

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

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**ABSTRACT:** An annotated check-list is given of Crinoidea species occurring deeper than 2000 m in the seas bordering Europe. The check-list is based on published data. The check-list includes 21 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, Crinoidea.

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

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**РЕЗЮМЕ:** Приводится аннотированный список видов Crinoidea, обитающих глубже 2000 м в морях, окружающих Европу. Список основан на опубликованных данных. Список насчитывает 21 вид. Для каждого вида приведены синонимия, данные о нахождении 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, Crinoidea.

**Phylum Echinodermata****Class Crinoidea****Order Comatulida**

REMARKS: Classification of crinoids used in the present work is in accordance with that in Hess, Messing (2011).

**Family Antedonidae****Genus *Leptometra* A.H. Clark, 1908**

COMPOSITION: 2 species (Clark A.H., 1923a). Type species: *L. phalangium* (J. Müller, 1841). Unpublished molecular data suggest that the two *Leptometra* species are synonyms.

DISTRIBUTION: Atlantic from the northern coast of Scotland and Hebrides to Cap Blanc, the Mediterranean; perhaps also off Brazil.

DEPTH RANGE: from 42 to 1292 m (?2789–2834 m).

***Leptometra phalangium* (J. Müller, 1841)**

*Leptometra phalangium* — Clark A.H., Clark A.M., 1967: 553–564, fig. 2:a, b.

REMARKS: The average depth of occurrence is 300 m (Clark A.H., Clark A.M., 1967), the only occurrence below 2000 m (Clark A.M., 1977) is erroneous. The specimen dredged on the “Atlantis II” cruise 59, St. 211 (33°57'N, 15°08.2'E) was deposited at the Smithsonian Institution under reference number E16294. Both the label and the list of the “Atlantis II” stations were checked by Cynthia Ahearn. It was concluded that the specimen cited by A.M. Clark (1977) was dredged from 500–509 m depth, not 2834–2789 m.

LOCALITIES: “Atlantis II”, cruise 59, St. 211 (Clark A.M., 1977).

DISTRIBUTION: Mediterranean, 70–1292 m.

DEPTH RANGE: 500–509 m (?2789–2834 m).

**Genus *Thaumatometra* A.H. Clark, 1908**

COMPOSITION: 9 species (Clark A.H., Clark A.M., 1967). Type species: *T. tenuis* (Clark A.H., 1907).

DISTRIBUTION: North Pacific (1 species), northwest Pacific (4 species), Indonesia (1 species), southwest Pacific (1 species); North Indian Ocean (1 species), southwest Indian Ocean (1 species), Atlantic from Iceland and Baffin Bay to Brazil (2 species).

CENTRE OF DIVERSITY: northwest Pacific (4 species).

DEPTH RANGE: 146–3229 m.

***Thaumatometra septentrionalis*****A.H. Clark, 1918**

*Thaumatometra septentrionalis* — Clark A.H., Clark A.M., 1967: 752–753.

LOCALITIES: INGOLF, St. 11, 18, 36 (Clark A.H., 1923a; Clark A.H., Clark A.M., 1967).

DISTRIBUTION: Baffin Bay to Iceland.

DEPTH RANGE: 2075–2623 m.

**Genus *Trichometra* A.H. Clark, 1908**

COMPOSITION: 2 species. Type species: *T. cubensis* (Pourtalès, 1869)

DISTRIBUTION: northwest Pacific (1 species), off Hawaiian Islands (1 species); Atlantic (2 species) from Iceland and Davis Straits to the Bay of Biscay and Brazil.

DEPTH RANGE: 223–2834 m.

***Trichometra cubensis* (Pourtalès, 1869)**

*Trichometra cubensis* — Clark A.M., 1970: 46–48, fig. 17; Clark A.M., 1980: 195–197; Messing, Dearborn, 1990: 25–26, fig. 17, 18; Hemery et al., 2013: 513..

REMARKS: A.H. Clark (1923a) recorded *Trichometra delicata* at the “Ingolf” station 18. 61°44'N, 30°29'W, 2075 m. A.M. Clark (1970) considered this small specimen conspecific with *T. cubensis*. It is possible that smaller specimens from “Helga” stations in the Bay of Biscay and from west of Ireland reported as *T. delicata* will also prove to be conspecific with *T. cubensis* (Harvey et al., 1988).

LOCALITIES: INGOLF, St. 24, and perhaps St. 18, 36 (Clark A.H., 1923a); “Discovery”, St. 7711#66 (Clark A.M., 1980); BIOGAS III, St. 1 CV 24; BIOGAS IX, St. 1 CP 33; BIOGAS XI CP 37 (Roux, pers. com.).

DISTRIBUTION: Iceland, the Faeroe Islands southwards to Morocco, and Greenland, Davis Strait to the West Indies, northwest Pacific, off Hawaiian Islands.

DEPTH RANGE: 210–2834 m (Meyer et al., 1978; Clark A.M., 1980).

***Trichometra delicata* A.H. Clark, 1911**

*Trichometra delicata* — Clark A.M., 1970: 48–49, fig. 18.

LOCALITIES: “Travailleur”, St 13, (Folin, 1887; Clark A.H., 1911; Marshall, Rowe, 1981); BI- AÇORES, St. 252 (unpublished).

DISTRIBUTION: Ireland to Portugal.

DEPTH RANGE: 700–2700 m.

**Family Pentametrocrinidae****Genus *Pentametrocrinus* A.H. Clark, 1908**

COMPOSITION: 6 species (Messing, Hansson, 2012). However Messing (2008) listed 12 species, including 3 undescribed ones.

DISTRIBUTION: northwest Pacific (1 species), northeast Pacific (1 species, Messing, 2008), west Pacific (1 species), southwest Pacific (2 species, McKnight, 1977), Indian Ocean (2 species), Atlantic (1 species, Messing, 1978).

CENTRE OF DIVERSITY: Not recognizable.

DEPTH RANGE: 374–3320 m (or 188–4851 m in accordance with Messing, 2008).

***Pentametrocrinus atlanticus* (Perrier, 1883)**

*Pentametrocrinus atlanticus* — Messing, 1978: 700–708, figs. 1–5, 8–11, 13–16; Clark A.M., 1980: 203–204; Messing, Dearborn, 1990: 26.

LOCALITIES: “Talisman”, St. “45” (30°01′N, 09°25′W, depth 2215 m) (Folin, 1887; Clark A.H., 1911).

REMARKS: *Pentametrocrinus atlanticus* is one of four amphi-Atlantic comatulids that occur in the tropical western Atlantic. The other three are *Trichometra cubensis*, *Zenometra columnaris* and *Atelectrinus balanoides* (Messing, 1978; Messing, White, 2001). A.H. Clark obviously took data of “Talisman” stations from Smith (1889). However, the official list of Commandant Parfait published in the *Annales Hydrographiques* (1883) differs considerably from that of Smith. The reasons for this discrepancy are given in Bauchot et al. (1971).

DISTRIBUTION: northeast Atlantic from southwest of Ireland to north-west Africa, western Atlantic from the Blake Plateau to Martinique (Lesser Antilles) (Clark A.M., 1980).

DEPTH RANGE: 374–2115 m.

**Genus *Thaumatoctrinus*****P.H. Carpenter, 1883**

COMPOSITION: 6 species (Clark A.H., Clark A.M., 1967). Type species: *T. renovatus* Carpenter, 1883.

DISTRIBUTION: northwest Pacific (1 species), west Pacific (2 species), South Australia (1 species), Antarctic (1 species), Indian Ocean (1 species), Atlantic (1 species).

CENTRE OF DIVERSITY: West Pacific (2 species).

DEPTH RANGE: 649–3290 (Clark A.H., 1923a).

***Thaumatoctrinus jungerseni*****A.H. Clark, 1923**

*Thaumatoctrinus jungerseni* — Clark A.H., 1923a: 13–17, fig. 2–4; Clark A.M., 1980: 204–205.

REMARKS: Distinction between *T. jungerseni* and *T. renovatus* remains unclear (Clark A.H., Clark A.M., 1967; Clark A.M., 1980), only their geographic distribution (northern and southern hemisphere respectively) separates the two species.

LOCALITIES: “INGOLF”, St. 18 (Clark A.H., 1923a); “Discovery”, St. 7711#57, 7711#62, 7711#85 (Clark A.M., 1980); “Discovery”, St. 9640#1 (Gage et al., 1983); “Challenger”, St. SWT 12, SWT 13 (Gage et al., 1983).

DISTRIBUTION: Denmark Strait and the Rockall Trough to southern Ireland.

DEPTH RANGE: 823–3757 m.

**Family Thalassometridae****Genus *Thalassometra* A.H. Clark, 1907**

COMPOSITION: 19 species (Clark A.H., 1950; McKnight, 1977; Clark A.M., 1980; Eléaume et al.,

2004). Type species: *Thalassometra villosa* A.H. Clark, 1907.

REMARKS: A.M. Clark (1980) suggested that a single damaged specimen identified as *T. omissa* and referred by Koehler (1909) to the *basicurva* group (i.e. *Thalassometra* of A.H. Clark, 1907), could refer to the Antedonidae. One of us (MPE) examined the specimen and confirmed that it belongs to the family Thalassometridae.

DISTRIBUTION: North Pacific (1 species), northwest Pacific (2 species), west Pacific (4 species), southwest Pacific (2 species), east Pacific (3 species), Indian Ocean (2 species), Antarctic and Subantarctic (2 species), Atlantic (3 species).

CENTRE OF DIVERSITY: west Pacific (4 species).

DEPTH RANGE: 148–4265 m.

***Thalassometra lusitanica*****(P.H. Carpenter, 1884)**

*Stiremetra lusitanica* — Clark A.H., 1950: 121–126; *Thalassometra lusitanica* — Clark A.M., 1980: 191–193.

LOCALITIES: “Princesse Alice”, St. 1116 (Koehler, 1909), ABYPLAINE, St. CP 68 (unpublished); CYMOR II, DR 24 (Roux, pers. com.).

DISTRIBUTION: Bay of Biscay (47–49°N, 09–11°W; unpublished data) to Morocco.

DEPTH RANGE: 914–2165 m.

**Family Zenometridae****Genus *Zenometra* A.H. Clark, 1907**

COMPOSITION: 1 species (Messing, White, 2001). Type species: *Z. columnaris* (Carpenter, 1881).

DISTRIBUTION: Blake Plateau, northern Straits of Florida and Caribbean Sea (Messing, Dearborn, 1990), west of Gibraltar (Messing, White, 2001), Cape Basin (unpublished).

DEPTH RANGE: 504–4015 m.

***Zenometra columnaris*****(P.H. Carpenter, 1881)**

*Zenometra columnaris* — Clark A.H., Clark A.M., 1967: 496–499; Messing, Dearborn, 1990: 26, fig. 12; Messing, White, 2001: 163–164, figs. 1c, 2a, 3.

REMARKS: This amphi-Atlantic comatulid occurs much deeper in the eastern Atlantic (3465–4014 m) than in the western Atlantic (504–1034 m).

LOCALITIES: “Shackleton”, cruise 3, St. 169 (Messing, White, 2001).

DISTRIBUTION: as for the genus.

DEPTH RANGE: 504–4015 m.

**Family Bathyrinidae****Genus *Bathyrinus* Thomson, 1872**

COMPOSITION: 9 species (Mironov, 2008). Type species: *B. gracilis* Thomson, 1872.

DISTRIBUTION: northwest Pacific (3 species), southwest Pacific (2 species), east Pacific (2 species), Indian Ocean (1 species), Antarctic (1 species), Atlantic (3 species), Arctic (1 species). *B. volubilis* is the deepest crinoid species found in the northwest Pacific at depths 8175–9375 m (Mironov, 2000).

CENTRE OF DIVERSITY: Not recognizable.

DEPTH RANGE: 520–9345 m.

### *Bathycrinus aldrichianus*

Thomson, 1876

*Bathycrinus campbellianus* — Carpenter, 1884: 238–240, fig.15; pl. 7a, 22, 23; pl.8; *Bathycrinus serratus* — Clark A.H., 1908: 205–207, fig.1; *Bathycrinus aldrichianus* — Macurda, Meyer, 1976: 647–667, figs. 1–5; pl. 1–5; Eléaume et al., 2012: 3–4, fig. 1.

REMARKS: The Atlantic species *B. aldrichianus* and *B. gracilis* are very closely related and may perhaps ultimately prove to be identical. In the northeast Atlantic, *B. aldrichianus* is known only as fragments of two stems (Clark A.H., 1949; Macurda, Meyer, 1976), therefore identification is questionable.

LOCALITIES: “Atlantis”, cruise 152, St. 30 (Clark A.H., 1949).

DISTRIBUTION: west Atlantic between 38° 20'N and 37°13'S, central Atlantic, and Gulf of Guinea in the East Atlantic.

DEPTH RANGE: 3317–5860 m.

### *Bathycrinus carpenteri* (Danielssen et Koren, 1877)

*Ilycrinus carpenteri* — Danielssen, 1893: 1–23, pls. 1–5; Clark A.M., 1970: 14–18, fig.3.

LOCALITIES: Norwegian North-Atlantic Expedition 1876–1878, St. 40, 51, 53, 205, 295, 303 (Danielssen, 1893); INGOLF, St. 113 (Clark, 1923a); Swedish Arctic Expedition, Spitzbergen, 1898, St. 26, 27 (Gislén, 1938); “Sadko”, St. 1935–59, 1938–97, 1938–101 (Djakonov, 1946); “Ob”, St. 6, 22, 45 (Koltun, 1964); “F.Litke”, St. 32 (Baranova, 1964); “Polarstern” ARK VIII/2 (Arctic EPOS), St. 078, 108 (Piepenburg et al., 1996); “Polarstern” ARK XV/1, St. 1/7.99, Dive 4 VICTOR 6000, St. 2/7.99, Dive 4 VICTOR 6000 (unpublished); “Jean Charcot” (NORBI Swedish-French Expedition.), St. 1 (DS 02, CP 01, CP 02), St. 2 (CP 04), St. 5 (CP 09, CP 10, DS 11), St. 10 (CP 16), St. 11 (CP 17) (Dahl et al., 1976; Roux, pers. com.).

DISTRIBUTION: Arctic, from the Norwegian and Greenland Seas to the Laptev Sea.

DEPTH RANGE: 520–3800 m.

### *Bathycrinus gracilis*

Thomson, 1872

*Bathycrinus gracilis* — Carpenter, 1884: 243–245, fig. 16, pl. 8a, figs 1–3; Clark A.M., 1980: 206–207, fig. 5; Roux et al., 2002: 822, Fig. 7c–d.

LOCALITIES: “Porcupine” 1869, St. 37 (Wyville Thomson, 1875; Carpenter, 1884); “Princesse Alice” 1896, St. 749 (Koehler, 1909); “Chain”, cruise 106, St. 328 (Clark A.M., 1977); “Meteor”, cruise 3, St. 24, 30 AT, 38 AT (Clark A.M., 1980); “Challenger”, St. ES 27 (Harvey et al., 1988).

DISTRIBUTION: West European and Iberian Basins, Porcupine Abyssal Plain, Porcupine Seabight and Rockall Trough.

DEPTH RANGE: 2880–5275 m.

### *Monachocrinus* A.H. Clark, 1917

COMPOSITION: 6 species. According to A.M. Clark (1982), the genus includes 7 recent species. The species *M. perrieri* (Koehler, Vaney, 1910) is regarded herein as a junior synonym of *M. recuperatus*. Type species: *M. sexradiatus* A.H. Clark, 1917. *Ilycrinus recuperatus* Perrier, 1885 was claimed to be the type species by Roux et al. (2002).

DISTRIBUTION: Atlantic (3 species), southwest Pacific (2 species), Indian Ocean (1 species). North of the Azores to South Africa, also the West Indies; in the Pacific the New Zealand and New Caledonia regions; in the Indian Ocean the Bay of Bengal.

CENTRES OF DIVERSITY: Not recognizable.

DEPTH RANGE: 1000–4850 m.

### *Monachocrinus recuperatus* (Perrier, 1885)

*Ilycrinus recuperatus* — Perrier, 1886: 273, figs. 193, 242, 2; *Bathycrinus perrieri* — Koehler, Vaney, 1910: 27–28, figs. 1–2; *Monachocrinus coelus* — Clark A.H., 1923b: 229, pl. 8:1; *Monachocrinus recuperatus* — Gislén, 1951: 52–53, fig.1; Roux et al., 2002: 823, Fig. 7e.

LOCALITIES: “Talisman” 1883, St. 136, St. 40 (Folin, 1887; Koehler, Vaney, 1910); “Michael Sars”, 1910, St. 25 A (Murray, Hjort, 1912; Grieg, 1932); Swedish Deep-Sea Expedition, St. 387 (Gislén, 1951); BIOGAS 3, station without number (47° 32.3'N, 09°36'W, depth 4256 m); BIOGAS 5, St. 4 (CP 05); St. 6 (CP 07); BIOGAS 6, St. 1 (CP 09); St. 3 (CP 13); St. 3 (CP 14); St. 3 (DS 76) POLYGAS A, St. 3 (DS 20); INCAL, St. 4 (Roux, 1985; Roux, pers. comm.).

DISTRIBUTION: north of the Azores to South Africa.

DEPTH RANGE: 1620–4850 m.

REMARK: For stations of “Talisman” see remark in *Pentametrocrinus atlanticus*. Longitudes in Koehler, Vaney (1910) are incorrect since they were calculated relative to the Paris meridian which is 02°20' east of the Greenwich meridian.

### *Monachocrinus sexradiatus*

A.H. Clark, 1917

*Monachocrinus sexradiatus* — Clark A.H., 1923a: 19, 45, figs. 5–8.

LOCALITIES: INGOLF: St. 18 (Clark A.H., 1923a).

DISTRIBUTION: southwest of Iceland.

DEPTH RANGE: 2075 m.

### Family Septocrinidae

#### Genus *Zeuctocrinus* A.M. Clark, 1973

COMPOSITION: 2 species (Mironov, 2000).

Type species: *Z. gisleni* A.M. Clark, 1973.

REMARKS: Mironov (2002) refers the genus *Zeuctocrinus* to the family Septocrinidae Mironov, 2002.

DISTRIBUTION: northeastern Atlantic and northwestern Pacific (Volcano Trench).

DEPTH RANGE: 2000–6785 m.

#### *Zeuctocrinus gisleni* A.M. Clark, 1973

*Zeuctocrinus gisleni* — Clark A.M., 1973: 277–281, fig. 5; pl. 2; Roux, 1977: 34, pl. I: 6–8; pl. III: 1–7; Roux et al., 2002: 823, Fig. 7a–b.

LOCALITIES: “Discovery”: St. 7711#66, 8511#2 (Clark A.M., 1973, 1980); “Thalassa” 1970, St. W 425 (Roux, 1977).

DISTRIBUTION: northeastern Atlantic from Ireland to north-west Spain (41°49′–53°11′N).

DEPTH RANGE: 2000–2574 m.

### Family Bourgueticrinidae

#### Genus *Democrinus* Perrier, 1883

COMPOSITION: 7 species. According to Roux et al. (2002), the genus includes 9 recent species. Following Messing, Dearborn (1990), the two species, *D. rawsonii* (Pourtalès, 1874) and *D. brevis* Clark, 1909, are considered here as synonyms of *D. confifer* Clark, 1909. Type species: *D. parfaiti* Perrier, 1883.

DISTRIBUTION: northwest Pacific (1 species), west Pacific (3 species), southwest Pacific (1 species), Indian Ocean (1 species), west Atlantic (1 species), northeast Atlantic (1 species).

DEPTH RANGE: 66–4260 m.

CENTRE OF DIVERSITY: west Pacific (3 species).

#### *Democrinus parfaiti* Perrier, 1883

*Rhizocrinus rawsoni* — Döderlein, 1912: 12–13, fig. 4, pl. 4, 7; pl. 9, 2. Non *R. rawsoni* Pournalès, 1874; *Rhizocrinus magnus* — Gislén, 1947: 4–9, figs. 1, 2; *Democrinus parfaiti* — Roux, 1977: 39–40, figs. 4, 9, 10, 11B, 16A, pl. II: 6–8, pl. V, VI; Roux et al., 2002: 823, Fig. 8f–g.

REMARKS: It is difficult to maintain *D. parfaiti* as a valid species distinct from *D. rawsonii* (Pournalès, 1874) from the western Atlantic.

LOCALITIES: “Porcupine”, St. 43 (Thomson, 1875; Carpenter, 1884, Clark A.M., 1977); “Talisman”, St. 135 (unpublished); “Princesse Alice”, 1885, St. 515 (Koehler, 1909); SKAGERAK Exp.,

St. 28V (Gislén, 1947); “Thalassa” 1970, St. W 425, Z 453 (Roux, 1977); “Shackleton”, cruise 3, St. 152, 154, 175 (Clark A.M., 1977); “Challenger”, St. SBC 216 (Gage et al., 1983; Harvey et al., 1988); BIOGAS, St. 1 (DS 61) (Roux, 1985; pers. comm.), ABYPLAINE, St. CP 69 and CP 68 (unpublished).

DISTRIBUTION: southwest Ireland and the Rockall Trough to the Azores, Morocco and Canary Islands, including Ormonde Bank (Gorringe Ridge). Probably occurs in the western Atlantic.

DEPTH RANGE: 1430–4260 m.

#### Genus *Conocrinus* d’Orbigny, 1850

COMPOSITION: 7 recent species (Roux et al., 2002) and numerous fossils. Type species: *D. thorenti* (d’Archiac, 1846); Eocene.

DISTRIBUTION: west Pacific (3 species), northeast Atlantic (2 species), North Atlantic (1 species).

DEPTH RANGE: 290–3135 m.

CENTRE OF DIVERSITY: west Pacific (3 species).

#### *Conocrinus lofotensis* (Sars, 1868)

*Rhizocrinus lofotensis* — Clark A.H., 1923a: 23–37, figs. 12–58; Clark A.M., 1970 (pt.): 19–22, fig. 4.a–d; *Conocrinus lofotensis* — Roux, 1985: 480.

LOCALITIES: INGOLF, St. 11, 18, 37 (Clark A.H., 1923a).

DISTRIBUTION: Norwegian coast (70°N) and Iceland to Ireland, Davis Strait to Massachusetts (?Florida).

DEPTH RANGE: 140–3135 m.

#### *Conocrinus cabiochi* Roux, 1976

*Conocrinus cabiochi* — Roux, 1976: 758–759, fig. 2.

LOCALITIES: “Thalassa” 1973, St. Z 453 (Roux, 1976; Marshall et al., 1981); CYAGOR (submersible “Cyana”), Pl. 22, BIOGAS 4, St. 1 DS 61 (Roux, 1985, pers. com.).

DISTRIBUTION: Bay of Biscay and Iberian Basin.

DEPTH RANGE: 1975–2700 m.

### Family Phrynocrinidae

#### Genus *Porphyrocrinus* Gislén, 1925

COMPOSITION: 4 species (Clark, 1982; Roux et al., 2002; Messing, 2007). Type species: *P. verrucosus* Gislén, 1925.

DISTRIBUTION: west Pacific (1 species), southwest Indian Ocean (1 species), northeast Atlantic (2 species), central Atlantic (1 species).

DEPTH RANGE: 218–2780 m.

CENTRE OF DIVERSITY: northeast Atlantic (2 species).

#### *Porphyrocrinus thalassae* Roux, 1977

*Porphyrocrinus thalassae* — Roux, 1977: 34–38, figs. 1A, 2, 3, 5, 11, pl. I; Clark A.M., 1982: 124, 125, fig. 1; Roux et al., 2002: 824, Fig. 8a–b; Hemery et al., 2013: 515.

LOCALITIES: “Thalassa” 1970, St. W 425 (Roux, 1977); “Discovery”, St. 8511#2 (Clark A.M., 1982).

DISTRIBUTION: Porcupine Bank to northwest Spain.

DEPTH RANGE: 800–2584 m.

### Order Isocrinida

#### Family Isselicerinidae

#### Genus *Endoxocrinus* (*Diplocrinus*)

A.H. Clark 1923

COMPOSITION: 3 species (David et al., 2006).

DISTRIBUTION: northwest, west and southwest Pacific (1 species), west Atlantic (2 species), northeast Atlantic (1 species).

DEPTH RANGE: 187–2070 m.

#### *Endoxocrinus* (*Diplocrinus*) *wyvillethomsoni* (Jeffreys, 1870)

*Diplocrinus* (*Annacrinus*) *wyvillethomsoni* — Macurda, Roux, 1981: 170, 171, 173–178, 181, 182, text-figs. 2d, 5B; pls. 7–14, 16, 7–12; *Endoxocrinus* (*Annacrinus*) *wyvillethomsoni* — Roux et al., 2002: 820, Fig. 5f,g; *Endoxocrinus* (*Diplocrinus*) *wyvillethomsoni* — David et al., 2006: 39.

LOCALITIES: “Thalassa” 1973, St. Z 453 (Conan et al., 1977).

DISTRIBUTION: Bay of Biscay to Morocco, Madeira, the Canary Islands and Azores.

DEPTH RANGE: 1246–2070 m.

REMARKS: Conan et al. (1981) noted that the depth of 2133 m for a specimen in the Museum of Berlin sampled by “Porcupine” off Portugal (Clark A.H., 1912) is likely to be erroneous.

### Order Hyocrinida

#### Family Hyocrinidae

#### Genus *Anachalypsicrinus* Clark, 1973

COMPOSITION: 2 species (Roux, 1990; Roux et al., 2002). Type species: *A. nefertiti* A.M. Clark, 1973.

DISTRIBUTION: Mid-Atlantic region from 53°N to 36°N, off Newfoundland and the Bay of Biscay.

DEPTH RANGE: 1850–2810 m.

#### *Anachalypsicrinus nefertiti*

A.M. Clark, 1973

*Anachalypsicrinus nefertiti* — Clark A.M., 1973: 269–274, figs. 1 a–e; Roux, 1980a: 35, 53, pl. III: 1–4; Mironov, Sorokina, 1998: 24–27, fig. 8, pl. 10.4; Hemery et al., 2013: 515.

LOCALITIES: “Discovery”, St. 7711#66 (Clark, 1973); “Akademik Mstislav Keldysh”, St. 3988 (unpublished). Deep sea photographs: CYMOR II: Shamrock Canyon; Austell; Chateau Roi Arthur; Pendragon Escarpment (Roux, 1985, 1987; pers. comm.); FAMOUS expedition, 36°56.5′–

36°57.5′N, 33°05′–33°06′W, 2220, 2500, 2650 and 2700 m; 36°49.6′–36°51.5′N, 33°15′–33°16.5′W, 2519, 2600, 2630 and 2810 m (Roux, 1980b).

DISTRIBUTION: Mid-Atlantic from 53°N to 36°N, Bay of Biscay.

DEPTH RANGE: 2000–2810 m.

### Genus *Gephyrocrinus*

#### Koehler et Bather, 1902

COMPOSITION: 2 species (Roux, Lambert, 2011).

DISTRIBUTION: northeast Atlantic (1 species) and northeast Pacific (1 species). Perhaps it occurs also in the equatorial part of the Mid-Atlantic Ridge (1°47′N, 24°26′W) at the depth 3330 m.

DEPTH RANGE: 1420–2445 (?3330) m.

#### *Gephyrocrinus grimaldii*

#### Koehler et Bather, 1902

*Gephyrocrinus grimaldii* — Koehler, 1909: 256–264, pl. I: 12; pl. XXXII: 1–9; Roux et al., 2002: 821, Fig. 10c,d; Roux, Bohn, 2010: 429–434, Figs. 2–8; *Hyocrinus* (*Gephyrocrinus*) *grimaldii* — Roux, 1980a: 33–34, 39, 43, 49, pl. I; text-fig. 1.

LOCALITIES: Deep sea photographs, CYMOR II, Shamrock Canyon, Pendragon Escarpment (Roux, 1985; pers. comm.).

DISTRIBUTION: Bay of Biscay to Madeira and the Canary Islands. Perhaps it occurs also in the equatorial part of the Mid-Atlantic Ridge (1°47′N 24°26′W).

DEPTH RANGE: 1420–2445 (?3330) m.

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