

- submarina* (Fairmaire & Laboulbène, 1856)
Bledius
speciabilis (Kraatz, 1857)
- Order Collembola**
- Family Entomobryidae**
Pseudosinella
halophila (Bagnall)
- Family Hypogastruridae**
Hypogastrura
viatica (Tullberg, 1872)
- Family Isotomidae**
Axelsonia
littoralis (Moniez, 1890)
- Family Neanuridae**
Anurida
maritima (Guerin, 1838)
Anuridella
marina (Willem)
- Family Onychiuridae**
Onychiurus
debilis (Moniez)
thalassophila (Bagnall)
- Order Dermaptera**
- Family Carcinophoridae**
Anisolabis
maritima (Bonelli, 1832)
- Order Diptera**
- Family Chironomidae**
Clunio
adriaticus Schiner, 1856
balticus Heimbach, 1978
marinus Haliday, 1855
ponticus Michailova, 1980
Halocladius
braunsi (Goetghebuer, 1942)
fucicola (Edwards, 1926)
mediterraneus Hirvenoja, 1973
millenarius (Santos Abreu, 1918)
variabilis (Staeger, 1839)
varians (Staeger, 1839)
Telmatogeton
japonicus Tokunaga, 1933
pectinata (Deby, 1889)
Thalassomyia
frauenfeldi Schiner, 1856
Thalassomittia
atlantica (Stora, 1936)
thalassophila (Bequaert & Goetghebuer, 1913)
- Family Ephydriidae**
Ephydra
macellaria Egger, 1862
- Order Hemiptera**
- Family Saldidae**
Aepophilus
bonnairei (Signoret)

PHORONIDA

Compiled by C. C. Emig, C. Roldán & J. M. Viéitez

The Phoronida is an exclusively marine group of lophophorate animals: infaunal, suspension-feeders, with a vermiform body enclosed in a slender, chitinous tube in which it moves freely and it is anchored by the ampulla, the end-bulb of the body. The tube is embedded in hard or soft substrata.

Phoronids are found in all oceans and seas and are not uncommon in favourable situations. In some habitats they are very abundant, reaching several tens of thousand individuals per square metre. Phoronids occur at depths ranging from the intertidal zone to about 400 m depth, but mainly between 0 to 70 m. Almost all species occurring in European waters have wide geographical ranges and most are probably cosmopolitan.

Several authors regard Phoronida as constituting a separate phylum; but others, including myself (Emig 1997), consider them as a class within the phylum Lophophorata, which also includes the Bryozoa and Brachiopoda. Recently, Cohen (2000) included the Phoronida in a subphylum named Phoroniformea within the Brachiopoda. The Phoronida are particularly distinguished from the other two lophophorate groups on the basis of its cylindrical body form living in a tube which can be compared to the shell of the Brachiopoda and to the exo-skeleton in the Bryozoa.

Currently only two genera, *Phoronis*, Wright, and *Phoronopsis*, Gilchrist, are recognised, together with respectively seven and three well-defined species (Emig 1982). The name *Phoronis* Wright, 1856 from the genus name, is one of the numerous epithets of the Egyptian goddess Isis. The genus *Phoronopsis* has an epidermal invagination at the base of the lophophore.

The characteristic larva of the Phoronida, named actinotroch or *Actinotrocha* Müller, 1846, has been described near Helgoland (Germany). He considered it as an adult form, and named it *Actinotrocha branchiata*. The transformation of the actinotroch into an adult phoronid was described for the first time by Kowalevsky (1867) who, following the metamorphosis, realised that the *Actinotrocha* was a larval stage of Wright's *Phoronis* species.

Separate names for larval and adult forms are still used in taxonomy. Despite the priority of the larval name *Actinotrocha*, the International Commission of Zoological Nomenclature accepted also as valid the name *Phoronis*. Consequently, the actinotroch keeps a separate "generic" name considered as a technical term under *Actinotrocha* which is sometimes still different from the adult species name.

From data of recent ecological surveys in Europe, mainly in the south of the Iberian Peninsula, the Chafarinas Islands and Canary Islands (Emig *et al.* 1999, 2000), the number of phoronid species occurring in the European waters increased to 9 of 10 species known in the world. The species not recorded in Europe, *Phoronis ijimai*, is presently known from Pacific and N. W. Atlantic waters. The Iberian Peninsula and the surrounding islands represent a privileged area for the Phoronida because all 9 species has been recorded along their coasts.

For more detailed information on Phoronida see the website at <http://www.com.univ-mrs.fr/DIMAR/Phoro/>.

References

- Bailey-Brock J. H. & C. C. Emig, 2000. Hawaiian Phoronida (Lophophorata) and their distribution in the Pacific region. *Pacific Science* 54 (2), 119-126.
- Cohen B. L., 2000. Monophyly of brachiopods and phoronids: reconciliation of molecular evidence with Linnaean classification (the subphylum Phoroniforanea nov.). *Proceedings of the Royal Society, London, Series B* 267, 225-231.
- Emig C. C. & A. N. Golikov, 1990. On Phoronids of the Far Eastern Seas of the USSR and their distribution in the Pacific Ocean (in Russian). *Zool. Zh.* 69, 22-30.
- Emig C. C. & C. Roldán, 1992. The occurrence in Australia of three species of Phoronida (Lophophorata) and their distribution in the Pacific area. *Rec. S. Aust. Mus.* 26 (1), 1-8.
- Emig C. C., 1982. The biology of Phoronida. *Advances in Marine Biology* 19, 1-89.
- Emig C. C., 1984. On the origin of the Lophophorates. *Z. zool. System. Evolut.-forsch.* 22 (2), 91-94.
- Emig C. C., 1985. Phylogenetic systematics in Phoronida (Lophophorata). *Z. zool. System. Evolut.-forsch.* 23 (3), 184-193.
- Emig C. C., 1997. Les Lophophorates constituent-ils un embranchement? *Bull. Soc. zool. Fr.* 122 (3), 279-288.
- Emig C. C., García Carrascosa A. M., Roldán C. & J. M. Viéitez, 1999. The occurrence in the Chafarinas Islands (S.E. Alboran Sea, western Mediterranean) of four species of Phoronida (Lophophorata) and their distribution in the north-eastern Atlantic and Mediterranean areas. *Cahiers de Biologie Marine* 40, 129-133.
- Emig C. C., Roldán C. & J. M. Viéitez, 2000. Foronideos del litoral luso-español. *Boletín de la Real Sociedad Española de Historia Natural (Sección Biología)*, 96 (1-2), in press.
- Viéitez J. M., C. C. Emig, C. Rodríguez Bablo & A. M. García Carrascosa, 1987. Foronideos de las costas de la Península Ibérica e Islas Baleares: sistemática, ecología, distribución y estados larvarios. *Bol. Inst. esp. Oceanogr.* 4 (2), 63-78.

PHYLUM PHORONIDA

Phoronis

- ovalis* Wright, 1856
hippocrepia Wright, 1856
australis Haswell, 1883
muelleri Selys-Lonchamps, 1903
psammophila Cori, 1889
pallida Silén, 1952

Phoronopsis

- albomaculata* Gilchrist, 1907
harmeri Pixell, 1912
californica Hilton, 1930

BRYOZOA (ECTOPROCTA)

Compiled by Peter J. Hayward

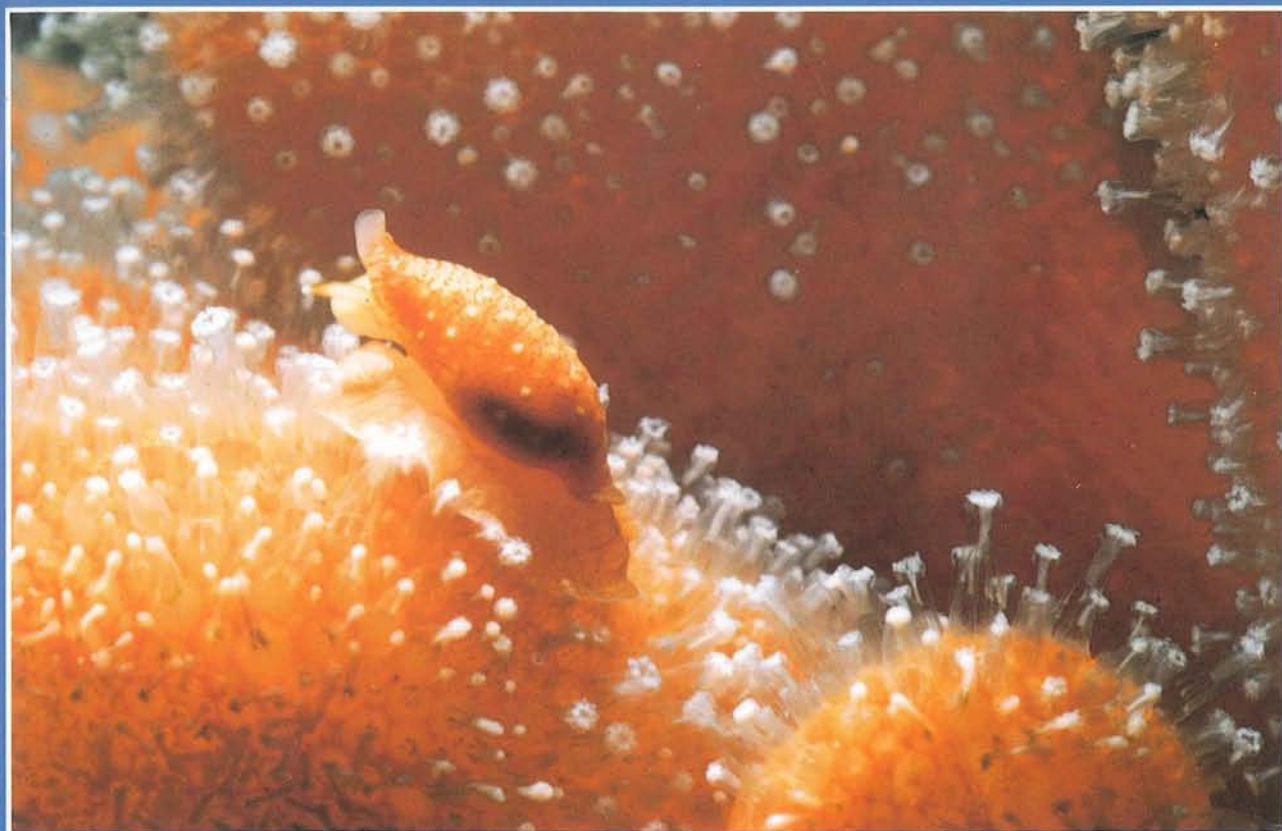
This catalogue of European Bryozoa incorporates the checklists prepared by Hayward (1997) and Brattegard (1995, also checked by Hayward), the species lists in Hayward and Ryland (1998, 1999), Zabala and Maluquer (1988), and relevant primary sources published after 1985. All faunistic and systematic papers relating to shelf and coastal European Bryozoa listed in the Zoological Record from 1985 to date have been consulted, but only those including new species or new European records are referenced here. Synonyms of most species included are to be found in the sources cited above; an unsourced entry indicates either a recently described species or unpublished records held by the compiler. The ERMS list was checked by J. Harmelin.

Taxonomic and faunistic research on European Bryozoa has been continuous through the last three decades, but geographical coverage and frequency of investigation have been extremely variable. The British Isles, Ireland and the Atlantic coasts of north-west Europe have attracted most research effort and the faunas of these regions are reasonably well known, although completely new species continue to be discovered even in such well studied areas as the English Channel (Reverter-Gil and Fernandez-Pulpeiro, 1996; Hayward and Hansen, 1999). The Faeroe Islands have been the subject of two surveys (Kramp, 1934; Hayward, 1994), the latter resulting in 15 new species and 13 new records for the temperate north-east Atlantic. The faunas of Iceland and west Greenland are similarly poorly known but are currently under review. The synoptic key of Zabala and Maluquer (1988) was founded on numerous sources relating to the western Mediterranean and Adriatic faunas, on the few available accounts of Aegean Bryozoa and the even sparser records for the southern coasts of the Mediterranean. Mediterranean Bryozoa are still only incompletely known, at best, and it is certain that many more undescribed species will be discovered as research continues.

References

- Alvarez, J. A. 1987. Notas sobre la fauna briozoológica marina Iberica. II. Especies de la Costa Vasca: estudio zoogeográfico. *KOBIE (Serie Ciencias Naturales) Bilbao*, 16: 215 - 222
- Alvarez, J. A. 1990. Una colección de briozoos procedentes de la costa de Alicante. *Boletín Inst. Esp. Oceanogr.*, 6: 21 - 40
- Alvarez, J. A. 1992. Sobre algunas especies de la familia Lichenoporidae Smitt, 1866 (Bryozoa, Cyclostomida) en la región Atlántico-Mediterránea. Parte I: género *Disporella* Gray, 1848. *Cahiers de Biologie Marine*, 33: 201 - 243
- Alvarez, J. A. 1993. *Fenestulina barrosoi* sp. nov. (Bryozoa: Cheilostomida) with a review of the genus *Fenestulina* on the Iberian Peninsula. *Journal of the Marine Biological Association of the U. K.*, 73: 831 - 835
- Alvarez, J. A. 1994. La famille des Lichenoporidae (Bryozoa, Cyclostomida) dans les provinces Atlantico-Méditerranéenne et boréale Partie III: étude des collections du Muséum National d'Histoire Naturelle de Paris. *Cahiers de Biologie Marine*, 35: 491 - 509
- Alvarez, J. A. 1995. New data on the family Lichenoporidae Smitt (Bryozoa: Cyclostomida) from the Mediterranean region. *Journal of Natural History*, 29: 1067 - 1079.
- Aristegui, J. 1984. Briozoos *Quilostomados (Ectoprocta, Cheilostomata) de Canarias: estudio sistemático, faunístico y biogeográfico*. Tesis doctoral, Universidad de La Laguna. 524 pp.

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European Register of Marine Species
A check-list of the marine species in Europe
and a bibliography of guides to their identification

Mark J. COSTELLO, Chris EMBLOW and Richard WHITE (editors)

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Cette publication constitue le volume **50** de la collection Patrimoines Naturels

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Photo 1^{re} de couverture : *Simnia patula*, Mollusca, Gastropoda (photo : Claude Huyghens)

Photos 4^e de couverture : a b
c d

a - *Himantalia elongata* (Phaeophyceae) buttons on exposed lower eulittoral rock
(photo : Joint Nature Conservation Committee)

b - *Prostheceraeus* sp., Plathyhelminthes, Turbellaria (photo : Claude Huyghens)

c - *Botryllus schlosseri*, Tunicata (photo : Claude Huyghens)

d - *Eunicella verrucosa* with *Alcyonium digitatum* (Cnidaria, Anthozoa),
erect sponges and faunal turf on moderately exposed rock (photo : Joint Nature Conservation Committee)

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E-mail : mcostello@ecoserve.ie
Project web site : <http://erms.biol.soton.ac.uk>