The molluscs were placed in plastic bags and frozen on board the vessel. Most of the samples were prepared in Iceland and then transferred to Belgium for identification of specimens. Later, the specimens were identified to species level or to the lowest taxonomical level by Christiane Delongueville and Roland Scaillet, inspired by personal interest. To facilitate identification of the species, a table (Appendix 1) was made to put in concordance the currently accepted scientific names of the molluscs with the corresponding names in Óskarsson's publication (1982), the only other existing comprehensive reference for Icelandic molluscs. Despite some modifications in the actual nomenclature, old references such as H. Friele (1882) and G.O. Sars (1878) are most valuable for the determination of most of the common species present in Icelandic waters, thanks to their very precise iconographies. Finally, the species list was unified with World Register of Marine Species (WoRMS 2021) to confirm the updated list of accepted species names. Some of the names are different to what is considered as valid in WoRMS, in each case an explanation is given to justify the names used.

All molluscs were alive when sampled except when otherwise indicated (empty = only shell available; worn out = empty + shell in very bad condition). When the specimens were completely broken, they were nevertheless identified (when possible), reported but not kept. A type specimen for each species of mollusc was photographed. Occasional Echinodermata, Cnidaria, Cirripedia and Brachiopoda were mixed in with the sample and were also identified and reported.

## Research surveys

Surveys A10-2013 and TL2-2014: The annual autumn groundfish stock assessment in deep waters around Iceland on R/V Árni Friðriksson (A10-2013) and a hired commercial trawler (TL2-2014). Samples were collected around Iceland from 200 to 1500 m depth.

Surveys A3-2014, A2-2015: The annual spring groundfish stock assessment survey on R/V Árni Friðriksson. Samples were collected in the western part of Iceland at 50-500 m depth.

Surveys D4-2014 and D2-2015: Annual lobster (*Nephrops norvegicus*) survey on R/V Dröfn off South and Southwest Iceland. Samples were collected at 110-280 m depth.



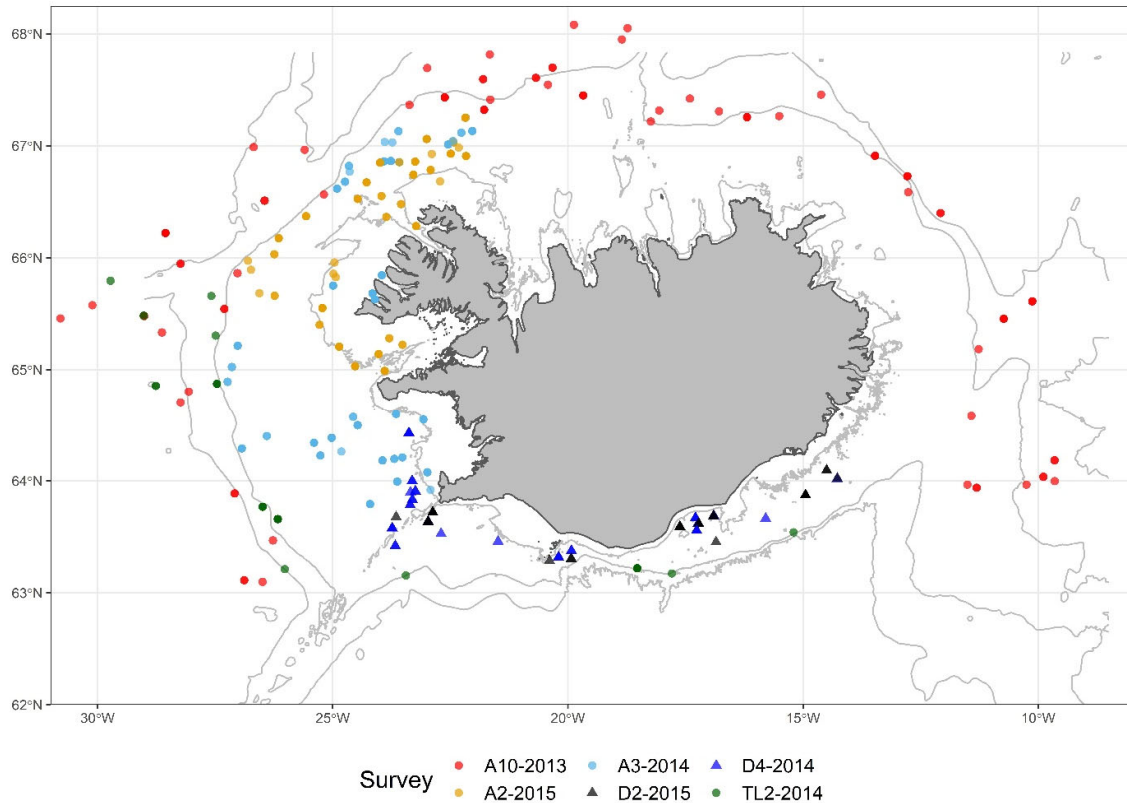


Figure 1. Sampling stations where Mollusca were collected in the six surveys conducted in 2013-2015.

The data is stored in the Icelandic Benthic Database (MFRI and Icelandic Institute of Natural History) and the collected samples are kept in Brussels by RBINS research associates.

## Results

Samples were collected at 173 stations between 63°.10N to 68°.08N and -9°6W to -30°.7W at a depth range of 17 to 1330 m. Bottom temperature was -0.7 to 8.3°C. Most of the sampling took place in the western and southern regions of Icelandic waters during the spring surveys. Specimens were also collected in two autumn surveys sampling offshore waters from north-west around to the east of Iceland and during the annual lobster (*Nephrops norvegicus*) surveys that took place to the south of Iceland (Figure 1). Survey and station list is provided in Appendix 2.

A total of 95 species was identified: 46 species of Bivalvia, 45 species of Gastropoda, 2 species of Polyplacophora and 2 species of Scaphopoda (Table 1). The Family Buccinidae (Gastropoda)

was most dominant in number of species. Gastropoda were sampled at most stations where molluscs were recorded, or a total of 133, Bivalvia were sampled at 76 stations, Polyplacophora were sampled at 3 stations and Scaphopoda were sampled at two stations (Table 2). Specimens from other taxonomical Phyla that were among the samples were collected at nine stations and also identified (Table 2).

Table 1. Number of species sampled per survey and per Mollusca class. Other indicates specimens of other taxonomical Phyla that were among the samples.

| Survey   | Bivalvia | Gastropoda | Polyplacophora | Scaphopoda | Other |
|----------|----------|------------|----------------|------------|-------|
| A10-2013 | 4        | 11         | -              | -          | -     |
| A3-2014  | 35       | 30         | 1              | 1          | 4     |
| D4-2014  | 11       | 7          | -              | -          | -     |
| TL2-2014 | 10       | 6          | 1              | 1          | 3     |
| A2-2015  | 17       | 26         | -              | -          | -     |
| D2-2015  | 10       | 11         | -              | -          | -     |
| TOTAL    | 46       | 45         | 2              | 2          | 5     |

Table 2. Survey names and number of stations where each of the four Mollusca classes were collected. Other indicates specimens of other taxonomical Phyla that were among the samples.

| Survey   | Bivalvia | Gastropoda | Polyplacophora | Scaphopoda | Other |
|----------|----------|------------|----------------|------------|-------|
| A10-2013 | 4        | 36         | -              | -          | -     |
| A3-2014  | 26       | 34         | 1              | 1          | 6     |
| D4-2014  | 12       | 14         | -              | -          | -     |
| TL2-2014 | 9        | 6          | 2              | 1          | 3     |
| A2-2015  | 19       | 31         | -              | -          | -     |
| D2-2015  | 6        | 12         | -              | -          | -     |

## Remarks concerning certain species

### Bivalvia

The ***Astarte* complex (*Astartidae*)** is quite complicated due to diverging opinions of authors and contradictory iconographies in the literature. We decided to follow the opinion of Huber (2010: 650). When discussing *A. crenata* he wrote: "*Following Dall and European authors, the NW Atlantic subaequilatera and the NE Atlantic crebricostata are here separated as valid species. From the material seen so far, the Iceland specimens are perceived to represent*

subaequilatera, but not true crenata and not crebricostata.” A plate with all Icelandic Astartidae is here illustrated for clarification (Figure 2).



Figure 2. *Astarte* complex.

*Asperarca nodulosa* (Arcidae) was found attached to pieces of *Desmophyllum pertusum* (Hexacorallia - Caryophylliidae) on station A3-2014-23 (375–405 m) (Figure 3).

*Kellia suborbicularis* (Lasaeidae) was found in a tuft of *Tubularia indivisa* (Hydrozoa - Tubulariidae) on station D2-2015-5 (170–142 m) (Figure 3).

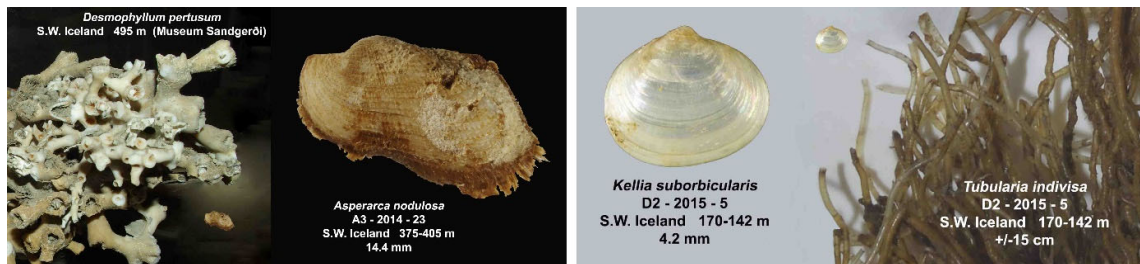


Figure 3. *Asperarca nodulosa* found on the coral *Desmophyllum pertusum* (left). *Kellia suborbicularis* found on the hydrozoid *Tubularia indivisa* (right).

*Delectopecten vitreus* (Pectinidae) was attached to a hard sponge (Porifera sp.) at station A10-2013-538 (1330–1312 m) (Figure 4).

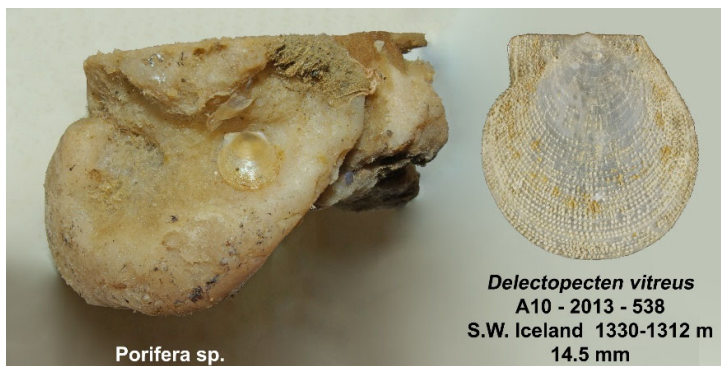


Figure 4. *Delectopecten vitreus* attached to sponge

*Heteranomia squamula* (Anomiidae) was present on a large number of bivalves (*Acesta* a.o.), gastropods (*Neptunea* a.o.) and other shells coming from roughly all collecting stations. Most of them were not reported, the occurrence on the map is consequently not representative (Figure 5).



Figure 5. *Heteranomia squamula* found on *Acesta excavata*.

*Idas* cf. *cylindricus* (Mytilidae) (Figure 6) was found fixed by its byssus on a toothed whale bone. Five specimens were collected at station D4-2014-53 (188–211 m). This find was described in further detail in DeLongueville & Scaillet (2019). All species of the *Idas* group are always found on fatty cetacean bones. A recent publication on the taxonomy of the genus *Idas*, based on analysis of the bibliography and the application of the ICZN (International Commission on Zoological Nomenclature) advice, suggested that the genus *Idas* Jeffreys 1876 should be replaced by *Idasola* Iredale, 1915 (Mietto et al., 2019).



Figure 6. *Idas* cf. *cylindricus* found attached to toothed whale bone.

*Musculus laevigatus* (Mytilidae) (Figure 7) is not accepted as a valid scientific name in WoRMS, where it is considered as a synonym of *Musculus discors*. Nevertheless, we prefer to use both names because of the phenotypes of the shell (smooth and striated posterior end, large and small size respectively). Some questions regarding the classification are yet unanswered, and the discussion remains open, as this taxonomic update from WoRMS underlines: “There has been quite a lot of discussion about the systematics and nomenclature

of *M. discors*, especially concerning the status of *Mytilus discors* Linnaeus, 1767 s.s., *Modiola laevigata* Gray, 1824, *Modiola substriata* Gray, 1824 and *Modiolaria corrugata* Stimpson, 1851. Sometimes, all these forms are considered as independent species. But frequently, one or more of these species could be seen as a variety or a subspecies, especially *Musculus discors*. Until now, there is no good solution for this problem. “

(<http://www.marinespecies.org/aphia.php?p=taxdetails&id=140472> 13.02.2021).

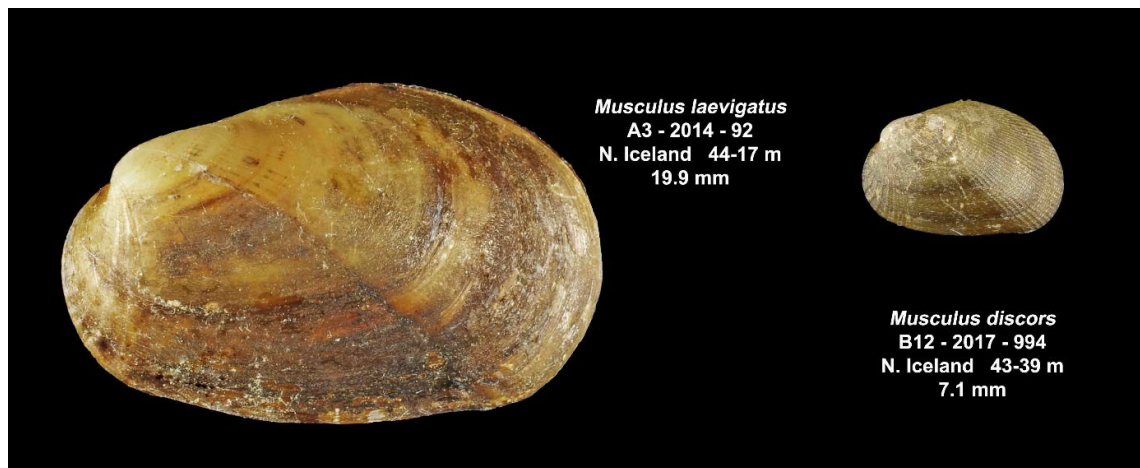


Figure 7. *Musculus laevigatus* and *Musculus discors*.

**Teredinidae.** A piece of sunken wood bored by **Teredinidae** (calcareous tubes present) found at station D4-2014-53 (S.W. Iceland 188–211 m) did not reveal the presence of any piece of valves or pallets enabling identification of the boring bivalve and was reported as such: **Teredinidae**. In this report, **Teredinidae** species are not reported on maps.

## Gastropoda

**Buccinidae** is the most abundant family (in biomass and number of species) present in the MFRI trawls. It is a challenge to identify specimens belonging to some genera within this family due to the huge number of synonyms or different names and iconography published thorough the centuries. All identifications were discussed with Koen Fraussen, Belgian world specialist on this family.

In particular, it can be quite difficult to identify specimens belonging to the genus *Buccinum* to a species level and most specialists agree that a revision would be necessary. Intraspecific variations are so frequent that some specimens collected are only provisionally assigned to a species name. It is therefore important to obtain more samples to refine the determinations, pending a more complete revision.

For example, one specimen of *Buccinum* sp. collected at station A10-2013-593 is not yet determined to species despite the shell being in a good condition. Also, some very light-coloured empty shells of the “*Buccinum finmarkianum*-type” found at station TL2-2014-78 (1216–1281 m) are tentatively assigned to *Buccinum kjennerudae* (Figure 8).

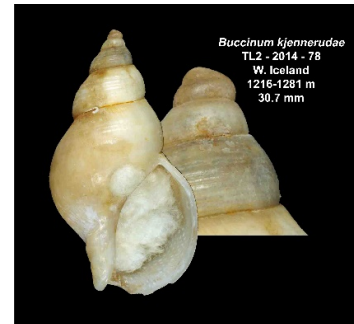


Figure 8. *Buccinum kjennerudae*

Among the specimens of *Neptunea despecta* caught, the majority is represented by the form *forficata* (Figure 9, left) which is quite typical for Icelandic waters. Nevertheless, two specimens of deeper water (called special forms in the report) from station A10-2013-593 (315–304 m) and A10-2013-618 (563–671 m) (Figure 9, right) do not correspond to the typical Icelandic *N. despecta* (absence of strong vertical folds). Some authors consider that *N. despecta forficata* could be a separated species.

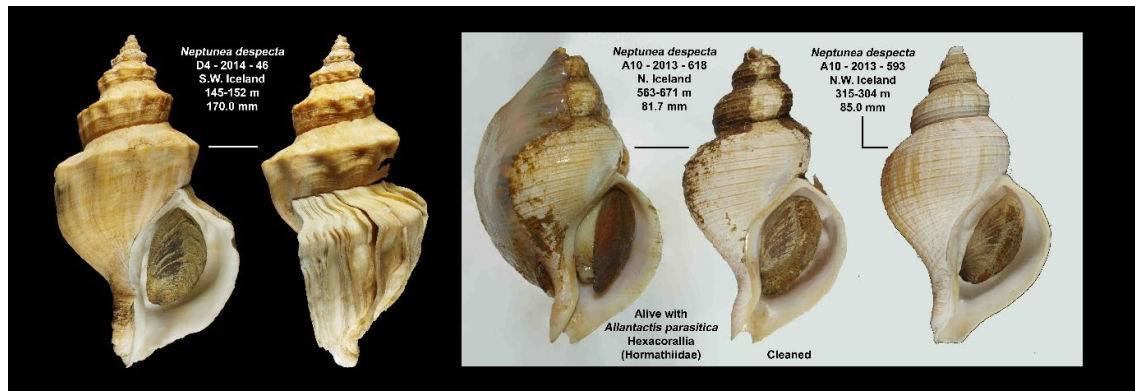


Figure 9. *Neptunea despecta* form *forficata* (left) and the special form less typical for Icelandic waters (right).

*Beringius turtoni* and *Beringius ossiania* are today considered as the same species despite their quite different external aspect. The specimen collected at station A3-2014-71 (190–207 m) (Figure 10, left) corresponds to the *turtoni* form and the specimen collected at station A10-2013-677 (575–544 m) (Figure 10, right) to the *ossiania* form.

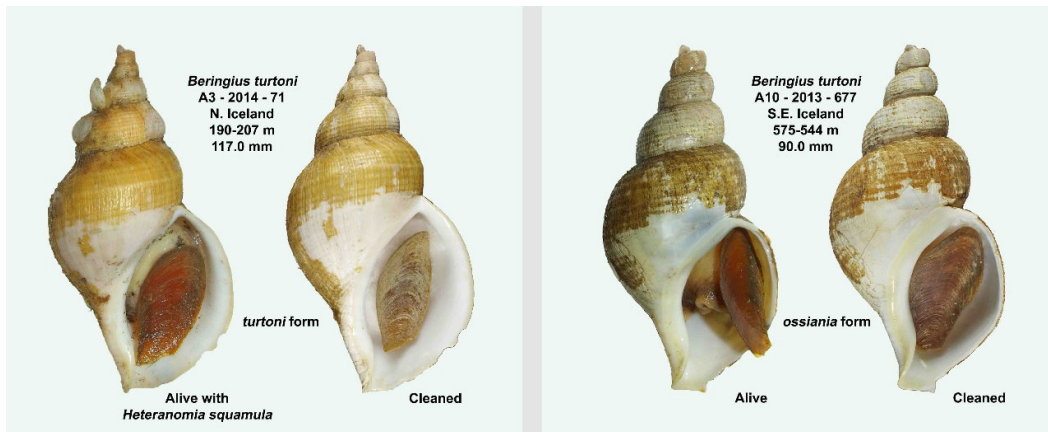


Figure 10. *Beringius turtoni* - *turtoni* form (left) and *ossiania* form (right).

For the specimens belonging to the genus *Colus* we prefer the name ***Colus glaber*** for the Icelandic specimens rather than *Colus gracilis* (da Costa, 1778) which is the accepted scientific name in the WoRMS registry. *Colus glaber* present in Iceland and in Norway have lesser convex whorls with finer and more numerous spiral riblets compared to the traditional form of *Colus gracilis*. It was “probably” synonymised with *Colus gracilis* by Fretter & Graham (1984) and all “forms” are described in Bouchet & Warén (1985: 228). Variations of profile and sculpture in specimens from Iceland, Faroe Islands and Celtic Sea are illustrated (Figure 11). The shells found in Iceland correspond to the “form” *glaber*. The “form” *gracilis* was not found in the surveys despite the mention of Óskarsson (1982). Perhaps DNA comparisons could solve this synonymy.

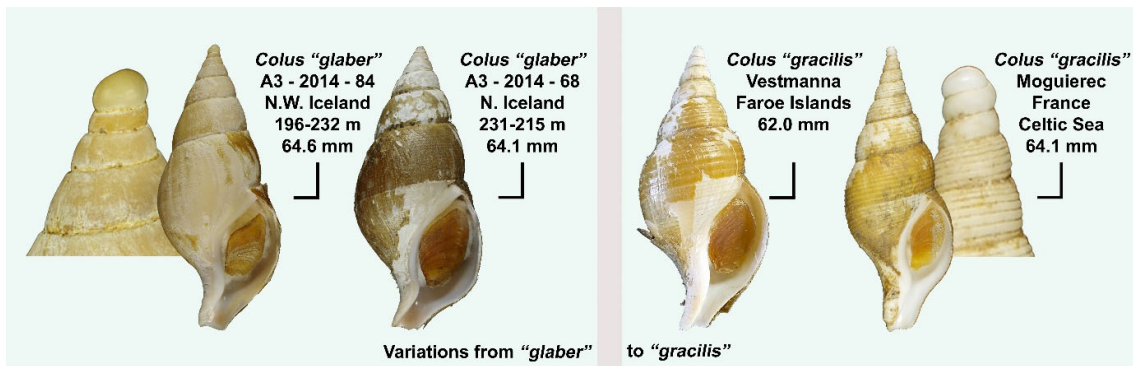


Figure 11. Variations from *Colus glaber* to *Colus gracilis*.

In WoRMS the two following species are considered as synonyms: ***Buccinum nivale*** Friele, 1882 and ***Buccinum alicei*** Dautzenberg & Fischer, 1912 with the name *B. nivale* registered as the accepted version. Nevertheless, we notice some discrepancies in the original description of these two species (Figure 12). *B. nivale* has a smooth periostracum (Friele 1882:32) while

*B. alicei* has a setosous (velvet) periostracum (Dautzenberg & Fisher 1912: 136). More material needs to be collected to definitively decide if this is a single or two different species. In this report we report them as two separated species.

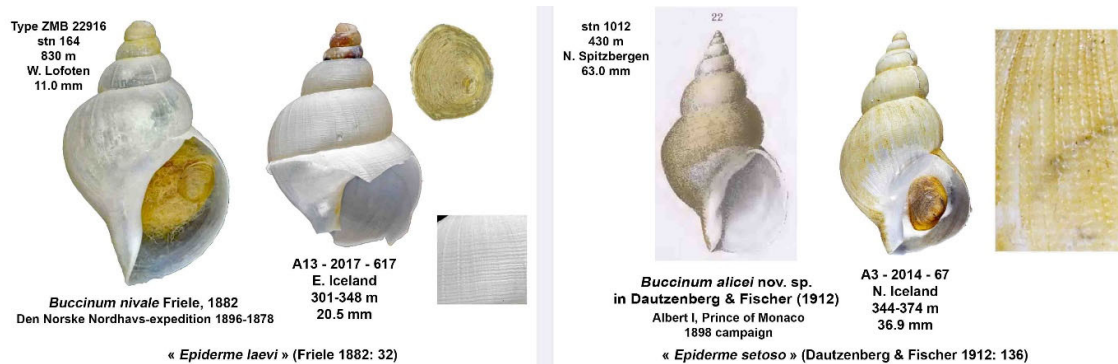


Figure 12. *Buccinum nivale* (left) and *Buccinum alicei* (right).

*Haliella stenostoma* (Eulimidae) was found alive among the gizzard plates of a *Scaphander lignarius* (Scaphandridae) at station A3-2014-47 (249–251 m) (Figure 13). The specimen was still bearing its operculum. This illustrates part of a trophic chain: a large mollusc eating a smaller one (Delongueville & Scaillet 2014).

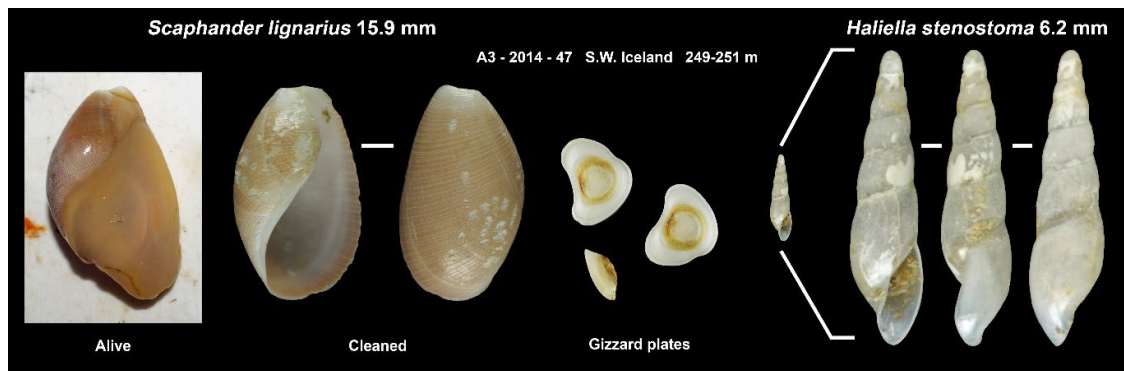


Figure 13. *Scaphander lignarius* and *Haliella stenostoma* that was found among the gizzard plates of the former species.

Three specimens of *Propebela* sp. (Mangeliidae) were found alive at station A2-2015-90 (371–341 m) and a fourth in a haddock stomach (empty specimen) at station A2-2015-53 (112–107 m). The latter was subsequently attributed to *P. nobilis*. One specimen from station A2-2015-90 (sp. 1) shows affinities with *P. exarata* (profile, number of axial ribs), while the last two (sp. 2 and sp. 3) also show characters relating them to *P. nobilis* (fewer axial ribs). They are reported as *Propebela* sp. (Figure 14). This illustrates the difficulty in determining Mangeliidae of the North Atlantic and the need to obtain more intact specimens to validate differences between species and to evaluate intraspecific variations. This genus is not reported here in the maps.



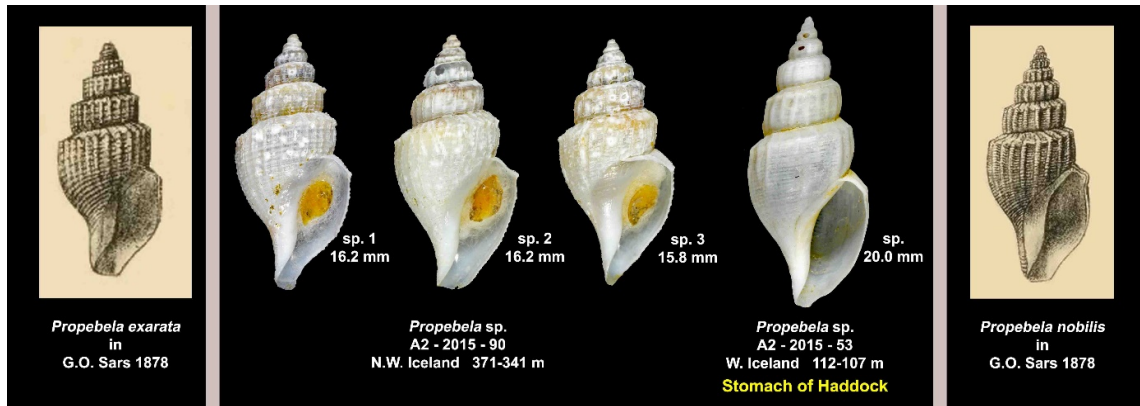


Figure 14. *Propebela exarata* (left), *Propebela* spp. (middle) and *Propebela nobilis* (right).

A specimen of Naticidae completely crushed except for the calcareous operculum, reported as *Cryptonatica* sp in the station A10-2013-627 (358–347 m) does not appear on the maps.

## Associations

**Fish stomach contents** [*Anarhichas* (wolffish), *Hippoglossoides platessoides* (long rough dab) and *Melanogrammus aeglefinus* (haddock)] were of great interest, enabling access to very small species of Bivalvia such as: *Nuculana pernula*, *Bathyarca pectunculoides*, *Dacrydium ockelmanni*, *Similipecten similis*, *Palliolum tigrinum*, *Limatula gwyni*, *Thyasira obsoleta*, *Tellimya tenella*, *Timoclea ovata*, *Abra prismatica*, *Abra nitida* (Figure 15) and Gastropoda such as: *Euspira montagui*, *Boreotrophon clathratus*, *Boreotrophon truncatus*, *Volutomitra groenlandica*, *Scaphander punctostriatus*, *Laona quadrata*, *Hermania scabra*, (Figure 16), *Propebela* sp. and *Antalis entalis* of the Scaphopoda.



Figure 15. Small Bivalvia species collected in fish stomachs.

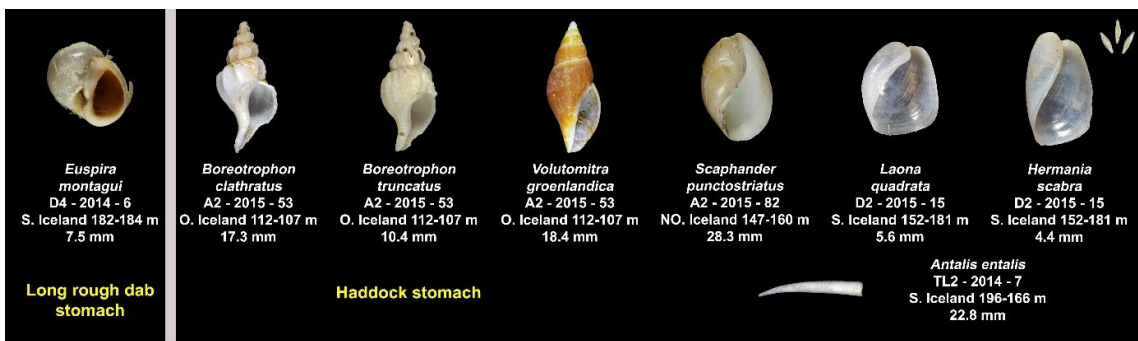


Figure 16. Small Gastropoda and Scaphopoda species collected in fish stomachs.

Three samples of sweep ups from stations A3-2014-23, 39 and 40 (375–405 m, 205–154 m, 210–215 m respectively) were also of major interest because independent of the mesh size of the nets, the specimens were protected by a mass effect.

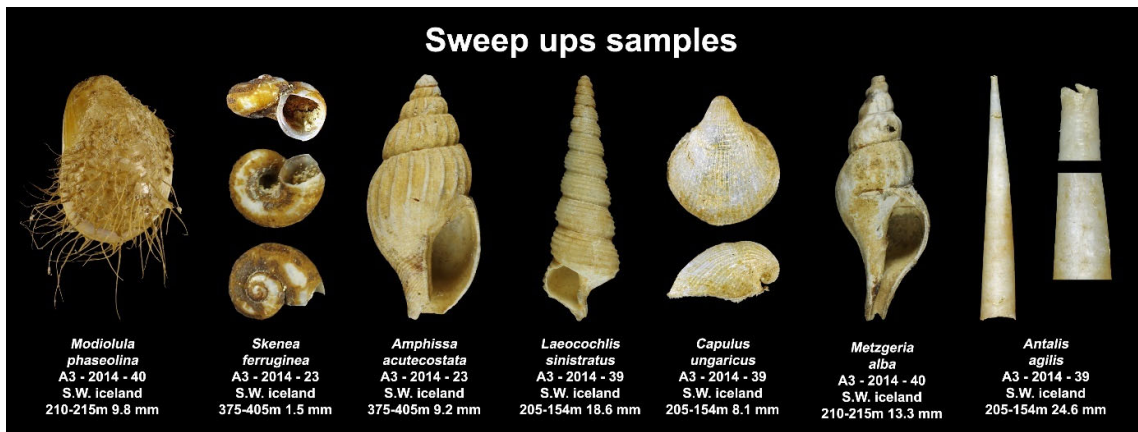


Figure 17. Specimens collected in sweep ups.

Bivalvia collected in sweep ups were: *Asperarca noduloda*, *Heteranomia squamula*, *Modiolula phaseolina*, *Delectopecten vitreus*, *Palliolum striatum*, *Palliolum tigrinum*, *Astarte subaequilatera*, *Parvicardium minimum* and *Hiatella arctica*.

Gastropods collected were: *Skenea ferruginea*, *Laecochlis sinistrata*, *Capulus ungaricus*, *Amphissa acutecostata*, *Metzgeria alba* and *Scaphander lignarius*.

One specimen of *Antalis agilis* (Scaphopoda) was also present. Some of these shells are illustrated in Figure 17.

## Polyplacophora

*Hanleya nagelfar* and *Hanleya hanleyi* (Hanleyidae) (Figure 18) are reported here as two separated species. *H. nagelfar* is a sponge-feeder of large size (up to 8 cm) living in northern deep-waters. At stations TL2-2014-38 (1048–1024 m) and TL2-2014-67 (1098–1046 m), it was found together with a large piece of sponge. *H. hanleyi* is of smaller size (up to 2 cm), mainly found in Iceland on white coral (*Desmophyllum pertusum* a.o.) up to shallow waters. It has also a larger southern geographic distribution. Recently, Sirenko et al. (2016) disputed these ecological factors as discriminatory elements and put the two species in synonymy.

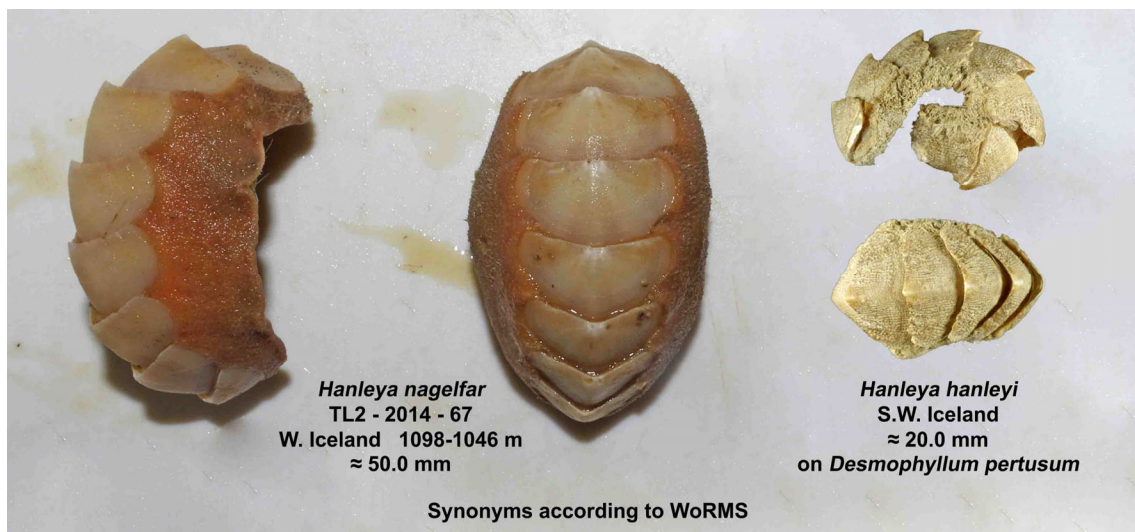


Figure 18. *Hanleya nagelfar* and *Hanleya hanleyi*.

Another Polyplacophora, *Boreochiton ruber* (Tonicellidae) was found within a weed holdfast at station A3-2014-92 (44–17 m).

## Other specimens collected

Three species of Brachiopoda were identified: *Macandrevia cranium*, *Terebratulina retusa* (Figure 19) and *Novocrania anomala*. In addition, the scaphopod-like annelid tubes: *Ditrupa arietina* (Annelida), the barnacle *Chirona hameri* (Cirripedia) and the hydrozoan *Tubularia indivisa* (Cnidaria) were identified.

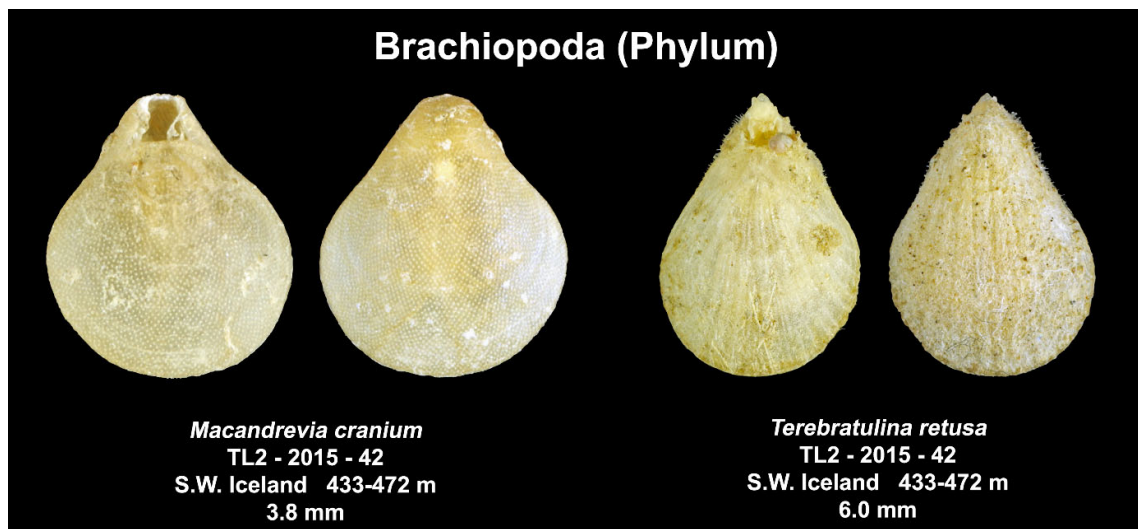


Figure 19. *Macandrevia cranium* and *Terebratulina retusa* belonging to Brachiopoda.

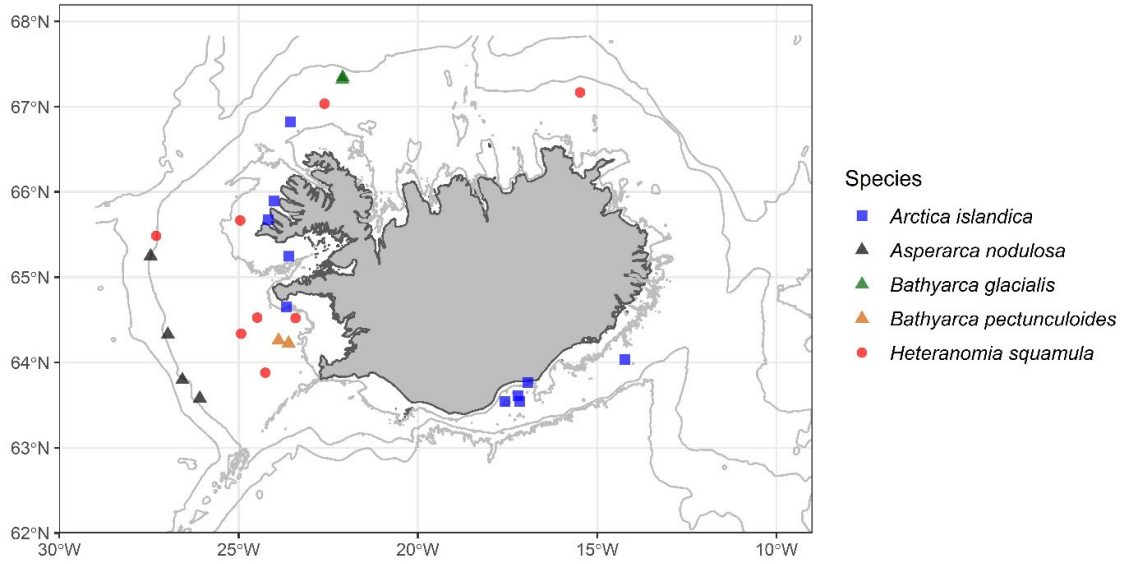
A table with the full names of all molluscs identified, along with the comparative vernacular and scientific names published in Óskarsson (1982), is presented in Appendix 1.

## Maps showing species occurrences

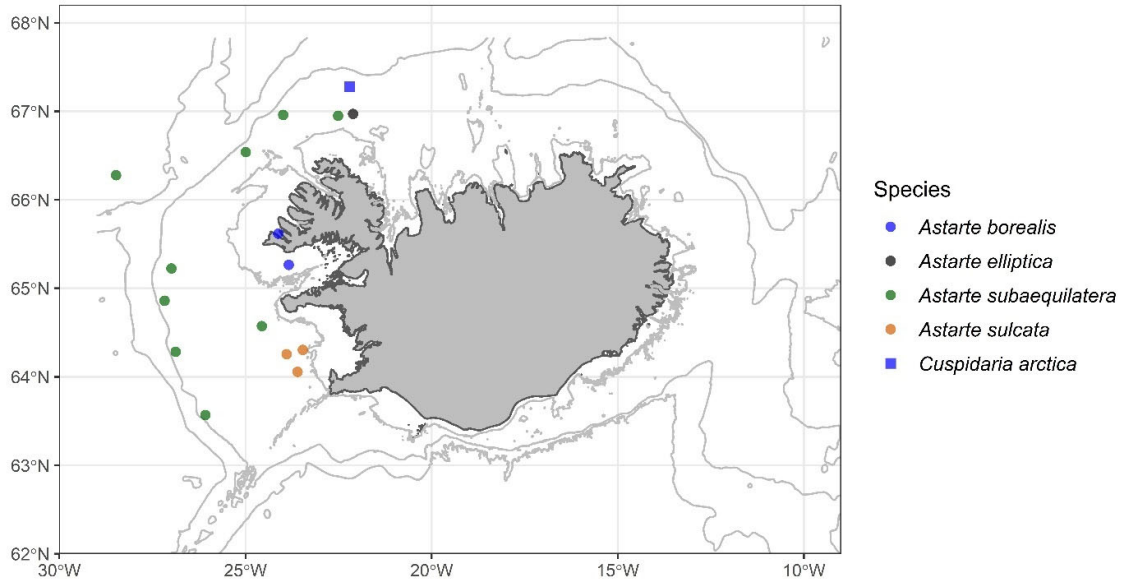
### Bivalvia

The occurrences of Bivalvia for each of the 46 species within the 22 families is shown in Figure 20 (nine maps).

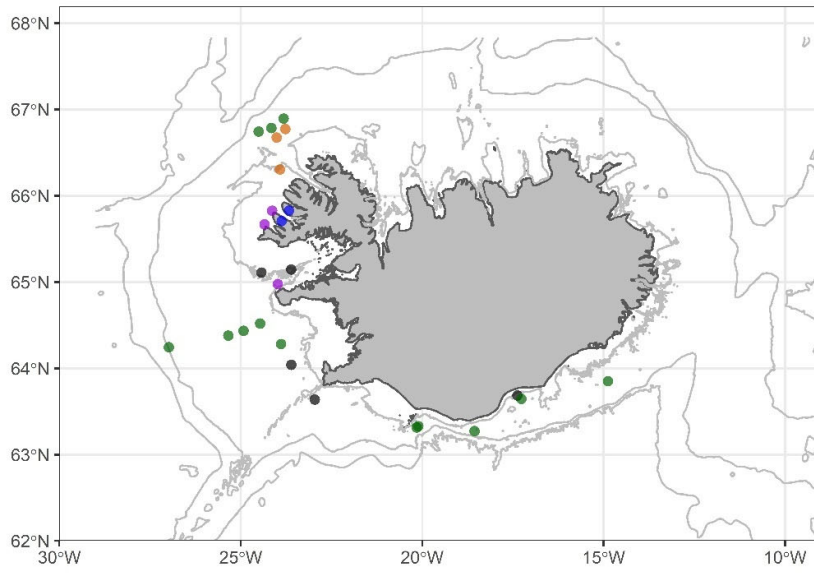
Family Anomiidae (dot), Arcidae (triangle), Arctiidae (box)



Family Astartidae (dot), Cuspidariidae (box)



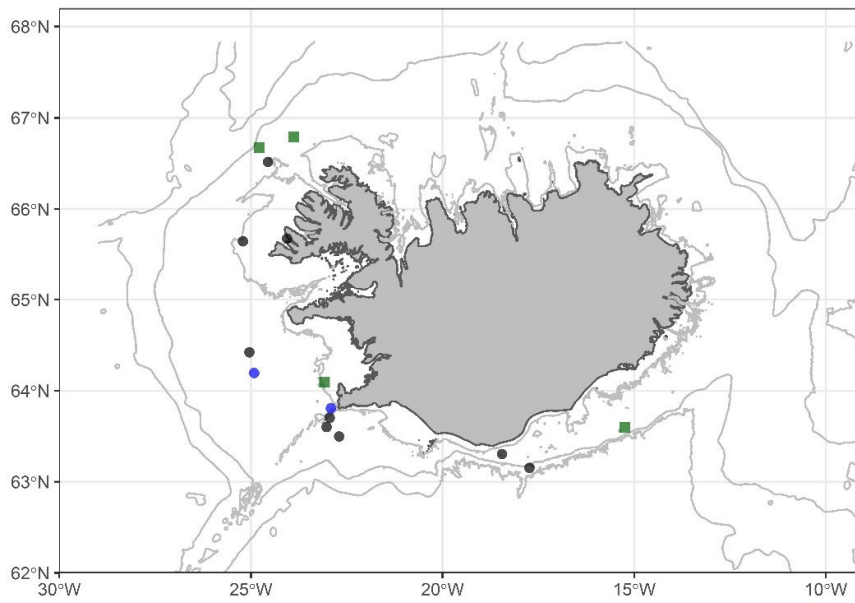
Family Cardiidae



Species

- *Acanthocardia echinata*
- *Ciliatocardium ciliatum*
- *Parvicardium minimum*
- *Parvicardium pinnulatum*
- *Serripes groenlandicus*

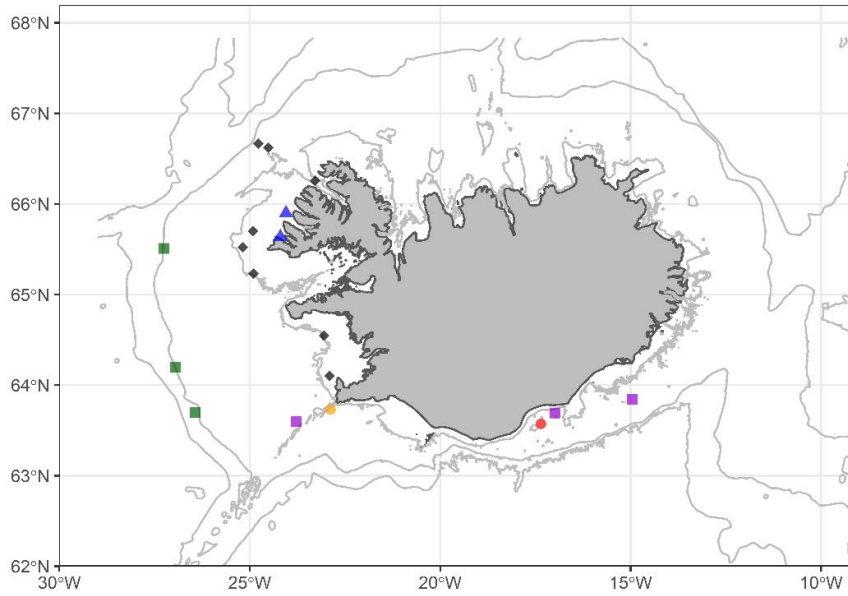
Family Hiatellidae (dot), Veneridae (box)



Species

- *Hiatella arctica*
- *Panomya norvegica*
- *Timoclea ovata*

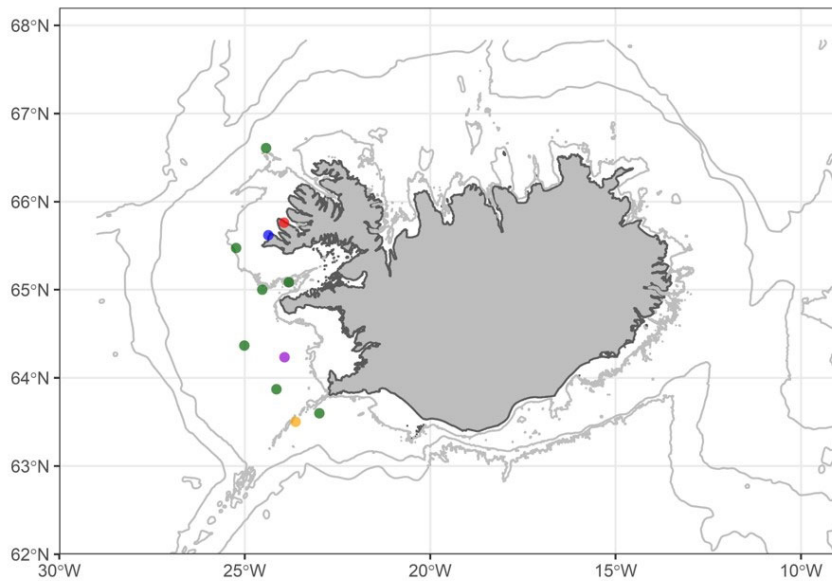
Family Lasaeidae (dot), Limidae (box), Mactridae (diamond), Myidae (triangle)



Species

- *Acesta excavata*
- *Kellia suborbicularis*
- *Limatula gwyni*
- ▲ *Mya pseudoarenaria*
- ◆ *Spisula elliptica*
- *Tellimya tenella*

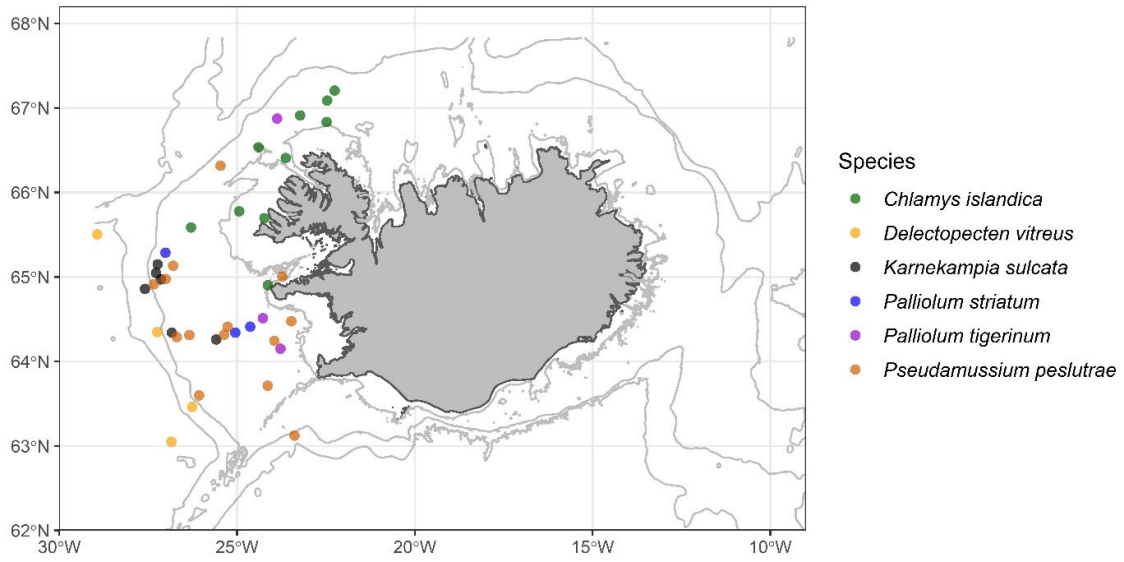
Family Mytilidae



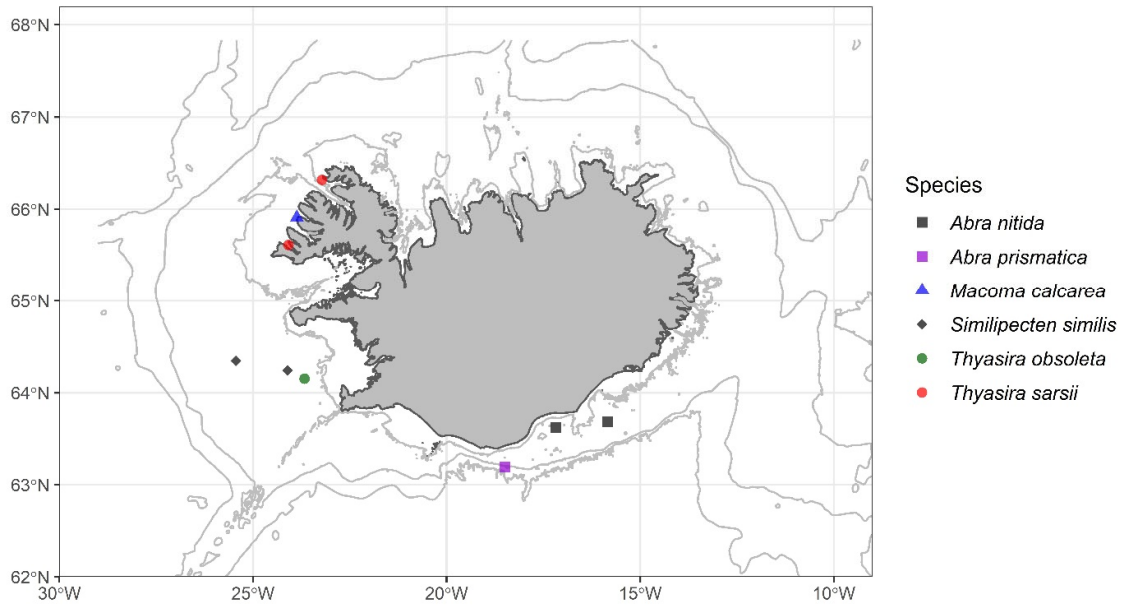
Species

- *Dacrydium ockelmanni*
- *Idas cylindricus* (cf.)
- *Modiolula phaseolina*
- *Modiolus modiolus*
- *Musculus laevigatus*

Family Pectinidae



Family Propeamussiidae (diamond), Semelidae (box), Tellinidae (triangle), Thyasiridae (dot)





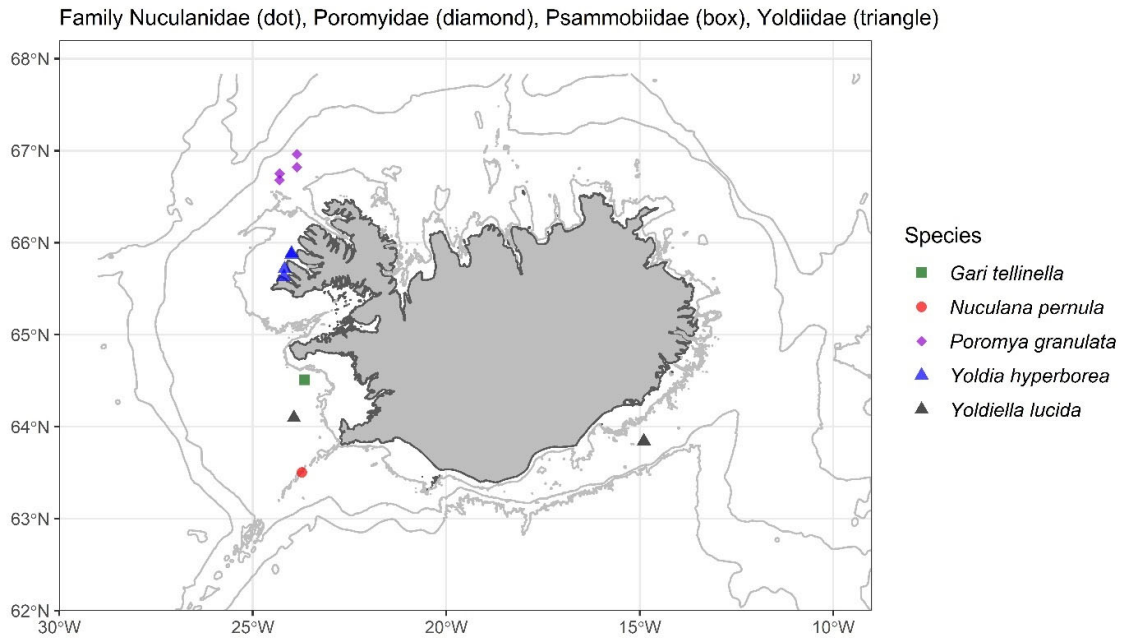
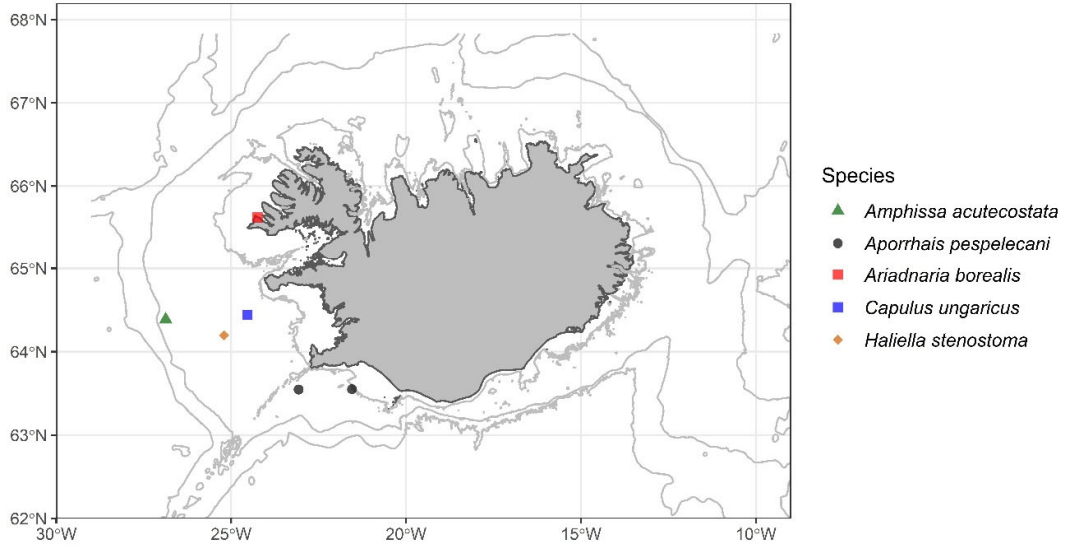


Figure 20. Maps showing the occurrences of the 46 Bivalvia species within the 22 families collected in the six surveys in 2013 – 2015.

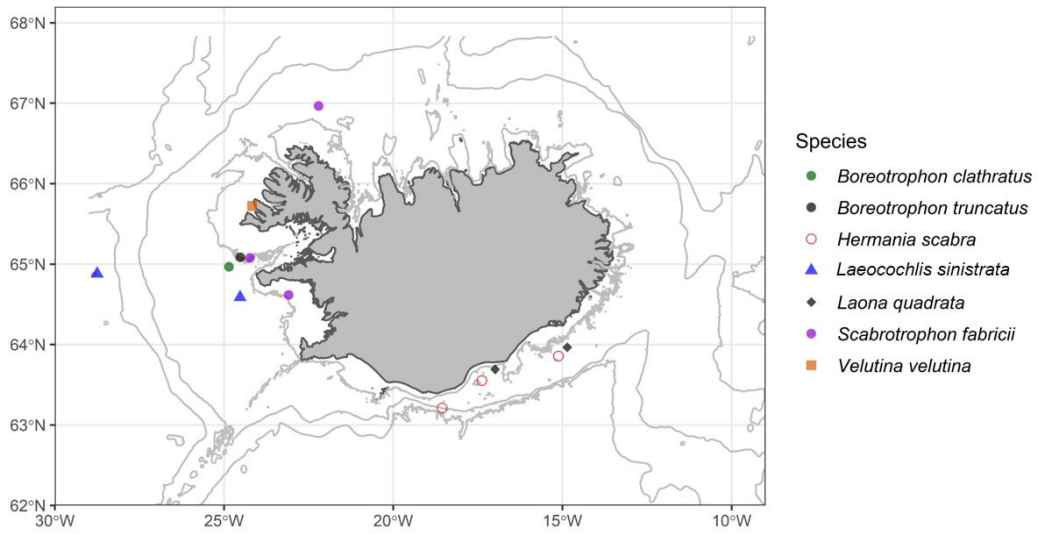
## Gastropoda

A total of 45 species belonging to 17 families of Gastropoda were found around Iceland in the six surveys in 2013-2015 (table 1., Figure 21 and 22). The occurrences of 24 species belonging to 16 families is shown in Figure 21 (4 maps). The occurrences of the 21 species belonging to the family Buccinidae is shown in Figure 23 (6 maps).

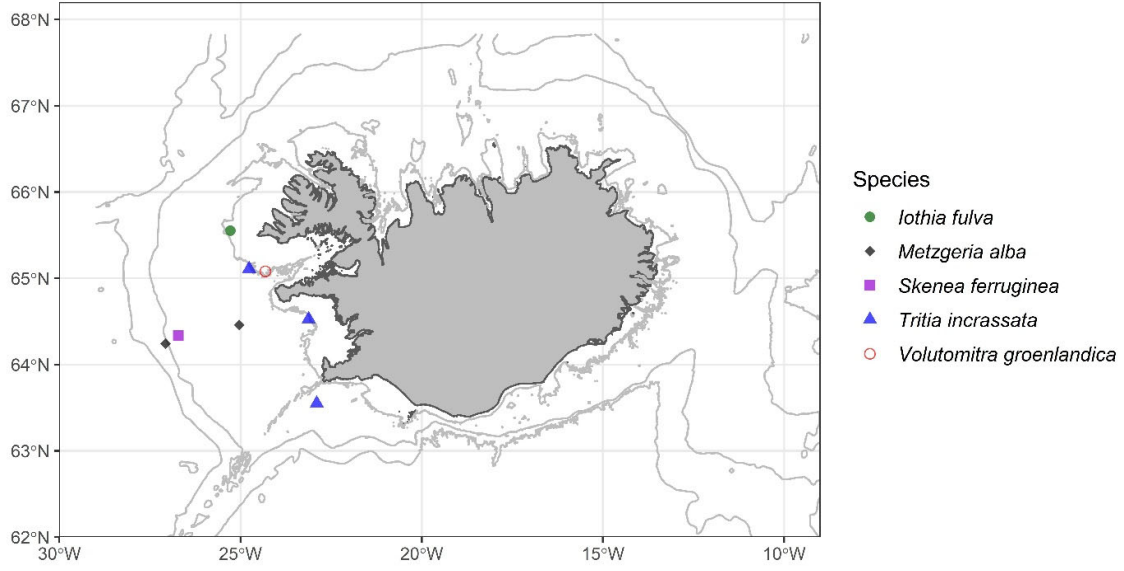
Family Aporrhaidae (dot), Capulidae (box), Columbelloidae (triangle), Eulimidae (diamond)



Family Laonidae (diamond), Muricidae (dot), Newtoniellidae (triangle), Philinidae (open circle), Velutinidae (box)



Family Lepetidae (dot), Nassariidae (triangle), Ptychactridae (diamond), Skeneidae (box), Volutomitridae (open circle)



Family Naticidae (dot), Scaphandridae (box)

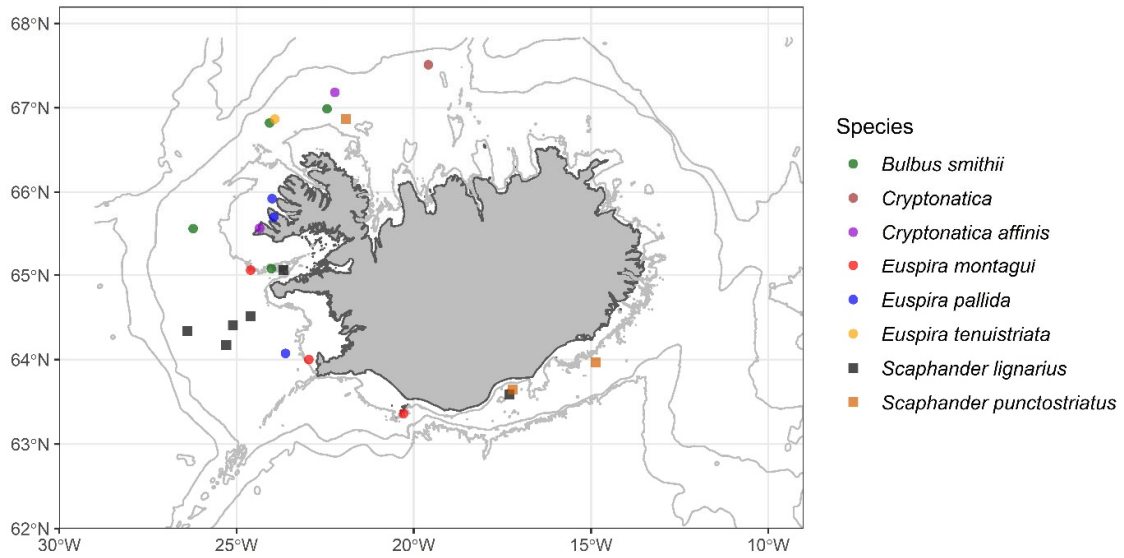
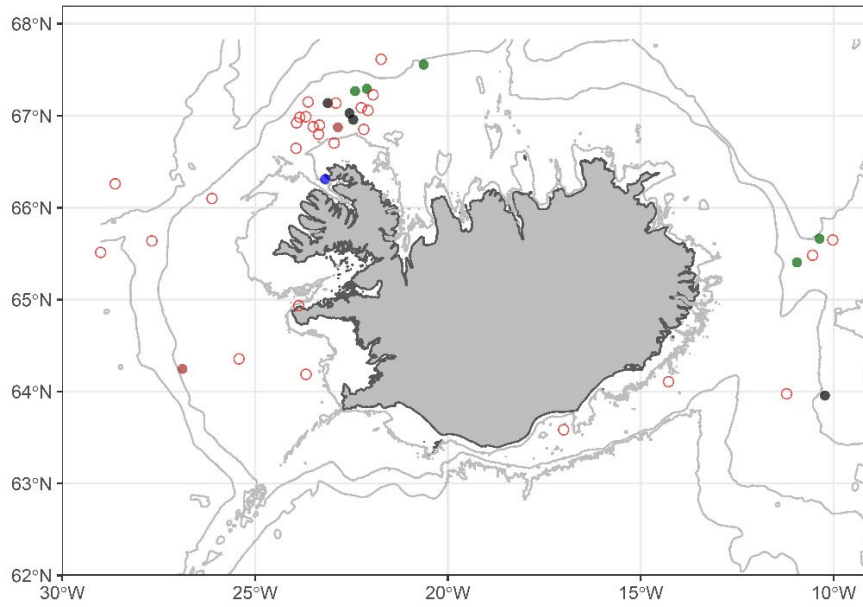


Figure 21. Maps showing the occurrences of the 24 species belonging to 16 families of Gastropoda collected in the six surveys in 2013 – 2015.

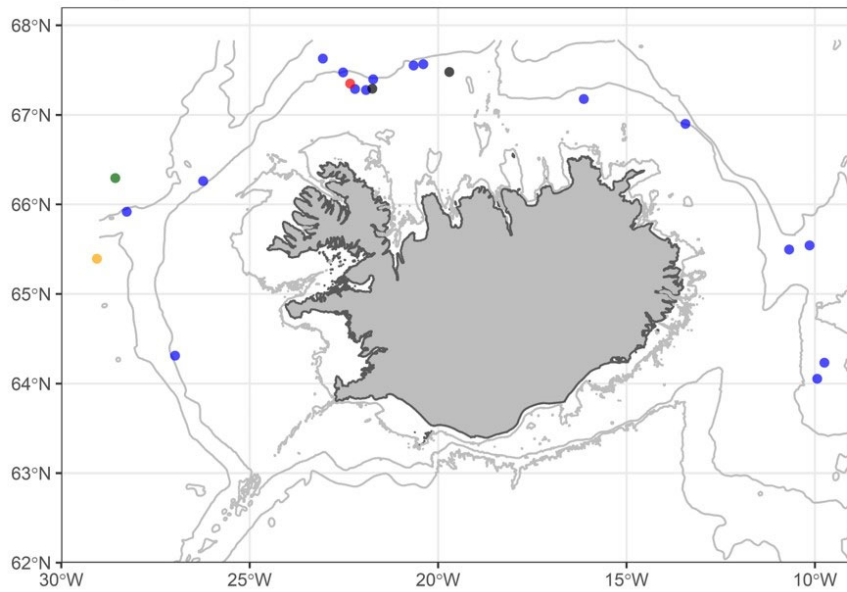
Family Buccinidae



Species

- *Anomalisipho virgata*
- *Beringius turtoni*
- *Liomesus ovum*
- *Retifusus latericeus*
- *Volutopsius norwegicus*

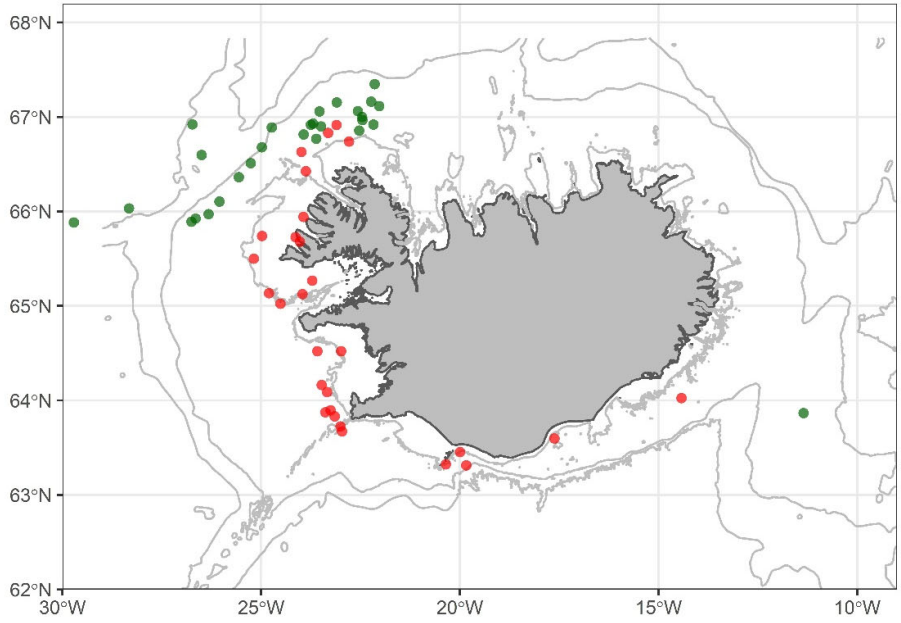
Family Buccinidae



Species

- *Buccinum species*
- *Buccinum alicei*
- *Buccinum hydrophanum*
- *Buccinum kjennerudae*
- *Buccinum nivale*

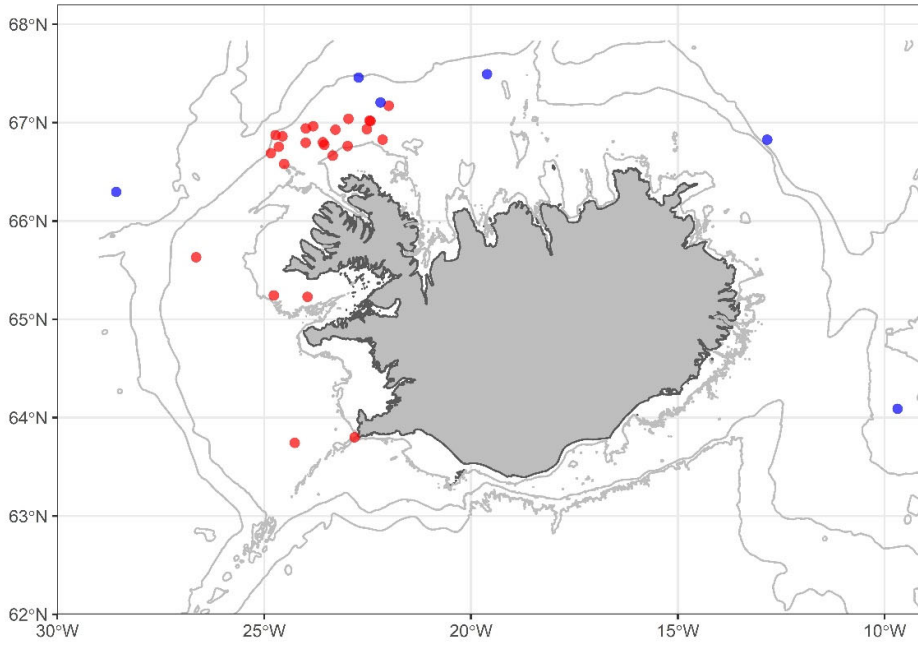
Family Buccinidae



Species

- *Buccinum finmarkianum*
- *Buccinum undatum*

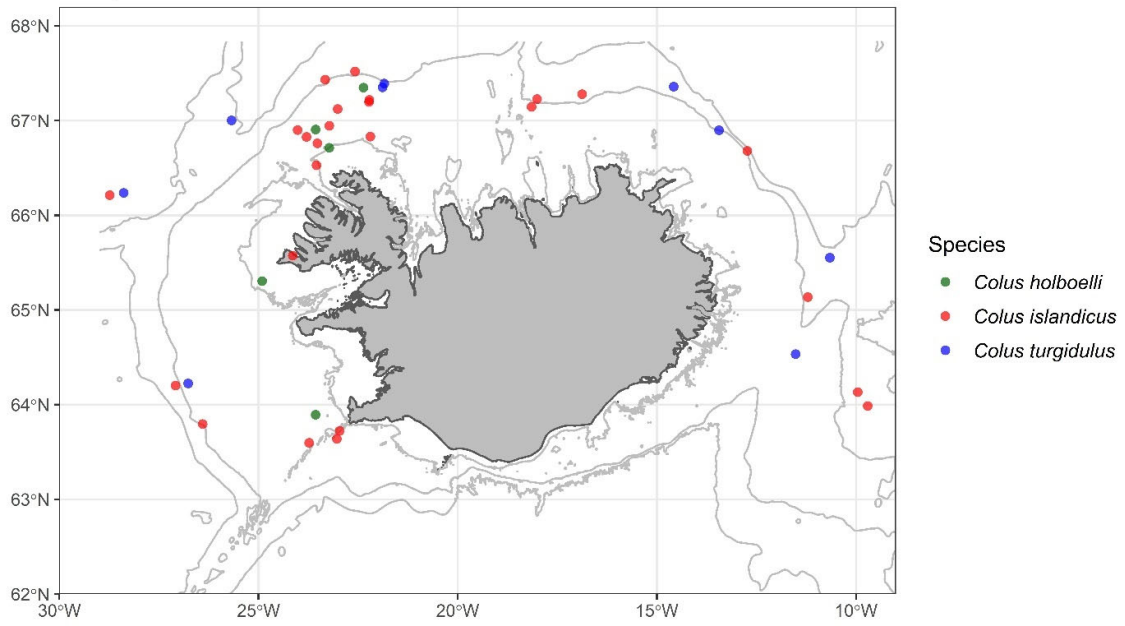
Family Buccinidae



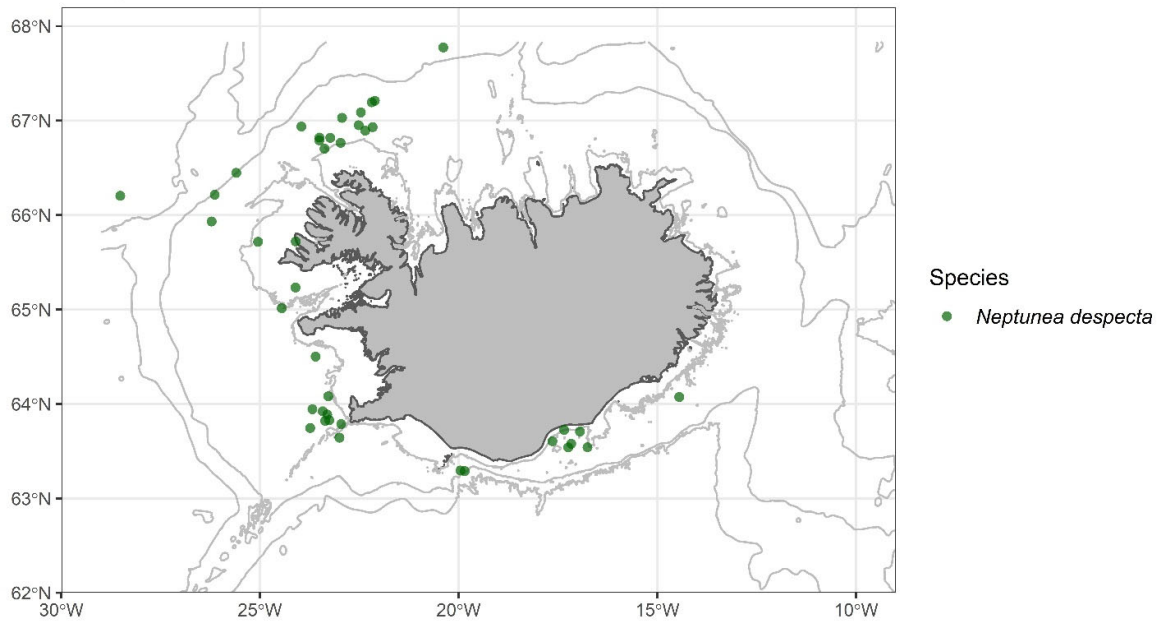
Species

- *Colus glaber*
- *Colus sabini*

Family Buccinidae



Family Buccinidae



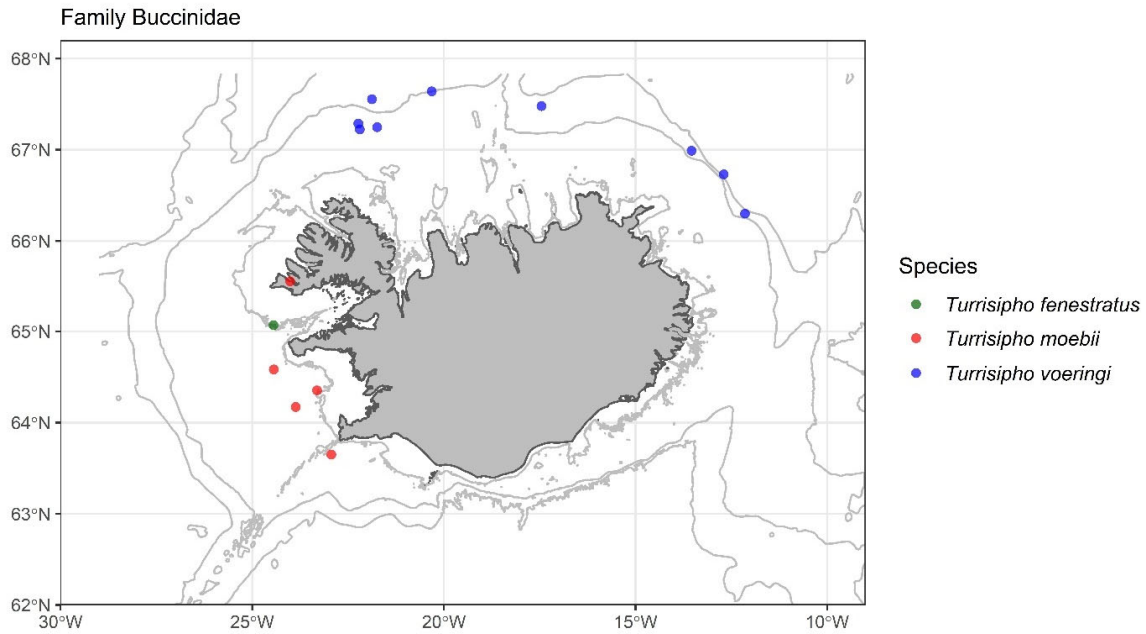


Figure 22. Maps showing the occurrences of the 21 species belonging to the family Buccinidae collected in the six surveys in 2013 – 2015.

## Polyplacophora and Scaphopoda

The two species of the Polyplacophora were collected at three stations in two surveys and the two species of Scaphopoda were collected at two stations in the same surveys (Table 2, Figure 23).

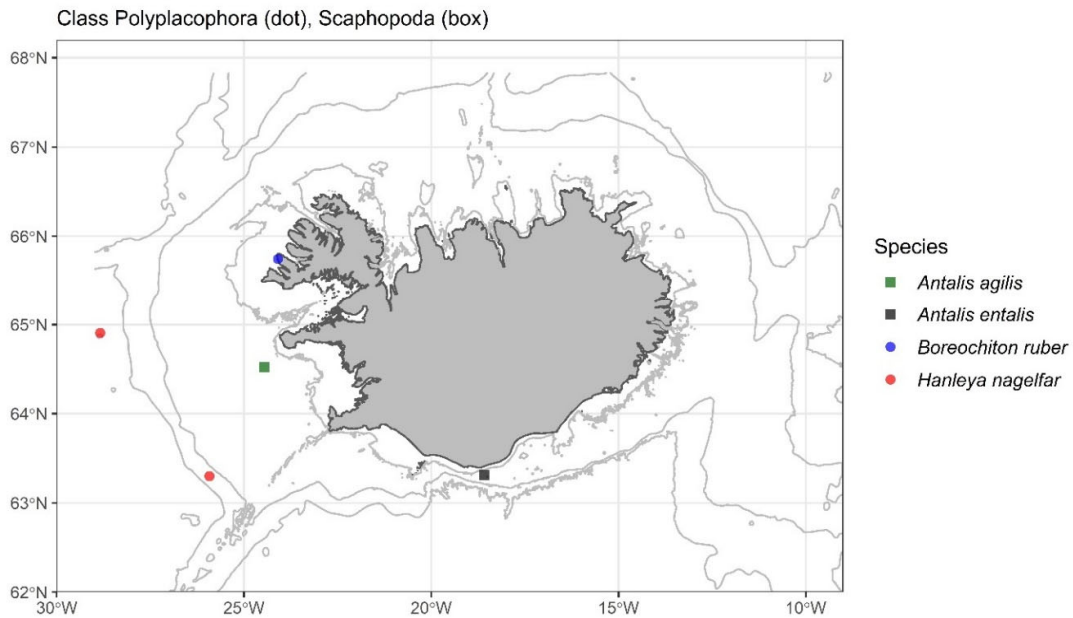


Figure 23. Map showing the occurrences of the four species collected belonging to class Polyplacophora and class Scaphopoda in the six surveys in 2013 – 2015.

## Discussion

This report includes the findings of Mollusca specimens collected opportunistically during six fisheries surveys around Iceland. It does not represent a total list of species found in these tows or all stations sampled in the surveys. As the sampling was not conducted systematically, and the sampling method was not designed to sample small invertebrates, the data represents only species-presence. However, the number of species of Bivalvia and small Gastropoda was higher than foreseen due to analysis of fish stomach content and specimens associated with sweep ups. Samples were collected from various surfaces, such as whale bone, wood, sponge or coral.

## Conclusion

To obtain the most precise possible overview of the Icelandic malacofauna all possible ecological niches must be investigated. Doing so could answer many unsolved questions regarding habitats and feeding habits of Icelandic molluscs.

## Acknowledgments

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**Appendix 1.** List of mollusc species (Bivalvia, Gastropoda, Scaphopoda and Polyplacophora) collected in Iceland during six groundfish and *Nephrops* surveys in 2013-2015, along with corresponding Icelandic vernacular names presented in Óskarsson (1982).

| Systematic classification | Bivalvia              |                        |                           | Óskarsson's classification | Bivalvia                           |                      |
|---------------------------|-----------------------|------------------------|---------------------------|----------------------------|------------------------------------|----------------------|
| Family                    | Genus                 | species                | Authors                   | Genus                      | species                            | Islandic names       |
| Nuculidae                 | <i>Nuculana</i>       | <i>pernula</i>         | (O.F. Müller, 1779)       | <i>Leda</i>                | <i>pernula</i>                     | Trönuskel            |
| Yoldiidae                 | <i>Yoldia</i>         | <i>hyperborea</i>      | (Gould, 1841)             | <i>Yoldia</i>              | <i>hyperborea</i>                  | Kolkuskel            |
|                           | <i>Yoldiella</i>      | <i>lucida</i>          | (Lovén, 1846)             | <i>Portlandia</i>          | <i>lucida</i>                      | Glittoda             |
| Arcidae                   | <i>Asperarca</i>      | <i>nodulosa</i>        | (O.F. Müller, 1776)       | <i>Arca</i>                | <i>nodulosus</i>                   | Vörtubirða           |
|                           | <i>Bathyarca</i>      | <i>glacialis</i>       | (Gray, 1824)              | <i>Arca</i>                | <i>glacialis</i>                   | Jökulbirða           |
|                           | <i>Bathyarca</i>      | <i>pectunculooides</i> | (Scacchi, 1835)           | <i>Arca</i>                | <i>pectunculooides</i>             | Hörpubirða           |
| Mytilidae                 | <i>Dacrydium</i>      | <i>ockelmanni</i>      | Mattson & Warén, 1997     | -                          | -                                  | -                    |
|                           | <i>Idas</i>           | cf <i>cylindricus</i>  | Pelorce & Poutiers, 2009  | -                          | -                                  | -                    |
|                           | <i>Modiolula</i>      | <i>phaseolina</i>      | (Philippi, 1844)          | <i>Modiola</i>             | <i>phaseolina</i>                  | Öðlingur             |
|                           | <i>Modiolus</i>       | <i>modiolus</i>        | (Linnaeus, 1758)          | <i>Modiola</i>             | <i>modiolus</i>                    | Aða eða öðuskel      |
|                           | <i>Musculus</i>       | <i>laevigatus</i>      | (J.E. Gray, 1824)         | <i>Modiolaria</i>          | <i>discors var laevigata</i>       | Silkihadda, afbrigði |
| Pectinidae                | <i>Chlamys</i>        | <i>islandica</i>       | (O.F. Müller, 1776)       | <i>Pecten</i>              | <i>islandicus</i>                  | Hörpudiskur          |
|                           | <i>Delectopecten</i>  | <i>vitreus</i>         | (Gmelin, 1791)            | <i>Pecten</i>              | <i>vitreus</i>                     | Glitdiskur           |
|                           | <i>Karnekampia</i>    | <i>sulcata</i>         | (O.F. Müller, 1776)       | <i>Pecten</i>              | <i>aratus</i>                      | Bárusdiskur          |
|                           | <i>Palliolum</i>      | <i>striatum</i>        | (O.F. Müller, 1776)       | <i>Pecten</i>              | <i>striatus</i>                    | Rákadiskur           |
|                           | <i>Palliolum</i>      | <i>tigerinum</i>       | (O.F. Müller, 1776)       | <i>Pecten</i>              | <i>tigerinus</i>                   | Flekkudiskur         |
|                           | <i>Pseudamussium</i>  | <i>peslutrae</i>       | (Linnaeus, 1771)          | <i>Pecten</i>              | <i>septemradiatus</i>              | Geisladiskur         |
| Propeamussiidae           | <i>Similipecten</i>   | <i>similis</i>         | (Laskey, 1811)            | <i>Pecten</i>              | <i>similis</i>                     | Kringludiskur        |
| Anomiidae                 | <i>Heteranomia</i>    | <i>squamula</i>        | (Linnaeus, 1758)          | <i>Anomia</i>              | <i>squamula</i>                    | Gluggaskel           |
| Limidae                   | <i>Acesta</i>         | <i>excavata</i>        | (J.C. Fabricius, 1779)    | <i>Lima</i>                | <i>excavata</i>                    | Ægisdrekkja          |
|                           | <i>Limatula</i>       | <i>gwyni</i>           | (Sykes, 1903)             | <i>Lima</i>                | <i>gwyni</i>                       | Njarðardrekkja       |
| Astartidae                | <i>Astarte</i>        | <i>borealis</i>        | (Schumacher, 1817)        | <i>Astarte</i>             | <i>borealis</i>                    | Gimburskel           |
|                           | <i>Astarte</i>        | <i>elliptica</i>       | (T. Brown, 1827)          | <i>Astarte</i>             | <i>elliptica</i>                   | Dorraskel            |
|                           | <i>Astarte</i>        | <i>subaequilatera</i>  | G.B. Sowerby II, 1854     | <i>Astarte</i>             | <i>crenata var. subaequilatera</i> | Færiskel             |
|                           | <i>Astarte</i>        | <i>sulcata</i>         | (da Costa, 1778)          | <i>Astarte</i>             | <i>sulcata</i>                     | Sauðaskel            |
| Thyasiridae               | <i>Thyasira</i>       | <i>obsoleta</i>        | (Verrill & Bush, 1898)    | -                          | -                                  | -                    |
|                           | <i>Thyasira</i>       | <i>sarsii</i>          | (Philippi, 1845)          | <i>Thyasira</i>            | <i>flexuosa var. sarsi</i>         | Hrukubúða, afbrigði  |
| Lasaeidae                 | <i>Kellia</i>         | <i>suborbicularis</i>  | (Montagu, 1803)           | <i>Kellia</i>              | <i>suborbicularis</i>              | Bugnisskel           |
|                           | <i>Tellimya</i>       | <i>tenella</i>         | (Lovén, 1846)             | -                          | -                                  | -                    |
| Cardiidae                 | <i>Acanthocardia</i>  | <i>echinata</i>        | (Linnaeus, 1758)          | <i>Cardium</i>             | <i>echinatum</i>                   | Ígulskel             |
|                           | <i>Ciliatocardium</i> | <i>ciliatum</i>        | (O. Fabricius, 1780)      | <i>Cardium</i>             | <i>ciliatum</i>                    | Báruskel             |
|                           | <i>Parvicardium</i>   | <i>minimum</i>         | (Philippi, 1836)          | <i>Cardium</i>             | <i>minimum</i>                     | Grýtuskel            |
|                           | <i>Parvicardium</i>   | <i>pinnulatum</i>      | (Conrad, 1831)            | <i>Cardium</i>             | <i>fasciatum</i>                   | Pétursskel           |
|                           | <i>Serripes</i>       | <i>groenlandicus</i>   | (Mohr, 1786)              | <i>Serripes</i>            | <i>groenlandicum</i>               | Krókskel             |
| Macluridae                | <i>Spisula</i>        | <i>elliptica</i>       | (T. Brown, 1827)          | <i>Spisula</i>             | <i>elliptica</i>                   | Tígulskel ?          |
| Tellinidae                | <i>Macoma</i>         | <i>calcareo</i>        | (Gmelin, 1791)            | <i>Macoma</i>              | <i>calcaria</i>                    | Halloka              |
| Psammobiidae              | <i>Gari</i>           | <i>tellinella</i>      | (Lamarck, 1818)           | <i>Psammobia</i>           | <i>tellinella</i>                  | Gliámeyla            |
| Semelidae                 | <i>Abra</i>           | <i>nitida</i>          | (O.F. Müller, 1776)       | <i>Abra</i>                | <i>nitida</i>                      | Lýsuskel             |
|                           | <i>Abra</i>           | <i>prismatica</i>      | (Montagu, 1808)           | <i>Abra</i>                | <i>prismatica</i>                  | Ýsuskel              |
| Arctidae                  | <i>Arctica</i>        | <i>islandica</i>       | (Linnaeus, 1767)          | <i>Cyprina</i>             | <i>islandica</i>                   | Kúfskel              |
| Veneridae                 | <i>Timoclea</i>       | <i>ovata</i>           | (Pennant, 1777)           | <i>Venus</i>               | <i>ovata</i>                       | Freyjuskel           |
| Myidae                    | <i>Mya</i>            | <i>pseudoarenaria</i>  | Schlesch, 1931            | <i>Mya</i>                 | <i>truncata ovata</i>              | Smyrslingur          |
| Hiatellidae               | <i>Hiatella</i>       | <i>arctica</i>         | (Linnaeus, 1767)          | <i>Saxicava</i>            | <i>arctica</i>                     | Rataskel             |
|                           | <i>Panomya</i>        | <i>norvegica</i>       | (Spengler, 1793)          | <i>Panopaea</i>            | <i>norvegica</i>                   | Redduskel            |
| Poromyidae                | <i>Poromya</i>        | <i>granulata</i>       | (Nyst & Westendorp, 1839) | <i>Poromya</i>             | <i>granulata</i>                   | Drafnarsskel         |
| Cuspidariidae             | <i>Cuspidaria</i>     | <i>arctica</i>         | (M. Sars, 1859)           | <i>Cuspidaria</i>          | <i>obesa var. arctica</i>          | Risakesja            |

| Systematic classification | Gastropoda           |                       |                                     | Óskarsson's classification | Gastropoda                      |                            |
|---------------------------|----------------------|-----------------------|-------------------------------------|----------------------------|---------------------------------|----------------------------|
| Family                    | Genus                | species               | Authors                             | Genus                      | species                         | Islandic names             |
| Lepetidae                 | <i>lothia</i>        | <i>fulva</i>          | (O.F. Müller, 1776)                 | <i>Pilidium</i>            | <i>fulvum</i>                   | Goðahetta                  |
| Skeneidae                 | <i>Skenea</i>        | <i>ferruginea</i>     | Warén, 1991                         | -                          | -                               | -                          |
| Newtoniellidae            | <i>Laecocochlis</i>  | <i>sinistrata</i>     | (Nyst, 1835)                        | <i>Laecocochlis</i>        | <i>granosa</i>                  | Döglingur                  |
| Eulimidae                 | <i>Haliella</i>      | <i>stenostoma</i>     | (Jeffreys, 1858)                    | <i>Melanella</i>           | <i>stenostoma</i>               | Gormlyngvi                 |
| Aporrhaidae               | <i>Aporrhais</i>     | <i>pespelecani</i>    | (Linnaeus, 1758)                    | <i>Aporrhais</i>           | <i>pespelecani</i>              | Vængbarði                  |
| Capulidae                 | <i>Ariadnaria</i>    | <i>borealis</i>       | (Broderip & G.B. Sowerby I, 1829)   | <i>Trichotropis</i>        | <i>borealis</i>                 | Barðakati                  |
|                           | <i>Capulus</i>       | <i>ungaricus</i>      | (Linnaeus, 1758)                    | <i>Capulus</i>             | <i>hungaricus</i>               | Hnýfiþobbi                 |
| Velutinidae               | <i>Velutina</i>      | <i>velutina</i>       | (O.F. Müller, 1776)                 | <i>Velutina</i>            | <i>velutina</i>                 | Hornkúfa                   |
| Naticidae                 | <i>Bulbus</i>        | <i>smithii</i>        | T. Brown, 1839                      | <i>Acrybia</i>             | <i>flava</i>                    | Ámupoppa                   |
|                           | <i>Cryptonatica</i>  | <i>affinis</i>        | (Gmelin, 1791)                      | <i>Natica</i>              | <i>clausa</i>                   | Meyjarpatta                |
|                           | <i>Euspira</i>       | <i>montagui</i>       | (Forbes, 1838)                      | <i>Lunatia</i>             | <i>montagui</i>                 | Beltispoppa                |
|                           | <i>Euspira</i>       | <i>pallida</i>        | (Broderip & G.B. Sowerby I, 1829)   | <i>Lunatia</i>             | <i>pallida</i>                  | Groenlandsþoppa            |
|                           | <i>Euspira</i>       | <i>tenuistriata</i>   | (Dautzenberg & H. Fischer, 1911)    | <i>Lunatia</i>             | <i>tenuistriata</i>             | Rákupoppa                  |
| Muricidae                 | <i>Boreotrophon</i>  | <i>clathratus</i>     | (Linnaeus, 1767)                    | <i>Boreotrophon</i>        | <i>clathratus</i>               | Kambdofri                  |
|                           | <i>Boreotrophon</i>  | <i>truncatus</i>      | (Strøm, 1768)                       | <i>Boreotrophon</i>        | <i>truncatus</i>                | Gáradofri                  |
|                           | <i>Scabrotrophon</i> | <i>fabricii</i>       | (Møller, 1842)                      | <i>Boreotrophon</i>        | <i>fabricii</i>                 | Baugadófri                 |
| Ptychatractidae           | <i>Metzgeria</i>     | <i>alba</i>           | (Jeffreys in Wyville-Thomson, 1873) | <i>Metzgeria</i>           | <i>pusilla</i>                  | Trjónuglammi               |
| Buccinidae                | <i>Anomalisipho</i>  | <i>virgata</i>        | (Friele, 1879)                      | <i>Sipho</i>               | <i>altus</i>                    | Djúpkóngur                 |
|                           | <i>Beringius</i>     | <i>turtoni</i>        | (Bean, 1834)                        | <i>Beringius</i>           | <i>turtoni</i>                  | Gullskati                  |
|                           | <i>Buccinum</i>      | <i>finmarkianum</i>   | Verkrüzen, 1875                     | <i>Buccinum</i>            | <i>finmarchianum</i>            | Finnakóngur                |
|                           | <i>Buccinum</i>      | <i>hydrophanum</i>    | Hancock, 1846                       | <i>Buccinum</i>            | <i>hydrophanum</i>              | Slétti kóngur              |
|                           | <i>Buccinum</i>      | <i>kjennerudae</i>    | Bouchet & Warén, 1985               | -                          | -                               | -                          |
|                           | <i>Buccinum</i>      | <i>nivale</i>         | Friele, 1882                        | -                          | -                               | -                          |
|                           | <i>Buccinum</i>      | <i>alicei</i>         | Dautzenberg & H. Fischer, 1912      | -                          | -                               | -                          |
|                           | <i>Buccinum</i>      | <i>species</i>        |                                     |                            |                                 |                            |
|                           | <i>Buccinum</i>      | <i>undatum</i>        | Linnaeus, 1758                      | <i>Buccinum</i>            | <i>undatum</i>                  | Beitukóngur                |
|                           | <i>Colus</i>         | <i>glaber</i>         | (Verkrüzen in Kobelt, 1876)         | <i>Sipho</i>               | <i>glaber</i>                   | Starkóngur                 |
|                           | <i>Colus</i>         | <i>halboelli</i>      | (Møller, 1842)                      | <i>Sipho</i>               | <i>tortuosus</i>                | Bugökóngur                 |
|                           | <i>Colus</i>         | <i>islandicus</i>     | (Mohr, 1786)                        | <i>Sipho</i>               | <i>islandicus</i>               | Péturskóngur               |
|                           | <i>Colus</i>         | <i>sabini</i>         | (Gray, 1824)                        | <i>Sipho</i>               | <i>togatus</i>                  | Bárdarkóngur               |
|                           | <i>Colus</i>         | <i>turgidulus</i>     | (Friele, 1877)                      | <i>Sipho</i>               | <i>turgidulus</i>               | Digrikóngur                |
|                           | <i>Liomesus</i>      | <i>ovum</i>           | (W. Turton, 1825)                   | <i>Liomesus</i>            | <i>ovum</i>                     | Sléttihubbur               |
|                           | <i>Neptunea</i>      | <i>despecta</i>       | (Linnaeus, 1758)                    | <i>Neptunea</i>            | <i>despecta</i>                 | Hafkóngur                  |
|                           | <i>Retifusus</i>     | <i>latericeus</i>     | (Møller, 1842)                      | <i>Sipho</i>               | <i>latericeus</i>               | Blökkukóngur               |
|                           | <i>Turrisipho</i>    | <i>fenestratus</i>    | (W. Turton, 1834)                   | <i>Sipho</i>               | <i>fusiformis</i>               | Bárukóngur                 |
|                           | <i>Turrisipho</i>    | <i>moebii</i>         | (Dunker & Metzger, 1875)            | <i>Sipho</i>               | <i>sarsi / ebur</i>             | Sarskóngur - Mjallarkóngur |
|                           | <i>Turrisipho</i>    | <i>voeringi</i>       | Bouchet & Warén, 1985               | <i>Sipho</i>               | <i>lachesis non S undulatus</i> | Skuldarkóngur              |
|                           | <i>Volutopsius</i>   | <i>norvegicus</i>     | (Gmelin, 1791)                      | <i>Volutopsius</i>         | <i>norvegicus</i>               | Ránarbuði                  |
| Nassariidae               | <i>Tritia</i>        | <i>incrassata</i>     | (Strøm, 1768)                       | <i>Nassa</i>               | <i>incrassata</i>               | Bri mgagar                 |
| Columbellidae             | <i>Amphissa</i>      | <i>acutecostata</i>   | (Philippi, 1844)                    | <i>Pyrene</i>              | <i>costulata</i>                | Óldudúfa                   |
| Volutomitridae            | <i>Volutomitra</i>   | <i>groenlandica</i>   | (Møller, 1842)                      | <i>Volutomitra</i>         | <i>groenlandica</i>             | Dumbur                     |
| Scaphandridae             | <i>Scaphander</i>    | <i>lignarius</i>      | (Linnaeus, 1758)                    | <i>Scaphander</i>          | <i>lignarius</i>                | Ægiskuggur                 |
|                           | <i>Scaphander</i>    | <i>punctostriatus</i> | (Mighels & C.B. Adams, 1842)        | <i>Scaphander</i>          | <i>punctostriatus</i>           | Ránarkuggur                |
| Laonidae                  | <i>Laona</i>         | <i>quadrata</i>       | (S. Wood, 1839)                     | <i>Philine</i>             | <i>quadrata</i>                 | Tígullaufa                 |
| Philinidae                | <i>Hermania</i>      | <i>scabra</i>         | (O.F. Müller, 1784)                 | <i>Philine</i>             | <i>scabra</i>                   | Kamblaufa                  |

| Systematic classification |                    | Scaphopoda      |                              | Óskarsson's classification | Scaphopoda     |                |
|---------------------------|--------------------|-----------------|------------------------------|----------------------------|----------------|----------------|
| Family                    | Genus              | species         | Authors                      | Genus                      | species        | Islandic names |
| Dentaliidae               | <i>Antalis</i>     | <i>agilis</i>   | (M. Sars in G.O. Sars, 1872) | -                          | -              | -              |
|                           | <i>Antalis</i>     | <i>entalis</i>  | (Linnaeus, 1758)             | -                          | -              | -              |
|                           |                    |                 |                              |                            |                |                |
| Systematic classification |                    | Polyplacophora  |                              | Óskarsson's classification | Polyplacophora |                |
| Family                    | Genus              | species         | Authors                      | Genus                      | species        | Islandic names |
| Hanleyidae                | <i>Hanleya</i>     | <i>nagelfar</i> | (Lovén, 1846)                | -                          | -              | -              |
| Tonicellidae              | <i>Boreochiton</i> | <i>ruber</i>    | (Linnaeus, 1767)             | -                          | -              | -              |
|                           |                    |                 |                              |                            |                |                |

**Appendix 2.** Survey and station list where mollusc species (Bivalvia, Gastropoda, Scaphopoda and Polyplacophora) were collected in Iceland during six groundfish and *Nephrops* surveys in 2013-2015.

| <b>Cruise</b>   | <b>Station</b> | <b>Latitude set N°</b> | <b>Longitude set W°</b> | <b>Latitude hauled N°</b> | <b>Longitude hauled W°</b> | <b>Depth set (m)</b> | <b>Depth hauled (m)</b> |
|-----------------|----------------|------------------------|-------------------------|---------------------------|----------------------------|----------------------|-------------------------|
| <b>A10-2013</b> | <b>538</b>     | 630523                 | - 265302                | 630822                    | -265251                    | 1330                 | 1312                    |
| <b>A10-2013</b> | <b>539</b>     | 632699                 | - 261562                | 632912                    | -261684                    | 819                  | 798                     |
| <b>A10-2013</b> | <b>568</b>     | 653124                 | - 271955                | 653403                    | -271691                    | 489                  | 477                     |
| <b>A10-2013</b> | <b>586</b>     | 652754                 | - 304383                | 652751                    | -305100                    | 392                  | 389                     |
| <b>A10-2013</b> | <b>592</b>     | 655549                 | - 281234                | 655811                    | -281597                    | 526                  | 461                     |
| <b>A10-2013</b> | <b>593</b>     | 661228                 | - 283035                | 661418                    | -283604                    | 315                  | 304                     |
| <b>A10-2013</b> | <b>595</b>     | 662914                 | - 262579                | 663203                    | -262780                    | 596                  | 561                     |
| <b>A10-2013</b> | <b>598</b>     | 663321                 | - 251441                | 663472                    | -250792                    | 410                  | 393                     |
| <b>A10-2013</b> | <b>601</b>     | 665779                 | - 264115                | 670079                    | -264071                    | 513                  | 464                     |
| <b>A10-2013</b> | <b>602</b>     | 665800                 | - 253939                | 665764                    | -253189                    | 901                  | 970                     |
| <b>A10-2013</b> | <b>606</b>     | 672120                 | - 232546                | 672260                    | -231858                    | 443                  | 447                     |
| <b>A10-2013</b> | <b>607</b>     | 674060                 | - 230226                | 674263                    | -225647                    | 780                  | 735                     |
| <b>A10-2013</b> | <b>608</b>     | 672587                 | - 224088                | 672598                    | -223315                    | 450                  | 444                     |
| <b>A10-2013</b> | <b>610</b>     | 671835                 | - 214362                | 672015                    | -214984                    | 346                  | 376                     |
| <b>A10-2013</b> | <b>611</b>     | 672449                 | - 214288                | 672484                    | -213490                    | 491                  | 484                     |
| <b>A10-2013</b> | <b>612</b>     | 673421                 | - 214815                | 673719                    | -214813                    | 608                  | 634                     |
| <b>A10-2013</b> | <b>616</b>     | 673730                 | - 204381                | 673537                    | -203763                    | 540                  | 477                     |
| <b>A10-2013</b> | <b>617</b>     | 673281                 | - 202921                | 673261                    | -202141                    | 409                  | 369                     |
| <b>A10-2013</b> | <b>618</b>     | 674033                 | - 201973                | 674333                    | -201921                    | 563                  | 671                     |
| <b>A10-2013</b> | <b>627</b>     | 672737                 | - 194403                | 672657                    | -193653                    | 358                  | 347                     |
| <b>A10-2013</b> | <b>631</b>     | 672024                 | - 180514                | 671755                    | -180162                    | 821                  | 752                     |
| <b>A10-2013</b> | <b>632</b>     | 671290                 | - 181796                | 671300                    | -181022                    | 467                  | 466                     |
| <b>A10-2013</b> | <b>634</b>     | 672381                 | - 172478                | 672677                    | -172389                    | 911                  | 924                     |
| <b>A10-2013</b> | <b>637</b>     | 671788                 | - 165077                | 671900                    | -164357                    | 693                  | 693                     |
| <b>A10-2013</b> | <b>639</b>     | 671472                 | - 161507                | 671579                    | -160788                    | 366                  | 379                     |
| <b>A10-2013</b> | <b>641</b>     | 671622                 | - 153398                | 671556                    | -152666                    | 317                  | 290                     |
| <b>A10-2013</b> | <b>643</b>     | 672674                 | - 144045                | 672803                    | -143351                    | 923                  | 966                     |
| <b>A10-2013</b> | <b>646</b>     | 665464                 | - 133194                | 665464                    | -132446                    | 529                  | 578                     |
| <b>A10-2013</b> | <b>647</b>     | 664477                 | - 124948                | 664262                    | -124431                    | 898                  | 903                     |
| <b>A10-2013</b> | <b>648</b>     | 663655                 | - 124597                | 663361                    | -124565                    | 304                  | 297                     |
| <b>A10-2013</b> | <b>650</b>     | 662396                 | - 120078                | 662386                    | -120820                    | 1113                 | 1069                    |
| <b>A10-2013</b> | <b>659</b>     | 652880                 | - 104379                | 652578                    | -104404                    | 852                  | 801                     |
| <b>A10-2013</b> | <b>660</b>     | 653632                 | - 101100                | 653696                    | -100393                    | 822                  | 829                     |
| <b>A10-2013</b> | <b>664</b>     | 650961                 | - 111538                | 651255                    | -111632                    | 575                  | 590                     |
| <b>A10-2013</b> | <b>668</b>     | 643524                 | - 112185                | 643433                    | -112856                    | 426                  | 435                     |
| <b>A10-2013</b> | <b>674</b>     | 641245                 | - 93857                 | 640950                    | -93956                     | 804                  | 820                     |
| <b>A10-2013</b> | <b>675</b>     | 640129                 | - 93962                 | 635836                    | -93811                     | 742                  | 718                     |
| <b>A10-2013</b> | <b>676</b>     | 640109                 | - 95099                 | 640316                    | -95595                     | 696                  | 679                     |
| <b>A10-2013</b> | <b>677</b>     | 635801                 | - 101146                | 635786                    | -101826                    | 575                  | 544                     |
| <b>A10-2013</b> | <b>678</b>     | 635499                 | - 112033                | 635752                    | -111666                    | 368                  | 351                     |
| <b>A2-2015</b>  | <b>43</b>      | 645835                 | - 235769                | 650040                    | -234960                    | 188                  | 213                     |

|                |            |        |          |        |         |     |     |
|----------------|------------|--------|----------|--------|---------|-----|-----|
| <b>A2-2015</b> | <b>47</b>  | 651429 | - 232867 | 651246 | -233311 | 55  | 52  |
| <b>A2-2015</b> | <b>49</b>  | 651757 | - 234513 | 651615 | -235037 | 51  | 57  |
| <b>A2-2015</b> | <b>50</b>  | 650890 | - 235673 | 650782 | -240585 | 67  | 90  |
| <b>A2-2015</b> | <b>52</b>  | 651437 | - 245109 | 651040 | -245250 | 85  | 102 |
| <b>A2-2015</b> | <b>53</b>  | 650154 | - 242681 | 650233 | -243592 | 112 | 107 |
| <b>A2-2015</b> | <b>56</b>  | 653405 | - 251316 | 653204 | -251305 | 80  | 81  |
| <b>A2-2015</b> | <b>59</b>  | 654004 | - 260928 | 653922 | -261867 | 155 | 190 |
| <b>A2-2015</b> | <b>61</b>  | 654278 | - 263126 | 653926 | -263558 | 174 | 155 |
| <b>A2-2015</b> | <b>64</b>  | 655161 | - 264433 | 655553 | -264411 | 263 | 284 |
| <b>A2-2015</b> | <b>65</b>  | 655660 | - 264982 | 660015 | -264611 | 363 | 365 |
| <b>A2-2015</b> | <b>67</b>  | 660066 | - 261819 | 660310 | -261045 | 244 | 237 |
| <b>A2-2015</b> | <b>72</b>  | 660907 | - 261320 | 661178 | -260436 | 412 | 382 |
| <b>A2-2015</b> | <b>77</b>  | 662392 | - 253125 | 662063 | -253669 | 333 | 319 |
| <b>A2-2015</b> | <b>79</b>  | 664053 | - 224365 | 664121 | -224216 | 48  | 58  |
| <b>A2-2015</b> | <b>82</b>  | 665291 | - 220676 | 665600 | -221310 | 147 | 160 |
| <b>A2-2015</b> | <b>83</b>  | 665902 | - 221411 | 665900 | -222425 | 192 | 188 |
| <b>A2-2015</b> | <b>84</b>  | 665708 | - 222573 | 665436 | -223320 | 175 | 159 |
| <b>A2-2015</b> | <b>87</b>  | 670003 | - 222383 | 670369 | -222773 | 194 | 214 |
| <b>A2-2015</b> | <b>90</b>  | 671506 | - 220554 | 671503 | -221580 | 371 | 341 |
| <b>A2-2015</b> | <b>93</b>  | 670165 | - 230011 | 670554 | -225995 | 242 | 245 |
| <b>A2-2015</b> | <b>96</b>  | 665426 | - 225743 | 665681 | -224972 | 208 | 214 |
| <b>A2-2015</b> | <b>98</b>  | 665104 | - 231967 | 665193 | -230988 | 217 | 194 |
| <b>A2-2015</b> | <b>99</b>  | 664882 | - 225318 | 664515 | -225690 | 125 | 92  |
| <b>A2-2015</b> | <b>100</b> | 664500 | - 231214 | 664403 | -232187 | 113 | 136 |
| <b>A2-2015</b> | <b>101</b> | 665050 | - 233960 | 665192 | -233017 | 180 | 180 |
| <b>A2-2015</b> | <b>105</b> | 664074 | - 242156 | 663997 | -241196 | 138 | 231 |
| <b>A2-2015</b> | <b>107</b> | 664904 | - 235874 | 665286 | -240026 | 144 | 161 |
| <b>A2-2015</b> | <b>108</b> | 663450 | - 240098 | 663165 | -235446 | 165 | 165 |
| <b>A2-2015</b> | <b>112</b> | 662692 | - 233142 | 663062 | -233411 | 129 | 125 |
| <b>A2-2015</b> | <b>117</b> | 662326 | - 234847 | 662038 | -235441 | 112 | 112 |
| <b>A2-2015</b> | <b>119</b> | 663032 | - 242440 | 663271 | -243186 | 94  | 97  |
| <b>A2-2015</b> | <b>124</b> | 661801 | - 231782 | 661596 | -230942 | 63  | 69  |
|                |            |        |          |        |         |     |     |
| <b>A3-2014</b> | <b>6</b>   | 640660 | - 225890 | 640260 | -225960 | 70  | 80  |
| <b>A3-2014</b> | <b>11</b>  | 640006 | - 233314 | 635908 | -234200 | 127 | 129 |
| <b>A3-2014</b> | <b>14</b>  | 634947 | - 241265 | 634561 | -241170 | 161 | 147 |
| <b>A3-2014</b> | <b>23</b>  | 641568 | - 265358 | 641905 | -265818 | 375 | 405 |
| <b>A3-2014</b> | <b>24</b>  | 642231 | - 262173 | 642570 | -262621 | 298 | 305 |
| <b>A3-2014</b> | <b>27</b>  | 640921 | - 235886 | 641260 | -235401 | 266 | 296 |
| <b>A3-2014</b> | <b>28</b>  | 640994 | - 234338 | 641347 | -233921 | 118 | 107 |
| <b>A3-2014</b> | <b>29</b>  | 641066 | - 233231 | 641440 | -232984 | 110 | 110 |
| <b>A3-2014</b> | <b>34</b>  | 643479 | - 230272 | 643102 | -230590 | 69  | 95  |
| <b>A3-2014</b> | <b>35</b>  | 643658 | - 233480 | 643514 | -234345 | 115 | 124 |
| <b>A3-2014</b> | <b>38</b>  | 643528 | - 243802 | 643339 | -242978 | 236 | 234 |
| <b>A3-2014</b> | <b>39</b>  | 643063 | - 242405 | 642892 | -243228 | 205 | 154 |
| <b>A3-2014</b> | <b>40</b>  | 642503 | - 250103 | 642101 | -250149 | 210 | 215 |
| <b>A3-2014</b> | <b>41</b>  | 641492 | - 245313 | 641644 | -244475 | 176 | 164 |

|                |           |        |          |        |         |     |     |
|----------------|-----------|--------|----------|--------|---------|-----|-----|
| <b>A3-2014</b> | <b>47</b> | 641159 | - 251688 | 641546 | -251462 | 249 | 251 |
| <b>A3-2014</b> | <b>48</b> | 641847 | - 252257 | 642230 | -252515 | 223 | 256 |
| <b>A3-2014</b> | <b>51</b> | 645160 | - 271340 | 645550 | -271450 | 386 | 357 |
| <b>A3-2014</b> | <b>52</b> | 650050 | - 271262 | 650248 | -270451 | 311 | 240 |
| <b>A3-2014</b> | <b>53</b> | 651390 | - 270090 | 651193 | -270166 | 229 | 234 |
| <b>A3-2014</b> | <b>59</b> | 670059 | - 235721 | 670336 | -234984 | 231 | 244 |
| <b>A3-2014</b> | <b>60</b> | 665990 | - 234580 | 670369 | -234211 | 204 | 215 |
| <b>A3-2014</b> | <b>61</b> | 670932 | - 233930 | 670620 | -233280 | 249 | 234 |
| <b>A3-2014</b> | <b>67</b> | 671504 | - 221547 | 671498 | -220519 | 344 | 374 |
| <b>A3-2014</b> | <b>68</b> | 670985 | - 220190 | 670587 | -220198 | 231 | 215 |
| <b>A3-2014</b> | <b>69</b> | 670798 | - 221132 | 670592 | -222018 | 229 | 237 |
| <b>A3-2014</b> | <b>70</b> | 670360 | - 222762 | 670127 | -222509 | 208 | 196 |
| <b>A3-2014</b> | <b>71</b> | 670114 | - 222768 | 670020 | -223766 | 190 | 207 |
| <b>A3-2014</b> | <b>77</b> | 665198 | - 233023 | 665041 | -233978 | 184 | 174 |
| <b>A3-2014</b> | <b>78</b> | 665026 | - 234270 | 665339 | -234887 | 153 | 170 |
| <b>A3-2014</b> | <b>79</b> | 665007 | - 235161 | 665328 | -235746 | 151 | 165 |
| <b>A3-2014</b> | <b>84</b> | 665080 | - 243614 | 664760 | -244230 | 196 | 232 |
| <b>A3-2014</b> | <b>85</b> | 664804 | - 243674 | 664421 | -243990 | 164 | 157 |
| <b>A3-2014</b> | <b>86</b> | 664260 | - 244263 | 663882 | -244573 | 151 | 181 |
| <b>A3-2014</b> | <b>87</b> | 663860 | - 245123 | 663547 | -245734 | 287 | 267 |
| <b>A3-2014</b> | <b>90</b> | 654904 | - 235445 | 655225 | -240023 | 54  | 45  |
| <b>A3-2014</b> | <b>91</b> | 653623 | - 240304 | 653920 | -240920 | 48  | 47  |
| <b>A3-2014</b> | <b>92</b> | 653940 | - 241100 | 654230 | -240750 | 44  | 17  |
| <b>A3-2014</b> | <b>95</b> | 654710 | - 245937 | 654310 | -245952 | 63  | 69  |
| <b>D2-2015</b> | <b>5</b>  | 633557 | - 225921 | 634048 | -225775 | 170 | 142 |
| <b>D2-2015</b> | <b>6</b>  | 634123 | - 225593 | 634495 | -224880 | 144 | 151 |
| <b>D2-2015</b> | <b>12</b> | 631732 | - 200044 | 631912 | -195098 | 212 | 240 |
| <b>D2-2015</b> | <b>14</b> | 633322 | - 173989 | 633758 | -173441 | 148 | 139 |
| <b>D2-2015</b> | <b>15</b> | 633848 | - 171633 | 633541 | -171007 | 152 | 181 |
| <b>D2-2015</b> | <b>17</b> | 632591 | - 165350 | 632848 | -164855 | 267 | 277 |
| <b>D2-2015</b> | <b>19</b> | 635021 | - 145391 | 635450 | -145978 | 227 | 223 |
| <b>D2-2015</b> | <b>23</b> | 635930 | - 141263 | 640305 | -141996 | 230 | 197 |
| <b>D2-2015</b> | <b>24</b> | 640397 | - 142686 | 640720 | -143304 | 174 | 167 |
| <b>D2-2015</b> | <b>35</b> | 634257 | - 164836 | 633963 | -170021 | 144 | 153 |
| <b>D2-2015</b> | <b>38</b> | 631826 | - 202061 | 631594 | -202624 | 131 | 144 |
| <b>D2-2015</b> | <b>49</b> | 633810 | - 233959 | 634310 | -233866 | 180 | 170 |
| <b>D4-2014</b> | <b>6</b>  | 632160 | - 202056 | 631671 | -200316 | 182 | 184 |
| <b>D4-2014</b> | <b>10</b> | 633888 | - 171658 | 633544 | -171094 | 154 | 179 |
| <b>D4-2014</b> | <b>14</b> | 633957 | - 154841 | 634013 | -154698 | 194 | 193 |
| <b>D4-2014</b> | <b>22</b> | 635871 | - 141270 | 640336 | -142027 | 221 | 193 |
| <b>D4-2014</b> | <b>30</b> | 634236 | - 164840 | 633989 | -165926 | 146 | 152 |
| <b>D4-2014</b> | <b>31</b> | 633202 | - 171146 | 633481 | -172017 | 165 | 131 |
| <b>D4-2014</b> | <b>32</b> | 633903 | - 171477 | 634123 | -171970 | 153 | 132 |
| <b>D4-2014</b> | <b>33</b> | 632366 | - 194975 | 632138 | -200115 | 151 | 178 |
| <b>D4-2014</b> | <b>38</b> | 632619 | - 212446 | 632886 | -213365 | 126 | 125 |

|                 |           |        |          |        |         |      |      |
|-----------------|-----------|--------|----------|--------|---------|------|------|
| <b>D4-2014</b>  | <b>43</b> | 633066 | - 223731 | 633272 | -224624 | 224  | 198  |
| <b>D4-2014</b>  | <b>45</b> | 633614 | - 225846 | 634018 | -225816 | 170  | 141  |
| <b>D4-2014</b>  | <b>46</b> | 634793 | - 231432 | 634622 | -232806 | 145  | 152  |
| <b>D4-2014</b>  | <b>47</b> | 634735 | - 231869 | 635234 | -231807 | 148  | 135  |
| <b>D4-2014</b>  | <b>48</b> | 635197 | - 232421 | 635581 | -231730 | 139  | 123  |
| <b>D4-2014</b>  | <b>49</b> | 635741 | - 231791 | 640252 | -231934 | 121  | 116  |
| <b>D4-2014</b>  | <b>50</b> | 635719 | - 231191 | 635170 | -231723 | 116  | 136  |
| <b>D4-2014</b>  | <b>52</b> | 633671 | - 234084 | 633257 | -234737 | 188  | 175  |
| <b>D4-2014</b>  | <b>53</b> | 632756 | - 233830 | 632277 | -234215 | 188  | 211  |
| <b>D4-2014</b>  | <b>54</b> | 642645 | - 232827 | 642483 | -231737 | 165  | 158  |
|                 |           |        |          |        |         |      |      |
| <b>TL2-2014</b> | <b>1</b>  | 633295 | - 150881 | 633187 | -151506 | 279  | 270  |
| <b>TL2-2014</b> | <b>5</b>  | 631078 | - 174404 | 630995 | -175047 | 588  | 582  |
| <b>TL2-2014</b> | <b>7</b>  | 631306 | - 182820 | 631329 | -183499 | 196  | 166  |
| <b>TL2-2014</b> | <b>18</b> | 631021 | - 232404 | 630833 | -232924 | 478  | 515  |
| <b>TL2-2014</b> | <b>38</b> | 631174 | - 255885 | 631365 | -260343 | 1048 | 1024 |
| <b>TL2-2014</b> | <b>42</b> | 633812 | - 260846 | 634081 | -261136 | 433  | 472  |
| <b>TL2-2014</b> | <b>43</b> | 634477 | - 262772 | 634742 | -263095 | 676  | 596  |
| <b>TL2-2014</b> | <b>58</b> | 645387 | - 272810 | 645090 | -272712 | 560  | 568  |
| <b>TL2-2014</b> | <b>61</b> | 651699 | - 272703 | 651962 | -273184 | 470  | 582  |
| <b>TL2-2014</b> | <b>67</b> | 645007 | - 284371 | 645264 | -284745 | 1098 | 1046 |
| <b>TL2-2014</b> | <b>74</b> | 654614 | - 294316 | 654916 | -294365 | 316  | 316  |
| <b>TL2-2014</b> | <b>78</b> | 652996 | - 290261 | 652797 | -285931 | 1216 | 1281 |
| <b>TL2-2014</b> | <b>85</b> | 653873 | - 273792 | 654027 | -273165 | 686  | 631  |





# HAFRANNSÓKNASTOFNUN

Rannsókn- og ráðgjafarstofnun hafs og vatna