

## **Deep-sea fauna of European seas: An annotated species check-list of benthic invertebrates living deeper than 2000 m in the seas bordering Europe. Brachiopoda**

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**ABSTRACT:** An annotated check-list is given of Brachiopoda species occurring deeper than 2000 m in the seas bordering Europe. The check-list is based on published data. The check-list includes 12 species. For each species synonymy, data on localities in European seas and general species distribution are provided. Station data are presented separately in the present thematic issue.

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**KEY WORDS:** deep-sea fauna, European seas, Brachiopoda.

## **Глубоководная фауна европейских морей: аннотированный список видов донных беспозвоночных, обитающих глубже 2000 м в морях, окружающих Европу. Brachiopoda**

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**РЕЗЮМЕ:** Приводится аннотированный список видов Brachiopoda, обитающих глубже 2000 м в морях, окружающих Европу. Список основан на опубликованных данных. Список насчитывает 12 видов. Для каждого вида приведены синонимия, данные о находениях в европейских морях и сведения о распространении. Данные о станциях приводятся в отдельном разделе настоящего тематического выпуска.

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**КЛЮЧЕВЫЕ СЛОВА:** глубоководная фауна, европейские моря, Brachiopoda.

**Phylum Brachiopoda****Class Lingulata****Order Discinida****Family Discinidae****Genus *Pelagodiscus* Dall, 1908**

COMPOSITION: 1 recent species, the type of the genus.

DISTRIBUTION: cosmopolitan; 366–5530 m.

***Pelagodiscus atlanticus* (King, 1868)**

*Discina atlantica* King, 1868: 170–173; *Discinisca atlantica* — Davidson, 1888: 200–201, pl. 26: 18–22; *Pelagodiscus atlanticus* — Dall, 1908: 440.

REMARKS: According to Odhner (1960) and Zezina (1965) the species is a prime example of a cosmopolitan deep-sea (bathyal and abyssal) species with a very wide bathymetric range.

LOCALITIES: “Ingolf”, St. 18 (Wesenberg-Lund, 1941); “Hirondelle”, St. 650, 749 (Joubin, 1907); “Michael Lomonosov”, St. 352 (Zezina, 2000); “Akademik Mstislav Keldysh”, St. 123, 131, 268, 317, 390, 499, 500, 511 (Zezina, 2000); “Vityaz II”(new), St. 77, 79, 164 (Zezina, 2000); CANCAP III, St. 3-020 (Logan, 1983); BIOGAS III, DS 42 (Cooper, 1981); BIOGAS IV, DS 52, DS 53, DS 55, DS 57, DS 58, DS 63, DS 64, CV 36, CV 37, CV 38, CP 01 (Cooper, 1981); BIOGAS VI, DS 71, DS 72, DS 74, CP 08, CP 10, CP 11, CP 13, CP 14, CP 16, CP 17, CP 19, CP 20, CP 23, CV 13 (Cooper, 1981).

DISTRIBUTION: Panoceanic from the Canadian Basin to the continental slopes around Antarctica.

DEPTH RANGE: 366–5530 m. Empty shells were sampled from 6160 m in the north-western Pacific and from 7460–7600 m in the Atlantic (Romanche Trench).

**Class Rhynchonellata****Order Rhynchonellida****Family Cryptoporidae****Genus *Cryptopora* Jeffreys, 1869**

TYPE SPECIES: *Cryptophora gnomon* Jeffreys, 1869.

COMPOSITION: 6 recent species (Zezina, 1975; 1985).

DISTRIBUTION: cosmopolitan. Arctic — 1, Atlantic — 2, Indian Ocean — 2; southern Africa — 1, southern Australia and Tasmania — 1. Centres of diversity in tropical-subtropical Atlantic and Indo – West Pacific. 10–4060 m.

***Cryptopora gnomon* Jeffreys, 1869**

*Cryptopora gnomon* Jeffreys, 1869a: 136; *Atretia gnomon* — Jeffreys, 1869b: 421; *Neatretia gnomon* — Fischer, Oehlert, 1891: 122, fig. 11.

LOCALITIES: “Porcupine”, St. 20, 30 (Jeffreys, 1869a,b); “Valorous”, St. 16 (Joubin, 1907); “Talisman”, St. 42, 144, 147 (Fischer, Oehlert, 1891); “Akademik Mstislav Keldys”, St. 268, 317, 390, 499 (Zezina, 2000); BIOGAS V, St. KR 45 (Cooper, 1981); BIOGAS VI, St. DS 74 (Cooper, 1981); POLYGAS, St. DS 26 (Cooper, 1981).

DISTRIBUTION: Arctic Ocean off Greem-Bell (=Graham-Bell) Island (Franz-Josef Archipelago); Norwegian Sea; North Atlantic off Iceland, southern Greenland, western Ireland, on the Reykjanes Ridge; near Cuba, the Falkland Islands (= Islas Malvinas) and in the Southern Ocean (Hjort Fracture Zone near the Macquarie Island).

DEPTH RANGE: 300–4060 m. empty shells down to the 5950 m.

**Family Hispanirhynchiidae****Genus *Hispanirhynchia* Thomson, 1927**

COMPOSITION: 1 recent species.

DISTRIBUTION: north-eastern Atlantic, Mediterranean; 439–2338 m.

***Hispanirhynchia cornea* (Fischer, 1887)**

*Rhynchonella cornea* Fischer in Davidson, 1887: 171–173, pl. 25: 2–4; *Rhynchonella (Hemithyris) cornea* — Fischert, Oehlert, 1891: 13, pl. 1: 2a–u; *Hemithyris cornea* — Dall, 1920: 288; *Hispanirhynchia cornea* — Thomson, 1927: 159.

LOCALITIES: “Travailleur”, Dragage 1 (Fischer, Oehlert, 1891); BIOGAS II, St. DS 33 (Cooper, 1981).

DISTRIBUTION: north-eastern Atlantic from 48°N (off the English Cannel) to the Canary Islands, Irving Seamount (Zezina, 2000).

DEPTH RANGE: 439–2338 m.

**Order Terebratulida****Family Terebratulidae****Genus *Gryphus* Muhldfeld, 1811**

TYPE SPECIES: *Anomia vitrea* Born, 1778.

COMPOSITION: Following the revision of this very complicated family (Cooper, 1983) only 4 recent species are included in the genus (*G. vitreus*, *G. capensis*, *G. dalli*, *G. tokionis*). The last two are from Japanese waters at 310–553 m. and *G. capensis* — from the southern extremity of Africa at 137–228 m.

DISTRIBUTION: Mediterranean and eastern Atlantic (1); Japan, Uraga Strait off Hondo Island (2); 78–2170 m.

***Gryphus vitreus* (Born, 1778)**

*Anomia vitrea* Born, 1778:106; *Terebratulina vitrea* — Lamarck, 1819: 245; *Gryphus vitreus* — Muhlfeldt, 1811: 64; *Liothyris vitreus* — Douville, 1879: 265.

LOCALITIES: BIOGAS V, St. CP 07 (Cooper, 1981).

DISTRIBUTION: Mediterranean and eastern Atlantic from Bay of Biscay to Portugal.

DEPTH RANGE: Species is known from 78–1280 m in the Mediterranean (Logan, 1979; Sokolova et al., 2001), but in the Atlantic Ocean it can reach 2170 m.

Family Cancellothyrididae

**Genus *Chlidonophora* Dall, 1903**

TYPE SPECIES: *Megerlia* (?) *incerta* Davidson, 1878.

COMPOSITION: 2 recent species (*Ch. incerta* and *Ch. chuni*).

DISTRIBUTION: central and northern Atlantic — 1, western Indian Ocean — 1; ? 534, 740 – 4798 m.

***Chlidonophora incerta* (Davidson, 1878)**

*Megerlia* (?) *incerta* Davidson, 1878: 438; *Terebratulina incerta* — Davidson, 1886: 38, pl. 6: 6, 6a; *Terebratulina incerta* — Dall, 1889; *Chlidonophora incerta* — Dall, 1903: 1539.

LOCALITIES: “Akademik Kurchatov”, St. 432. (Zezina, 2000); “Akademik Mstislav Keldysh”, St. 131. (Zezina, 2000).

DISTRIBUTION: Atlantic Ocean from the slope of the Azores and Iberian Basin to the Gulf of Mexico and the Caribbean Sea at ? 534, 1437–4798 m.

REMARKS: The species is the most abundant in the West Indies, on the floors of abyssal basins.

**Genus *Eucalathis* Fischer and Oehlert, 1890**

TYPE SPECIES: *Terebratulina murrayi* Davidson, 1880.

COMPOSITION: 15 recent species.

DISTRIBUTION: Panoceanic. Atlantic — 7; western Indian Ocean — 3; Indo – West Pacific — 2; Southern Ocean (off Hjort Island) and south — eastern Pacific — 3. 185–3374 m. Centres of diver-

sity: subtropical Atlantic and western part of the Indian Ocean.

***Eucalathis tuberata* (Jeffreys, 1878)**

*Terebratulina tuberata* Jeffreys, 1878: 401, pl. 22: 2; *Eucalathys tuberata* — Fischer, Oehlert, 1891:43–47, 132–133, pl.2: 5a–f.

LOCALITIES: “Travailleur”, Dragage 1; “Talisman”, Dragage 144. (Fischer, Oehlert, 1890a; 1891). “Akademik Mstislav Keldysh”, St. 352 (Zezina, 2000).

DISTRIBUTION: northeastern Atlantic from the Bay of Biscay to the Arguin Bank (20°N), Mid-Atlantic Ridge from 58°21'N to the Azores, Josephine Bank; ? in the Mediterranean.

DEPTH RANGE: 616–2995 m.

***Eucalathis ergastica***

**(Fischer and Oehlert, 1890)**

*Eucalathis ergastica* Fischer, Oehlert, 1890a: 73.

LOCALITIES: “Talisman”, Dragage 100, 144 (Fischer, Oehlert, 1891).

DISTRIBUTION: north-eastern Atlantic from the Bay of Biscay to the Arguin Bank (20°N), off Gibraltar, the Azores, Canary Islands.

DEPTH RANGE: 633–2995 m.

**Genus *Bathynanus* Foster, 1974**

TYPE SPECIES: *Bathynanus tenuicostatus* Foster, 1974.

COMPOSITION: 3 recent species *B. tenuicostatus*, *B. inversus*, *B. rhizopodus*.

DISTRIBUTION: low latitudes around the World; south-eastern Pacific — 1, Indian Ocean — 1, Indian Ocean and Central Atlantic — 1; 2520–5160 m. Centre of diversity: Indian Ocean (2).

***Bathynanus rhizopodus* Zezina, 1981**

*Bathynanus rhizopodus* Zezina, 1981a: 161, text-figs. 4a–b.

LOCALITIES: “Michael Lomonosov”, St. 363 (Zezina, 2000).

DISTRIBUTION: Southwestern Indian Ocean and Central Atlantic.

DEPTH RANGE: 2520–3984 m.

**Genus *Nanacalathis* Zezina, 1981**

TYPE SPECIES: *Nanacalathis minuta* Zezina, 1981a.

COMPOSITION: 2 recent species *N. minuta* and *N. atlantica*.

DISTRIBUTION: Atlantic — 1, western Indian Ocean — 1; 289–3731 m.

***Nanacalathis atlantica* Zezina, 1991**

*Nanacalathis atlantica* Zezina, 1991: 152–153, text-figs. 1a–b; *Eucalathis* sp. — Cooper, 1973: 14–15, pl. 4: 14–17; *Nanacalathis* sp. — Zezina, 1981a: 162–163.

LOCALITIES: “Vityaz II” (new), St. 161; “Akademik Mstislav Keldysh”, St. 1897 (Zezina, 2000).

DISTRIBUTION: Mid-Atlantic Ridge and off Bahamas.

DEPTH RANGE: 3340–3731 m.

**Family Dallinidae**

**Genus *Dallina* Beecher, 1893**

TYPE SPECIES: *Terebratulula septigera* Loven, 1846.

COMPOSITION: 8 recent species.

DISTRIBUTION: Atlantic — 3, western Pacific — 5; 23–2338 m. Centre of diversity: Japanese Islands (4), Fiji Islands, New Hebrides.

***Dallina septigera* (Loven, 1846)**

*Terebratulula septigera* Loven, 1846: 183; *Waldheimia septigera* — Davidson, 1886: 56–58, pl. 11: 1–10; *Waldheimia (Macandrevia) septigera* — Wesenberg-Lund, 1939: 203; *Dallina septigera* — Beecher, 1893: 382

LOCALITIES: BIOGAS II, St. DS 33; BIOGAS IV, St. DS 52, DS 62 (Cooper, 1981).

DISTRIBUTION: northeastern Atlantic, Norwegian Sea and southwestern Barents Sea (shelf and slope area of Scandinavia from 71°N) to the shelf and slope of the Canary Islands. Also on the Irving Seamount.

DEPTH RANGE: 37–2338 m.

***Macandrevia* King, 1859**

TYPE SPECIES: *Terebratulula cranium* Müller, 1776.

COMPOSITION: 8 recent species.

DISTRIBUTION: panoeanic; Atlantic Ocean and Norwegian Sea — 5, Pacific and Antarctic Oceans — 4; 9–4600 m.

***Macandrevia cranium* (Müller, 1776)**

*Terebratulula cranium* Müller, 1776: 249; *Waldheimia cranium* — Jeffreys, 1878: 393–416; *Waldheimia (Macandrevia) cranium* — Davidson, 1886: 61–66, pl. 12: 11–23, pl. 13: 1–2; *Magellania (Macandrevia) cranium* — Fischer, Oehlert, 1891: 72–79, pl. 5: 10; *Macandrevia cranium* — Thomsom, 1927: 239–240; *Waldheimiathyris cranium* — Helmcke, 1940: 275; *Macandrevia novangliae* — Dall, 1920: 355–356.

LOCALITIES: BIOGAS II, St. DS 33; BIOGAS IV, St. CP 03; BIOGAS V, St. CP 07, CP 09; POLYGAS, CV 10, CP 11 (Cooper, 1981); “Akademik Mstislav Keldysh”, St. 317, 390, 499 (Zezina, 2000); “Vityaz II” (new), St. 159 (Zezina, 2000).

DISTRIBUTION: Western Arctic, Greenland Sea, Norwegian Sea and northern Atlantic from shelf and slope of Novaya Zemlja, Spitzbergen and Greenland to Block Island (off Rhode Island, U.S.A., 41°24'N) and Cape Bojador (Western Sahara, 26°10'N), Great Meteor Seamount; Mediterranean (Lion Bay and off Sicily), subfossil specimens at the Baroni Ridge (NE Sardinia).

DEPTH RANGE: 9–2951 m.

**Family Kraussinidae**

**Genus *Pantellaria* Dall, 1919**

TYPE SPECIES: *Terebratulula monstrosa* Scacchi, 1833.

COMPOSITION: 2 recent species *P. monstrosa*, *P. gigantea*.

DISTRIBUTION: Mediterranean — 1; Atlantic Ocean off the Cape of Good Hope, Indian Ocean including Red Sea and Persian Gulf — 1, Tasman Sea off New South Wales — 1; 10–2541 m.

REMARKS: Atkins (1961) and Logan (1979) consider this genus a synonym of *Megerlia* King, 1850. The latter also includes 2 recent species distributed in the Mediterranean (*M. truncata*, *M. granosa*) and in the eastern Atlantic (*M. truncata*).

***Pantellaria monstrosa* (Scacchi, 1833)**

*Terebratulula monstrosa* Scacchi, 1833: 17; *Megerlia truncata* var. *monstrosa* — Davidson, 1887: 108, pl. 19: 21–22; *Muhlfeldtia monstrosa* — Fischer, Oelert, 1891: 87–90, pl. 7: 12; *Pantellaria monstrosa* — Dall, 1920: 335.

LOCALITIES: “Hirondelle”, St. 695 (Joubin, 1907).

DISTRIBUTION: Mediterranean and eastern Atlantic from Cape Breton (46°43'N) and Reykjanes Rise (58°23'N) to the coast of Portugal and the slope of the Azores.

DEPTH RANGE: 36–2541 m.

**Family Phaneroporididae**

**Genus *Phaneropora* Zezina, 1981**

TYPE SPECIES: *Phaneropora galathea* Zezina, 1981.

COMPOSITION: 2 recent species *Ph. galathea* and *Ph. incerta*.

DISTRIBUTION: tropical and northeastern Atlantic — 1, western Pacific — 1; 64–4480 m.

### ***Phaneropora incerta* (Davidson, 1878)**

*Magasella incerta* Davidson, 1878: 438; *Platidia* (?) *incerta* — Fischer, Oehlert, 1891: 128–130, fig. 13; *Gwynia capsula* — Fischer, Oehlert, 1891: 125, figs. 12a–f (non *Terebratula capsula* Jeffreys, 1859); *Cisstella cistellula* — Fischer, Oehlert, 1891: 130 (non *Terebratula cistellula* Searles-Wood, 1841); Gen. sp. indet. — Cooper, 1973: 30–31, pl. 6: 1–12; *Dallina floridana* — Cooper, 1977, ex parte: 128, pl. 4: 1–4 (non *Waldheimia floridana* Pourtales, 1868); *Phaneropora incerta* — Zezina, 1981b: 18.

LOCALITIES: “Talisman”, Dragage 144 (Fischer, Oehlert, 1891; Cooper, 1973). “Vityaz II” (new), St. 164 (Zezina, 2000). “Akademik Mstislav Keldysh”, St. 500 (Zezina, 2000).

DISTRIBUTION: northeastern Atlantic from 46°08'N to the Arguin Bank, and northwestern Atlantic from Bermuda to Saint Tomas Island (Virgin Islands 18°21'N 64°56'W).

DEPTH RANGE: 64–4297 m, 5159 m. The last depth is related to the finding of “Gen. sp. indet.” off Bermuda (Cooper, 1973).

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