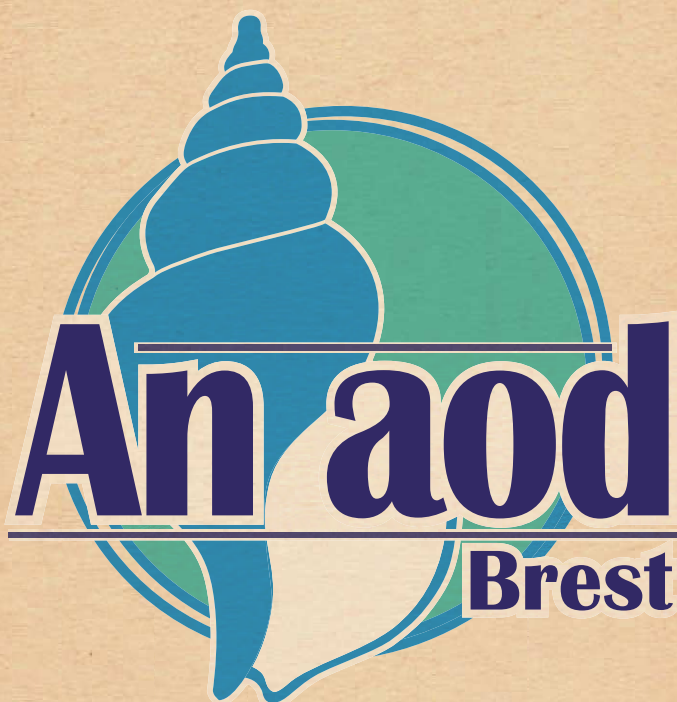




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Thomas Burel, Michel Le Duff & Erwan Ar Gall

Updated check-list of the seaweeds of the French coasts, Channel and Atlantic Ocean

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Abstract

The present study gives an updated list of macroalgal species from the Channel and Atlantic coasts of France. It includes a total of 707 macroalgal species with their taxonomic treatment.

Keywords: biodiversity; check-list; French Channel-Atlantic coasts; macroalgae

Liste réactualisée des macroalgues marines des côtes françaises, de la Manche et de l'océan Atlantique

Résumé

Cette étude est une mise à jour de la liste des espèces de macroalgues des côtes françaises de la Manche et de l'océan Atlantique. Elle inclut 707 espèces de macroalgues et leur traitement taxonomique.

Mots-clés : biodiversité; côtes françaises Manche-Atlantique; liste; macroalgues

Roll nevesaet makrobezhin mor aodoù Bro-Frañs, Mor-Breizh ha Meurvor Atlantel

Diverrañ

Un nevesadur eus roll ar spesadoù bezhin war aodoù Bro-frañs ar Meurvor Atlantel ha Mor Breizh eo ar studiadenenn-mañ. Enni e vo kavet 707 spesad makrobezhin hag o zielfennadur taxonomek.

Gerioù-alc'hwez : aodoù Mor Breizh-Atlantel Bro-Frañs; bioliesseurter; makrobezhin; roll

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Introduction

Numbers of phycologists have studied macroalgae from the coasts of France, leading to the publication of several local check-lists: Bay of Biscay (Lancelot, 1961), Finistère (P. L. Crouan & H. M. Crouan, 1867), Roscoff (Feldmann, 1954; Feldmann & Magne, 1964), Cherbourg harbour (Le Jolis, 1864), French North Sea and Belgium (Coppejans & Kling, 1995). Published in 2007 (although based on a work achieved in 1994), the “Liste et répartition des algues marines des côtes françaises de la Manche et de l’Atlantique, Îles Anglo-Normandes incluses” (Check-list and repartition of seaweeds on the French coasts of the Channel and of the Atlantic Ocean, including the British Channel Islands), results from field and bibliographic work performed by A. H. Dizerbo, botany teacher at the University of Brest together with E. Herpe, pharmacist and botanist. This was the first attempt to assess the considerable diversity of macroalgal taxa occurring in the area.

Recent progress in molecular biology has led to redefine taxonomic nomenclatures, grouping different taxa into a single species, or conversely to the recognition of new species (i.e. previously considered as cryptic species) to the list (Bárbara & Díaz Tapia, 2012). Moreover, the ongoing ecological globalisation leads to the introduction of non-native species to the coasts of Europe (Le Roux, 2008; Verlaque *et al.*, 2008; Mineur, De Clerck, *et al.*, 2010; Mineur, Le Roux, *et al.*, 2012; Stiger-Pouvreau & Thouzeau, 2015). Despite recent updates of the check-lists from European neighboring countries (United Kingdom (Brodie *et al.*, 2015), Spain (Gallardo *et al.*, 2016) and Ireland (M. D. Guiry, 2012)) together with the need for a macroalgal regional species richness database that would help to assess environmental quality (Ar Gall & Le Duff, 2014), no exhaustive inventory has been published using post-1994 data (Dizerbo & Herpe, 2007) for the Atlantic-Channel coastline of France. This inventory aims at contributing to the understanding of the changes in macroalgal diversity under the influence of climate change and/or the introduction of non native taxa. In addition, check-lists may also help cataloging characteristic macroalgal species as metrics in the evaluation of the ecological quality of either water bodies (Water Framework Directive) or coastal biocenoses (Marine Strategy Framework Directive, Habitats Directive, Natura 2000). In this work, we therefore try to fill up this need by giving an up to date check-list of the macroalgal species of the Channel and Atlantic coasts of France.

Materials and methods

The check-list drawn up by Dizerbo & Herpe (2007) was used as the starting point for this study. Species are listed and have been checked for their currently accepted name. The previously used authorities given in Dizerbo & Herpe (2007) have been added to the accepted authority. However, subspecies, varieties or formae are here ignored because of their large numbers and often poor description. Taxonomic classement is inferred using treatment from M. D. Guiry & G. M. Guiry (2018). Some species were excluded when recorded only once or by a single author, when the up-to-date distribution area did not match to the bibliographic data as well as when the taxon is invalid or doubtful (see Discussion). Records presented here come from new taxa recently described as well as introduced species originate from various accepted publications as well as from personal observations from the authors.

The studied area appears in Figure 1. It shows the same limits as in Dizerbo & Herpe (2007), including the southern end of the North Sea, the Channel coasts and the Atlantic Ocean coasts of France (covering approximately 4 200 km). It has to be noticed that it excludes the

Channel Islands for which macroalgae records appear in Irish and British studies (see Hardy & M. D. Guiry, 2003).

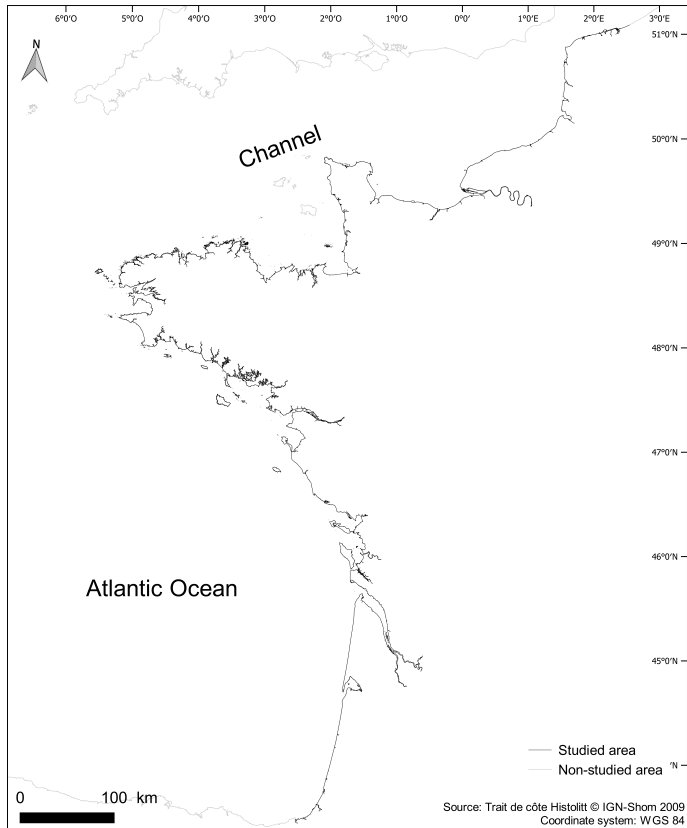


Figure 1: Map of studied area. Coastlines in black define the studied area. Coastlines in grey are not studied.

Results

Results highlight a number of 333 Genera (186 for red, 102 for brown and 45 for green seaweeds), 100 Families (57 for red, 23 for brown and 20 for green seaweeds) covering 41 Orders (25 for red, 10 for brown and 6 for green seaweeds).

This census amounts to 707 the number of macroalgal species recorded (i.e. 403 red seaweeds (Rhodophyta), 183 brown seaweeds (Phaeophyceae) and 121 green seaweeds (Chlorophyta)). In Dizerbo & Herpe (2007), the number of taxa was 423 for red, 226 for brown and 153 for green seaweeds.

Seaweed check-list:

* corresponds to an addition to the list of Dizerbo & Herpe (2007).

RHODOPHYTA Wettstein, 1901

Class Porphyridiophyceae M. Shameel, 2001

Order Porphyridiales Kylin, 1937

Family Porphyridiaceae Kylin, 1937

Porphyridium Nägeli, 1849

Porphyridium purpureum (Bory de Saint-Vincent) K. M. Drew & R. Ross

Class Rhodellophyceae Cavalier-Smith, 1998

Order Rhodospaerales E. C. Yang, J. L. Scott, H. S. Yoon & J. A. West, 2011

Family Glaucosphaeraceae Skuja, 1954

Rhodella L. V. Evans, 1970

Rhodella violacea (Kornmann) Wehrmeyer
[= *Rhodella maculata* L. V. Evans, 1970]

Class Stylonematophyceae H. S. Yoon, K. M. Müller, R. G. Sheath, F. D. Ott & D. Bhattacharya, 2006

Order Stylonematales K. M. Drew, 1956

Family Stylonemataceae K. M. Drew, 1956

Chroodactylon A. Hansgirg, 1885

Chroodactylon ornatum (C. Agardh) Basson

Colacodictyon Feldmann, 1955

Colacodictyon reticulatum (Batters) Feldmann

Neevea Batters, 1900

Neevea repens Batters

Stylonema Reinsch, 1875

Stylonema alsidii (Zanardini) K. M. Drew
Stylonema cornu-cervi Reinsch

Class Compsopogonophyceae G. W. Saunders & Hommersand, 2004

Order Erythroptelales Garbary, G. I. Hansen & Scagel, 1980

Family Erythrotrichiaceae G. M. Smith, 1933

Erythrocladia Rosenvinge, 1909

Erythrocladia polystromatica
P. J. L. Dangeard

Erythropeltis F. Schmitz, 1896

Erythropeltis discigera (Berthold) F. Schmitz

Erythrotrichia Areschoug, 1850

Erythrotrichia carnea (Dillwyn) J. Agardh
Erythrotrichia reflexa (P. Crouan & H. Crouan)

Thuret ex De Toni

Erythrotrichia welwitschii (Ruprecht) Batters

Porphyropsis Rosenvinge, 1909

Porphyropsis coccinea (J. Agardh ex Areschoug) Rosenvinge

Porphyrostromium Trevisan, 1848

Porphyrostromium boryanum (Montagne)
P. C. Silva

Porphyrostromium ciliare (Carmichael)
M. J. Wynne

[= *Erythrotrichia ciliaris* (Carmichael)
Thuret, 1863,

Erythrotrichia nigrescens P. J. L. Dangeard,

Erythrotrichia obscura Berthold, 1882,

Erythrotrichia pseudopulvinata

P. J. L. Dangeard, 1968 and *Erythrocladia grisea* P. J. L. Dangeard, 1968]

Sahlingia Trevisan, 1848

Sahlingia subintegra (Rosenvinge) Kornmann

[= *Erythrotrichia subintegra* Rosenvinge,
1909 and *Erythrocladia gibbera*
P. J. L. Dangeard, 1968]

Class Bangiophyceae Wettstein, 1901

Order Bangiales Nägeli, 1847

Family Bangiaceae Duby, 1830

Bangia Lyngbye, 1819

Bangia fuscopurpurea (Dillwyn) Lyngbye

Porphyra C. Agardh, 1824

* *Porphyra dioica* J. Brodie & L. M. Irvine

Porphyra linearis Greville

Porphyra purpurea (Roth) C. Agardh

Porphyra umbilicalis Kützinger

Pyropia J. Agardh, 1899

Pyropia drachii (Feldmann) J. Brodie

[= *Porphyra drachii* Feldmann, 1981]

Pyropia leucosticta (Thuret) Neefus & J. Brodie

[= *Porphyra leucosticta* Thuret, 1863]

Wildemanina De Toni, 1890

Wildemanina miniata (C. Agardh) Foslie

[= *Porphyra miniata* (C. Agardh)
C. Agardh, 1824]

Class Florideophyceae Cronquist, 1960

Subclass Ahnfeltiophycidae G. W. Saunders & Hommersand, 2004

Order Ahnfeltiales Maggs & Pueschel, 1989

Family Ahnfeltiaceae Maggs & Pueschel, 1989

Ahnfeltia E. M. Fries, 1836

Ahnfeltia plicata (Hudson) Fries

Subclass Nemaliophycidae T. Christensen, 1978

Order Acrochaetiales Feldmann, 1953

Family Acrochaetiaceae Fritsch ex W. R. Taylor, 1957

Acrochaetium Nägeli, 1858

Acrochaetium alariae (Jónsson) Bornet

[= *Audouinella alariae* (Jónsson) Woelkerling, 1973]

Acrochaetium endozoicum (Darbishire) Batters

[= *Audouinella endozoica* (Darbishire) P. S. Dixon, 1976]

Acrochaetium lorrain-smithiae (Lyle)

L. Newton
[= *Audouinella lorrain-smithiae* (Lyle) P. S. Dixon, 1976]

Acrochaetium maluinum Hamel

[= *Audouinella maluina* (Hamel) G. R. South & Tittley, 1986]

Acrochaetium microscopicum (Nägeli ex Kützing) Nägeli

[= *Audouinella microscopica* (Nägeli ex Kützing) Woelkerling, 1971]

Acrochaetium moniliforme (Rosenvinge) Børgesen

[= *Audouinella moniliformis* (Rosenvinge) Garbary, 1979]

Acrochaetium parvulum (Kylin) Hoyt

[= *Audouinella parvula* (Kylin) P. S. Dixon, 1976]

Acrochaetium secundatum (Lyngbye) Nägeli

[= *Audouinella secundata* (Lyngbye) P. S. Dixon, 1976 and *Audouinella virgatula* (Harvey) P. S. Dixon, 1976]

Acrochaetium sparsum (Harvey) Nägeli

[= *Audouinella velutina* (Hauck) G. R. South & Tittley, 1986]

Acrochaetium subpinnatum Bornet ex Hamel

[= *Audouinella subpinnata* (Bornet ex Hamel) Garbary, 1979]

Grania (Rosenvinge) Kylin, 1944

Grania pectinata (Kylin) Athanasiadis

[= *Audouinella pectinata* (Kylin) Papenfuss, 1945]

Kylinia Rosenvinge, 1909

Kylinia endophytica (Batters) Athanasiadis

[= *Audouinella endophytica* (Batters) P. S. Dixon, 1976]

Rhodochorton Nägeli, 1862

Rhodochorton purpureum (Lightfoot)

Rosenvinge

[= *Audouinella purpurea* (Lightfoot) Woelkerling, 1973]

Order Palmariales Guiry & D. E. G. Irvine, 1978

Family Palmariaceae Guiry, 1974

Palmaria Stackhouse, 1802

Palmaria palmata (Linnaeus) F. Weber & D. Mohr

Family Rhodophysemataceae G. W. Saunders & J. L. McLachlan, 1990

Rhodophysema Batters, 1900

Rhodophysema elegans (P. Crouan & H. Crouan ex J. Agardh) P. S. Dixon

[incl. *Rhodophysema minus* Hollenberg & I. A. Abbott, 1965]

Rhodophysema feldmannii Cabioch

Rhodophysema georgei Batters

Rhodophysema kjellmanii G. W. Saunders & Clayden

[= *Halosacciocolax kjellmanii* S. Lund, 1959]

Family Meiodiscaceae S. L. Clayden & G. W. Saunders, 2010

Meiodiscus G. W. Saunders & McLachlan, 1991

Meiodiscus concrescens (K. M. Drew)

P. W. Gabrielson

[= *Audouinella concrescens* (K. M. Drew) P. S. Dixon, 1976]

Rubrointrusa S. L. Clayden & G. W. Saunders, 2010

Rubrointrusa membranacea (Magnus)

S. L. Clayden & G. W. Saunders

[= *Audouinella membranacea* (Magnus) Papenfuss, 1945]

Family Rhodothamniellaceae G. W. Saunders, 1995

Rhodothamniella Feldmann, 1978

Rhodothamniella floridula (Dillwyn) Feldmann

[= *Audouinella floridula* (Dillwyn)
Woelkerling, 1971]

Order Colaconematales J. T. Harper &
G. W. Saunders, 2002

Family Colaconemataceae J. T. Harper &
G. W. Saunders, 2002

Colaconema Batters, 1896

Colaconema asparagopsis Chemin
[= *Audouinella asparagopsis* (Chemin)
P. S. Dixon, 1976]

Colaconema bonnemaisoniae Batters
[= *Audouinella bonnemaisoniae* (Batters)
P. S. Dixon, 1976]

Colaconema caespitosum (J. Agardh)
Jackelman, Stegenga & J. J. Bolton
[= *Audouinella caespitosa* (J. Agardh)
P. S. Dixon, 1976]

Colaconema chylocladiae Batters
[= *Audouinella chylocladiae* (Batters)
P. S. Dixon, 1976 and *Audouinella chemi-*
nii Feldmann, 1954]

Colaconema codicola (Børgesen) Stegenga,
J. J. Bolton & R. J. Anderson
[= *Audouinella codii* (Hamel) G. Furnari,
2000]

Colaconema corymbiferum (Thuret) Alongi,
Cormaci & G. Furnari
[= *Audouinella corymbifera* (Thuret)
P. S. Dixon, 1976]

Colaconema daviesii (Dillwyn) Stegenga
[= *Audouinella daviesii* (Dillwyn)
Woelkerling, 1971]

Colaconema gynandrum (Rosenvinge)
R. Nielsen
[= *Audouinella gynandra* (Rosenvinge)
Garbary, 1979]

Colaconema hallandicum (Kylin) Afonso-
Carillo, Sanson, Sangil & Diaz-Villa
[= *Audouinella polyblasta* (Rosenvinge)
J. H. Price, Lawson & D. M. John, 1986]

Colaconema infestans (M. Howe & Hoyt)
Woelkerling
[= *Audouinella infestans* (M. Howe &
Hoyt) P. S. Dixon, 1976]

Colaconema leptonema (Rosenvinge) Alongi,
Cormaci & G. Furnari
[= *Audouinella leptonema* (Rosenvinge)
Garbary, 1979]

Colaconema nemalii (De Notaris ex L. Dufour)
Stegenga
[= *Audouinella nemalionis* (De Notaris ex

L. Dufour) P. S. Dixon, 1976]

Colaconema savianum (Meneghini) R. Nielsen
[= *Audouinella saviora* (Meneghini)
Woelkerling, 1973]

Colaconema subtilissimum (Kützing) Alongi,
Cormaci & G. Furnari

[= *Audouinella subtilissima* (Kützing)
Garbary, 1979]

Order Nemaliales F. Schmitz, 1892

Family Scinaiceae Huisman, J. T. Harper &
G. W. Saunders, 2004

Scinaia Bivona-Bernardi, 1822

Scinaia furcellata (Turner) J. Agardh
Scinaia interrupta (A. P. De Candolle)
M. J. Wynne
[= *Scinaia turgida* Chemin, 1926]

Family Liagoraceae Kützing, 1843

Helminthocladia J. Agardh, 1851

Helminthocladia calvadosii (J. V. Lamouroux
ex Duby) Setchell

Helminthora J. Agardh, 1851

Helminthora divaricata (C. Agardh) J. Agardh

Liagora J. V. Lamouroux, 1812

Liagora viscida (Forsskål) C. Agardh

Nemalion Duby, 1830

Nemalion elminthoides (Velley) Batters

* *Nemalion multifidum* (Lyngbye) Chauvin

Subclass Rhodymeniophycidae G. W. Saunders
& Hommersand, 2004

Order Gelidiales Kylin, 1923

Family Gelidiaceae Kützing, 1843

Gelidium J. V. Lamouroux, 1813

* *Gelidium attenuatum* (Turner) Thuret

Gelidium corneum (Hudson) J. V. Lamouroux

[= *Gelidium sesquipedale* (Clemente)
Thuret, 1876]

* *Gelidium crinale* (Hare ex Turner) Gaillon

* *Gelidium maggsiae* Rico & Guiry

* *Gelidium pulchellum* (Turner) Kützing

Gelidium pusillum (Stackhouse) Le Jolis

* *Gelidium spathulatum* (Kützing) Bornet

Gelidium spinosum (S. G. Gmelin) P. C. Silva

[= *Gelidium latifolium* Bornet ex Hauck,
1883]

Family Pterocladaceae G. P. Felicini & Perrone, 2006

Pterocladia B. Santelices & Hommersand, 1997
Pterocladia capillacea (S. G. Gmelin)
Santelices & Hommersand

[= *Pterocladia capillacea* (S. G. Gmelin)
Bornet, 1876]

* *Pterocladia melanoidea* (Schousboe ex
Bornet) Santelices & Hommersand

Family Gelidiellaceae K.-C. Fan, 2006

Millerella G. H. Boo & S. M. Boo, 2016
Millerella pannosa (Feldmann) G. H. Boo &
L. Le Gall
[= *Gelidiella tenuissima* Feldmann &
Hamel, 1936]

Gelidiella Feldmann & G. Hamel, 1934
Gelidiella calcicola Maggs & Guiry

Order Gracilariales Fredericq & Hommersand, 1989

Family Gracilariaceae Nägeli, 1847

Gracilaria Greville, 1830
Gracilaria bursa-pastoris (S. G. Gmelin)
P. C. Silva
[incl. *Gracilaria conferta* (Schousboe ex
Montagne)
Montagne, 1846]

* *Gracilaria dura* (C. Agardh) J. Agardh

* *Gracilaria gracilis* (Stackhouse) M. Steentoft,
L. M. Irvine & W. F. Farnham

Gracilaria multipartita (Clemente) Harvey

* *Gracilaria vermiculophylla* (Ohmi) Papenfuss

Gracilariopsis E. Y. Dawson, 1949

* *Gracilariopsis chorda* (Holmes) Ohmi

Gracilariopsis longissima (S. G. Gmelin)
Steentoft, L. M. Irvine & Farnham

[= *Gracilaria verrucosa* (Hudson)
Papenfuss, 1950]

Family Pterocladophilaceae K.-C. Fan &
Papenfuss, 1959

Gelidiocolax N. L. Gardner, 1927
Gelidiocolax margaritoides (M. T. Martin &
M. A. Pocock) K.-C. Fan & Papenfuss

Holmsella Sturch, 1926

Holmsella pachyderma (Reinsch) Sturch

Order Atractophorales Maggs, L. Le Gall,
Filloramo & G. W. Saunders, 2016

Family Atractophoraceae Maggs, L. Le Gall &
G. W. Saunders, 2016

Atractophora P. Crouan & H. Crouan, 1848

Atractophora hypnoides P. Crouan & H. Crouan
[incl. sporophyte phase *Rhododiscus*
pulcherrimus P. Crouan & H. Crouan,
1859]

Order Bonnemaisoniales Feldmann &
G. Feldmann, 1952

Family Bonnemaisoniaceae F. Schmitz, 1892

Asparagopsis Montagne, 1841

Asparagopsis armata Harvey
[incl. sporophyte phase *Falkenbergia*
rufolanosa (Harvey) F. Schmitz, 1897]

Bonnemaisonia C. Agardh, 1822

Bonnemaisonia asparagoides (Woodward)
C. Agardh

[incl. sporophyte phase *Hymenoclonium*
serpens (P. Crouan & H. Crouan) Batters,
1895]

Bonnemaisonia clavata Hamel

Bonnemaisonia hamifera Hariot

[incl. sporophyte phase *Trailliella intricata*
Batters, 1896]

Family Naccariaceae Kylin, 1928

Naccaria Endlicher, 1836

Naccaria wiggii (Turner) Endlicher ex
J. Agardh

Order Acrosymphytales R. D. Withall &
G. W. Saunders, 2007

Family Schimmelmanniaceae G. W. Saunders &
Kraft, 2016

Schimmelmannia Schousboe ex Kützing, 1849

Schimmelmannia schousboei (J. Agardh)
J. Agardh

[= *Schimmelmannia ornata* Schousboe ex
Kützing, 1849]

Order Halymeniales G. W. Saunders & Kraft,
1996

- Family Halymeniaceae** Bory de Saint-Vincent, 1828
- Cryptonemia* J. Agardh, 1842
Cryptonemia seminervis (C. Agardh) J. Agardh
- Dermocorynus* P. Crouan & H. Crouan, 1858
Dermocorynus dichotomus (J. Agardh) Gargiulo, M. Morabito & Manghisi
 [= *Grateloupia dichotoma* J. Agardh, 1842]
Dermocorynus montagnei P. Crouan & H. Crouan
- Grateloupia* C. Agardh, 1822
Grateloupia filicina (J. V. Lamouroux) C. Agardh
 * *Grateloupia minima* P. Crouan & H. Crouan
 * *Grateloupia subpectinata* Holmes
 * *Grateloupia turuturu* Yamada
- Halymenia* C. Agardh, 1817
Halymenia latifolia P. Crouan & H. Crouan ex Kützing
- Pachymeniopsis* Yamada ex Kawabata, 1954
 * *Pachymeniopsis lanceolata* (K. Okamura) Y. Yamada ex S. Kawabata
- Polyopes* J. Agardh, 1849
 * *Polyopes lancifolius* (Harvey) Kawaguchi & Wang
- Subclass Hildenbrandiophycidae** G. W. Saunders & Hommersand, 2004
- Order Hildenbrandiales** Pueschel & K. M. Cole, 1982
- Family Hildenbrandiaceae** Rabenhorst, 1868
- Hildenbrandia* Nardo, 1834
Hildenbrandia crouaniorum J. Agardh [previously 'crouanii' and incl. *Hildenbrandia canariensis* Børgesen, 1929]
 * *Hildenbrandia occidentalis* Setchell
Hildenbrandia rubra (Sommerfelt) Meneghini
- Subclass Corallinophycidae** Le Gall & G. W. Saunders, 2007
- Order Hapalidiales** W. A. Nelson, J. E. Sutherland, T. J. Farr & H. S. Yoon, 2015
- Family Hapalidiaceae** J. E. Gray, 1865
- Subfamily Austrolithoideae** A. S. Harvey & Woelkerling, 1995
- Boreolithon* A. S. Harvey & Woelkerling, 1995
Boreolithon vanheurckii (Heydrich) A. S. Harvey & Woelkerling
 [= *Melobesia vanheurckii* (Heydrich) De Toni, 1924]
- Subfamily Choreonematoideae** Woelkerling, 1987
- Choreonema* F. Schmitz, 1889
Choreonema thuretii (Bornet) F. Schmitz
- Subfamily Melobesioideae** Bizzozero, 1885
- Melobesia* J. V. Lamouroux, 1812
Melobesia membranacea (Esper) J. V. Lamouroux
- Family Mesophyllaceae** Athanasiadis, 2017
- Leptophytum* W. H. Adey, 1966
Leptophytum bisporum (Foslie) W. H. Adey
 [= *Phymatolithon bisporum* (Foslie) Afonso-Carrillo, 1984]
Leptophytum bornetii (Foslie) W. H. Adey
- Mesophyllum* Me. Lemoine, 1928
 * *Mesophyllum alternans* (Foslie) Cabioch & M. L. Mendoza
Mesophyllum lichenoides (J. Ellis) Me. Lemoine
- Order Corallinales** P. C. Silva & H. W. Johansen, 1986
- Family Corallinaceae** J. V. Lamouroux, 1812
- Subfamily Corallinoideae** (Areschoug) Foslie, 1908
- Tribe Corallineae** Areschoug, 1852
- Corallina* Linnaeus, 1758
 * *Corallina caespitosa* R. H. Walker, J. Brodie & L. M. Irvine
Corallina officinalis Linnaeus
- Ellisolandia* K. R. Hind & G. W. Saunders, 2013
Ellisolandia elongata (J. Ellis & Solander) K. R. Hind & G. W. Saunders
 [= *Corallina elongata* J. Ellis & Solander, 1786]
- Tribe Janieae** H. W. Johansen & P. C. Silva, 1978

Jania J. V. Lamouroux, 1812

Jania longifurca Zanardini

Jania rubens (Linnaeus) J. V. Lamouroux

Jania squamata (Linnaeus) J. H. Kim, Guiry & H.-G. Choi

[= *Haliptilon squamatum* (Linnaeus)

H. W. Johansen, L. M. Irvine & A. Webster, 1973]

Jania virgata (Zanardini) Montagne

[= *Haliptilon virgatum* (Zanardini) Garbary & H. W. Johansen, 1982]

Subfamily Lithophylloideae Setchell, 1943

Tribe Dermatolitheae Cabioch, 1972

Titanoderma Nägeli, 1858

Titanoderma laminariae (P. Crouan & H. Crouan) Y. M. Chamberlain

Titanoderma pustulatum (J. V. Lamouroux) Nägeli

[= *Titanoderma pustulatum* var. *confine* (P. Crouan & H. Crouan)

Y. M. Chamberlain, 1991]

Tribe Lithophylleae Zanardini, 1844

Lithophyllum Philippi, 1837

* *Lithophyllum bathyporum* Athanasiadis & D. L. Ballantine

Lithophyllum byssoides (Lamarck) Foslie

[= *Lithophyllum lichenoides* Philippi, 1837]

Lithophyllum corallinae (P. Crouan & H. Crouan) Heydrich

Lithophyllum crouaniorum Foslie

[= *Lithophyllum crouanii* Chamberlain, Irvine & Walker]

Lithophyllum cystoseirae (Hauck) Heydrich

* *Lithophyllum hibernicum* Foslie

Lithophyllum incrustans Philippi

Lithophyllum nitorum W. H. Adey & P. J. Adey

Lithophyllum orbiculatum (Foslie) Foslie

[= *Lithothamnion subtenellum* (Foslie) Me. Lemoine, 1915]

Lithophyllum vickersiae Me. Lemoine

[= *Pseudolithophyllum vickersiae* (Me. Lemoine) Afonso-Carillo]

Subfamily Hydrolithoideae A. Kato & M. Baba, 2011

Hydrolithon (Foslie) Foslie, 1909

Hydrolithon boreale (Foslie) Y. M. Chamberlain

Hydrolithon cruciatum (Bressan)

Y. M. Chamberlain

Hydrolithon farinosum (J. V. Lamouroux)

Penrose & Y. M. Chamberlain

Hydrolithon sargassi (Foslie) Y. M. Chamberlain

Pneophyllum Kützing, 1843

Pneophyllum confervicola (Kützing)

Y. M. Chamberlain

Pneophyllum coronatum (Rosanoff) Penrose

[= *Pneophyllum caulerpae* (Foslie) P. L. Jones & Woelkerling, 1984]

Pneophyllum fragile Kützing

[= *Pneophyllum lejolisii* (Rosanoff) Y. M. Chamberlain, 1983]

Pneophyllum limitatum (Foslie)

Y. M. Chamberlain

Pneophyllum lobescens Y. M. Chamberlain

Pneophyllum myriocarpum (P. Crouan & H. Crouan) Y. M. Chamberlain

* *Pneophyllum zonale* (P. Crouan & H. Crouan)

Y. M. Chamberlain

Subfamily Metagoniolithoideae H. W. Johansen, 1969

Harveyolithon A. Rösler, Perfectti, V. Peña & J. C. Braga, 2016

Harveyolithon samoëense (Foslie) A. Rösler, Perfectti, V. Peña & J. C. Braga

[= *Hydrolithon samoëense* (Foslie) Keats & Y. M. Chamberlain, 1994]

Subfamily Neogonolithoideae A. Kato & M. Baba, 2011

Neogonolithon Setchell & L. R. Mason, 1943

Neogonolithon brassica-florida (Harvey) Setchell & L. R. Mason

Subfamily Porolithoideae A. Kato & M. Baba, 2011

Spongites Kützing, 1841

Spongites absimilis (Foslie & M. Howe) Afonso-Carrillo

[= *Neogonolithon absimile* (Foslie & M. Howe) Cabioch, 1972]

Family Lithothamniaceae H. J. Haas, 1886

Tribe Lithothamniaceae Foslie, 1908

Lithothamnion Heydrich, 1897

Lithothamnion corallioides (P. Crouan & H. Crouan) P. Crouan & H. Crouan
Lithothamnion glaciale Kjellman
Lithothamnion sonderi Hauck

Tribe Phymatolitheae Adey & H. W. Johansen, 1972

Phymatolithon Foslie, 1898

Phymatolithon brunneum Y. M. Chamberlain
Phymatolithon calcareum (Pallas) W. H. Adey & D. L. McKibbin ex Woelkerling & L. M. Irvine

[incl. *Lithothamnion hamelii* Me. Lemoine, 1931]

Phymatolithon laevigatum (Foslie) Foslie
Phymatolithon lamii (Me. Lemoine) Y. M. Chamberlain

Phymatolithon lenormandii (Areschoug) Adey

- * *Phymatolithon lusitanicum* V. Peña
- Phymatolithon purpureum* (P. Crouan & H. Crouan) Woelkerling & L. M. Irvine

Order Peyssonneliales Krayesky, Fredericq & J. N. Norris, 2009

Family Peyssonneliaceae Denizot, 1968

Cruoriopsis Dufour, 1865

- * *Cruoriopsis hauckii* Batters

Peyssonnelia Decaisne, 1841

Peyssonnelia armorica (P. Crouan & H. Crouan) Weber-van Bosse
Peyssonnelia atropurpurea P. Crouan & H. Crouan

Peyssonnelia coriacea Feldmann

Peyssonnelia dubyi P. Crouan & H. Crouan
Peyssonnelia harveyana P. Crouan & H. Crouan ex J. Agardh

Peyssonnelia immersa Maggs & L. M. Irvine
Peyssonnelia squamaria (S. G. Gmelin) Decaisne ex J. Agardh

Order Gigartinales F. Schmitz, 1892

Family Calosiphoniaceae Kylin, 1932

Calosiphonia P. Crouan & H. Crouan, 1852

Calosiphonia vermicularis (J. Agardh) F. Schmitz

Schmitzia P. C. Silva, 1950

Schmitzia neapolitana (Berthold) P. C. Silva

Family Caulacanthaceae Kützing, 1843

Catenella Greville, 1839

Catenella caespitosa (Withering) L. M. Irvine

Caulacanthus Kützing, 1843

- * *Caulacanthus okamurae* Yamada
- Caulacanthus ustulatus* (Mertens ex Turner) Kützing

Family Cruoriaceae Kylin, 1928

Cruoria Fries, 1835

Cruoria cruoriiformis (P. Crouan & H. Crouan) Denizot

[previously '*cruoriaeformis*', incl. *Cruoria purpurea* P. Crouan & H. Crouan, 1867]

Cruoria pellita (Lyngbye) Fries

Family Cystocloniaceae Kützing, 1843

Calliblepharis Kützing, 1843

Calliblepharis ciliata (Hudson) Kützing

- * *Calliblepharis hypneoides* P. Díaz-Tapia, I. Bárbara & M. H. Hommersand
- Calliblepharis jubata* (Goodenough & Woodward) Kützing

Cystoclonium Kützing, 1843

Cystoclonium purpureum (Hudson) Batters

Hypnea J. V. Lamouroux, 1813

Hypnea musciformis (Wulfen) J. V. Lamouroux

- * *Hypnea valentiae* (Turner) Montagne

Rhodophyllis Kützing, 1847

Rhodophyllis divaricata (Stackhouse) Papenfuss

Family Dumontiaceae Bory de Saint-Vincent, 1828

Dilsea Stackhouse, 1809

Dilsea carnosa (Schmidel) Kuntze

Dudresnaya P. Crouan & H. Crouan, 1835

Dudresnaya verticillata (Withering) Le Jolis

Dumontia J. V. Lamouroux, 1813

Dumontia contorta (S. G. Gmelin) Ruprecht

Family Furcellariaceae Greville, 1830

- Furcellaria* J. V. Lamouroux, 1813
Furcellaria lumbricalis (Hudson)
 J. V. Lamouroux
 [= *Callophyllis laciniata* (Hudson)
 Kützing, 1843]
- Halarachnion* Kützing, 1843
Halarachnion ligulatum (Woodward) Kützing
 [incl. sporophyte phase *Cruoria rosea*
 (P. Crouan & H. Crouan) P. Crouan &
 H. Crouan, 1867]
- Family Gigartinae** Bory de Saint-Vincent,
 1828
- Chondracanthus* Kützing, 1843
Chondracanthus acicularis (Roth) Fredericq
 [= *Gigartina acicularis* (Roth)
 J. V. Lamouroux, 1813, incl. *Gigartina*
falcata J. Agardh, 1851]
 * *Chondracanthus chamissoi* (C. Agardh)
 Kützing
Chondracanthus teedei (Mertens ex Roth)
 Kützing
 [= *Gigartina teedei* (Mertens ex Roth)
 J. V. Lamouroux, 1813]
- Chondrus* Stackhouse, 1797
Chondrus crispus Stackhouse
- Gigartina* Stackhouse, 1809
Gigartina pistillata (S. G. Gmelin) Stackhouse
- Family Gloiosiphoniaceae** F. Schmitz, 1892
- Gloiosiphonia* Carmichael, 1833
Gloiosiphonia capillaris (Hudson) Carmichael
- Thuretella* F. Schmitz, 1889
Thuretella schousboei (Thuret) F. Schmitz
- Family Kallymeniaceae** Kylin, 1928
- Callocolax* F. Schmitz ex Batters, 1895
Callocolax neglectus F. Schmitz ex Batters
- Kallymenia* J. Agardh, 1842
Kallymenia reniformis (Turner) J. Agardh
- Meredithia* J. Agardh, 1892
Meredithia microphylla (J. Agardh) J. Agardh
- Metacallophyllis* A. Vergés & L. Le Gall, 2017
Metacallophyllis iniata (Hudson) A. Vergés &
 L. Le Gall
- Nothokallymenia* A. Vergés & L. Le Gall, 2017
 * *Nothokallymenia crouaniorum* (Vergés &
 Le Gall) Vergés & Le Gall
- Family Schmitziellaceae** Guiry, Garbary &
 G. W. Saunders, 2012
- Schmitziella* Bornet & Batters, 1892
Schmitziella endophloea Bornet & Batters
- Family Solieriaceae** J. Agardh, 1876
- Solieria* J. Agardh, 1842
Solieria chordalis (C. Agardh) J. Agardh
- Family Phylloporaceae** Willkomm, 1854
- Ahnfeltiopsis* P. C. Silva & DeCew, 1992
 * *Ahnfeltiopsis devoniensis* (Greville) P. C. Silva
 & DeCew
Ahnfeltiopsis pusilla (Montagne) P. C. Silva &
 DeCew
 [= *Gymnogongrus pusillus* (Montagne)
 Feldmann & Mayozer, 1938]
- Coccotylus* Kützing, 1843
Coccotylus truncatus (Pallas) M. J. Wynne &
 J. N. Heine
 [= *Phyllophora truncata* (Pallas)
 A. D. Zinova, 1970]
- Erythrodermis* Batters, 1900
Erythrodermis traillii (Holmes ex Batters)
 Guiry & Garbary
 [= *Phyllophora traillii* Holmes ex Batters,
 1890]
- Gymnogongrus* C. Martius, 1833
Gymnogongrus crenulatus (Turner) J. Agardh
Gymnogongrus griffithsiae (Turner) C. Martius
- Gymnothamnion* J. Agardh, 1892
Gymnothamnion elegans (Schousboe ex
 C. Agardh) J. Agardh
- Mastocarpus* Kützing, 1843
Mastocarpus stellatus (Stackhouse) Guiry
 [incl. sporophyte phase *Petrocelis cruenta*
 J. Agardh, 1851]

Phyllophora Greville, 1830

Phyllophora crispa (Hudson) P. S. Dixon

Phyllophora herediae (Clemente) J. Agardh
[previously 'heredia']

Phyllophora pseudoceranoides (S. G. Gmelin)
Newroth & A. R. A. Taylor ex P. S. Dixon &
L. M. Irvine

Phyllophora sicula (Kützing) Guiry &
L. M. Irvine

Schottera Guiry & Hollenberg, 1975

Schottera nicaeensis (J. V. Lamouroux ex
Duby) Guiry & Hollenberg

Stenogramma Harvey, 1840

Stenogramma interruptum (C. Agardh)
Montagne
[previously 'Stenogramme interrupta']

Family Polyidaceae Kylin, 1956

Polyides C. Agardh, 1822

Polyides rotunda (Hudson) Gaillon
[previously 'rotundus']

Family Sphaerococcaceae Dumortier, 1822

Sphaerococcus Stackhouse, 1797

Sphaerococcus coronopifolius Stackhouse
[incl. the sporophyte phase *Haematocelis*
fissurata P. Crouan & H. Crouan, 1867]

Order Nemastomatales Kylin, 1925

Family Nemastomataceae Ardissonne, 1869

Itonoa Masuda & Guiry, 1995

Itonoa marginifera (J. Agardh) Masuda &
Guiry
[= *Platoma marginiferum* (J. Agardh)
Batters, 1902]

Family Schizymeniaceae Masuda & Guiry, 1995

Schizymenia J. Agardh, 1851

Schizymenia dubyi (Chauvin ex Duby)
J. Agardh
[incl. the sporophyte phase *Haematocelis*
rubens J. Agardh, 1851]

Order Plocamiales G. W. Saunders & Kraft, 1994

Family Plocamiaceae Kützing, 1843

Plocamium J. V. Lamouroux, 1813

Plocamium cartilagineum (Linnaeus)

P. S. Dixon

* *Plocamium lyngbyanum* Kützing

* *Plocamium maggsiae* G. W. Saunders &
Lehmkuhl

* *Plocamium nanum* G. W. Saunders &
Lehmkuhl

Plocamium raphelisianum P. J. L. Dangeard

Order Rhodymeniales F. Schmitz, 1892

Family Champiaceae Kützing, 1843

Champia Desvaux, 1809

Champia parvula (C. Agardh) Harvey

Chylocladia Greville, 1833

Chylocladia verticillata (Lightfoot) Bliding

Gastroclonium Kützing, 1843

Gastroclonium ovatum (Hudson) Papenfuss

Gastroclonium reflexum (Chauvin) Kützing

Family Lomentariaceae Willkomm, 1854

Lomentaria Lyngbye, 1854

Lomentaria articulata (Hudson) Lyngbye

Lomentaria clavellosa (Lightfoot ex Turner)
Gaillon

Lomentaria hakodatensis Yendo

Lomentaria orcadensis (Harvey) Collins

Family Rhodymeniaceae Harvey, 1846

Chrysymenia J. Agardh, 1842

Chrysymenia ventricosa (J. V. Lamouroux)
J. Agardh

* *Chrysymenia wrightii* (Harvey) Yamada

Cordylecladia J. Agardh, 1852

Cordylecladia erecta (Greville) J. Agardh

Rhodymenia Greville, 1830

Rhodymenia ardissoni (Kuntze) Feldmann

Rhodymenia coespitosella L'Hardy-Halos

Rhodymenia delicatula P. J. L. Dangeard

Rhodymenia holmesii Ardissonne

Rhodymenia pseudopalmeta (J. V. Lamouroux)
P. C. Silva

Order Ceramiales Nägeli, 1847

Family Callithamniaceae Kützing, 1843

Subfamily Callithamnioideae De Toni, 1903

Tribe Callithamnieae F. Schmitz & P. Hauptfleisch, 1897

Aglaothamnion Feldmann-Mazoyer, 1941

Aglaothamnion bipinnatum (P. Crouan & H. Crouan) Feldmann & G. Feldmann

Aglaothamnion chadefaudii L'Hardy-Halos

Aglaothamnion cordatum (Børgesen) Feldmann-Mazoyer

Aglaothamnion diaphanum L'Hardy-Halos & Maggs

Aglaothamnion fasciculatum (Harvey) Maggs & L'Hardy-Halos

Aglaothamnion feldmanniae Halos

Aglaothamnion gaillonii (P. Crouan & H. Crouan) Halos

Aglaothamnion priceanum Maggs, Guiry & Ruess

Aglaothamnion pseudobyssoides (P. Crouan & H. Crouan) Halos

Aglaothamnion rabenhorstii (Kützing) L'Hardy-Halos

Aglaothamnion tenuissimum (Bonnemaison) Feldmann-Mazoyer

[= *Aglaothamnion byssoides* (Arnott ex Harvey) C. F. Boudouresque & M. M. Perret-Boudouresque, 1987]

Aglaothamnion tripinnatum (C. Agardh) Feldmann-Mazoyer

Callithamnion Lyngbye, 1819

Callithamnion corymbosum (Smith) Lyngbye

Callithamnion granulatum (Ducluzeau) C. Agardh

Callithamnion tetragonum (Withering) S. F. Gray

Callithamnion tetricum (Dillwyn) S. F. Gray

Gaillona Bonnemaison, 1828

Gaillona gallica (Nägeli) Athanasiadis

[= *Aglaothamnion gallicum* (Nägeli) Halos ex Ardré, 1970]

Gaillona hookeri (Dillwyn) Athanasiadis

[= *Aglaothamnion hookeri* (Dillwyn) Maggs & Hommersand, 1993, incl. *Aglaothamnion brodiei* (Harvey) Feldmann-Mazoyer, 1941]

Gaillona rosea (Roth) Athanasiadis

[= *Aglaothamnion roseum* (Roth) Maggs & L'Hardy-Halos, 1993]

Gaillona scopulorum (C. Agardh) Athanasiadis

[= *Aglaothamnion scopulorum* (C. Agardh) Feldmann-Mazoyer, 1941]

Gaillona seposita (Gunnerus) Athanasiadis

[= *Aglaothamnion sepositum* (Gunnerus) Maggs & Hommersand, 1993]

Seirospora Harvey, 1846

Seirospora interrupta (Smith) F. Schmitz

[= *Seirospora griffithsiana* Harvey, 1846]

Tribe Ptiloteae F. Schmitz & Hauptfleisch, 1897

Plumaria F. Schmitz, 1896

Plumaria plumosa (Hudson) Kuntze

Ptilota C. Agardh, 1817

* *Ptilota gunneri* P. C. Silva, Maggs & L. M. Irvine

Subfamily Crouanioideae De Toni, 1903

Tribe Crouanieae F. Schmitz & Hauptfleisch, 1897

Crouania J. Agardh, 1842

Crouania attenuata (C. Agardh) J. Agardh

Family Wrangeliaceae J. Agardh, 1851

Tribe Griffithsieae Schmitz & Hauptfleisch, 1897

Anotrichium Nägeli, 1862

Anotrichium barbatum (C. Agardh) Nägeli

Anotrichium furcellatum (J. Agardh) Baldock

Bornetia Thuret, 1855

Bornetia secundiflora (J. Agardh) Thuret

Griffithsia C. Agardh, 1817

Griffithsia corallinoides (Linnaeus) Trevisan

Griffithsia devoniensis Harvey

Griffithsia schousboei Montagne

Halurus Kützing, 1843

Halurus equisetifolius (Lightfoot) Kützing

Halurus flosculosus (J. Ellis) Maggs & Hommersand

[= *Griffithsia flosculosa* (J. Ellis) Batters, 1902]

Tribe Lejolisieae Feldmann-Mazoyer, 1941

Ptilothamnion Thuret, 1863

Ptilothamnion pluma (Dillwyn) Thuret

[incl. *Spermothamnion barbatum*

(C. Agardh) Nägeli, 1862 and

Spermothamnion mesocarpum (Carmichael)

Chemin]

Ptilothamnion sphaericum (P. Crouan & H. Crouan ex J. Agardh) Maggs & Hommersand

Tribe Monosporeae F. Schmitz & Hauptfleisch, 1897

Monosporus Solier, 1845

Monosporus pedicellatus (Smith) Solier

Tribe Spermiothamnieae F. Schmitz & Hauptfleisch, 1897

Spermiothamnion Areschoug, 1847

Spermiothamnion repens (Dillwyn) Magnus

Spermiothamnion strictum (C. Agardh) Ardissonne

Tribe Sphondylothamnieae Feldmann-Mazoyer, 1941

Sphondylothamnion Nägeli, 1862

Sphondylothamnion multifidum (Hudson) Nägeli

Family Ceramiaceae Dumortier, 1822

Subfamily Ceramioideae De Toni, 1903

Tribe Antithamnieae Hommersand, 1963

Antithamnion Nägeli, 1847

Antithamnion cruciatum (C. Agardh) Nägeli

Antithamnion densum (Suhr) M. Howe

* *Antithamnion hubbsii* E. Y. Dawson

Antithamnion villosum (Kützing) Athanasiadis

Tribe Ceramieae C. Agardh ex Greville, 1828

Centroceras Kützing, 1842

* *Centroceras clavulatum* (C. Agardh) Montagne

Ceramium Roth, 1797

Ceramium bertholdii Funk

Ceramium botryocarpum A. W. Griffiths ex Harvey

Ceramium callipterum Mazoyer

Ceramium ciliatum (J. Ellis) Ducluzeau

Ceramium cimbricum H. E. Petersen

[= *Ceramium fastigiatum* Harvey, 1834]

Ceramium circinatum (Kützing) J. Agardh

Ceramium codii (H. Richards) Mazoyer

Ceramium comptum Børgesen

Ceramium deslongchampsii Chauvin ex Duby

Ceramium diaphanum (Lightfoot) Roth

[incl. *Ceramium tenuissimum* (Roth) J. Agardh, 1851]

Ceramium echionotum J. Agardh

Ceramium gaditanum (Clemente) Cremades

[= *Ceramium flabelligerum* J. Agardh, 1844]

Ceramium pallidum (Kützing) Maggs & Hommersand

[= *Ceramium armoricum* P. S. Dixon & H. M. Parkes, 1968]

* *Ceramium secundatum* Lyngbye

Ceramium shuttleworthianum (Kützing) Rabenhorst

Ceramium siliquosum (Kützing) Maggs & Hommersand

Ceramium tenuicorne (Kützing) Waern

[= *Ceramium strictum* Harvey, 1846]

Ceramium virgatum Roth

[= *Ceramium rubrum* C. Agardh, 1811]

Gayliella T. O. Cho, L. J. McIvor & S. M. Boo, 2008

Gayliella flaccida (Harvey ex Kützing) T. O. Cho & L. J. McIvor

[= *Ceramium flaccidum* (Harvey ex Kützing) Ardissonne, 1871]

Microcladia Greville, 1830

Microcladia glandulosa (Solander ex Turner) Greville

Tribe Dohrnielleae Feldmann-Mazoyer, 1941

Antithamnionella Lyle, 1922

Antithamnionella floccosa (O. F. Müller) Whittick

Antithamnionella spirographidis (Schiffner)

E. M. Wollaston

Antithamnionella ternifolia (Hooker fil. & Harvey) Lyle

[= *Antithamnionella sarniensis* Lyle, 1922]

Tribe Pterothamnieae Athanasiadis, 1996

Pterothamnion Nägeli, 1855

Pterothamnion crispum (Ducluzeau) Nägeli

Pterothamnion plumula (J. Ellis) Nägeli

Subfamily Compsothamnioideae De Toni, 1903

Tribe Compsothamnieae F. Schmitz &

Hauptfleisch, 1897

Composothamnion (Nägeli) F. Schmitz, 1889
Composothamnion decompositum (J. Agardh)
 Maggs & L'Hardy-Halos
 [incl. *Mesothamnion distichum* Halos ex
 G. R. South & Tittley, 1986]
Composothamnion gracillimum De Toni
Composothamnion thuioides (Smith) Nägeli

Subfamily Spongoconioideae De Toni, 1903

Tribe Spongoconieae F. Schmitz & Hauptfleisch,
 1897

Pleonosporium Nägeli, 1862
Pleonosporium borrieri (Smith) Nägeli
Pleonosporium flexuosum (C. Agardh) Bornet

Spongoconium Sonder, 1853
Spongoconium caribaeum (Børgesen)
 M. J. Wynne
 [= *Pleonosporium caribaeum* (Børgesen)
 R. E. Norris, 1985]

Subfamily Spyridioideae De Toni, 1903

Tribe Spyridieae F. Schmitz & Hauptfleisch, 1897

Spyridia Harvey, 1833
Spyridia filamentosa (Wulfen) Harvey
 * *Spyridia griffithiana* (J. E. Smith)
 G. C. Zuccarello, Prud'homme van Reine &
 H. Stegenga

Family Choreocolacaceae Sturch, 1926

Tribe Choreocolaceae Svedelius, 1911

Choreocolax Reinsch, 1875
Choreocolax polysiphoniae Reinsch

Tribe Harveyelleae Svedelius, 1911

Harveyella F. Schmitz & Reinke, 1889
Harveyella mirabilis (Reinsch) F. Schmitz &
 Reinke

Family Dasyaceae Kützing, 1843

Subfamily Dasyoideae De Toni, 1903

Dasya C. Agardh, 1824
Dasya corymbifera J. Agardh
Dasya hutchinsiae Harvey
Dasya ocellata (Grateloup) Harvey
Dasya punicea (Zanardini) Meneghini
 * *Dasya sessilis* Yamada

Dasysiphonia I. K. Lee & J. A. West, 1980
 * *Dasysiphonia japonica* (Yendo) H.-S. Kim

Subfamily Heterosiphonioideae H.-G. Choi,
 Kraft, I. K. Lee & G. W. Saunders, 2002

Heterosiphonia Montagne, 1842
Heterosiphonia plumosa (J. Ellis) Batters

Family Delesseriaceae Bory de Saint-Vincent,
 1828

Subfamily Delesserioideae Stizenberger, 1860

Tribe Apoglosseae Showe M. Lin, S. Fredericq &
 M. H. Hommersand, 2012

Apoglossocolax Maggs & Hommersand, 1993
 * *Apoglossocolax pusillus* Maggs &
 Hommersand

Apoglossum (J. Agardh) J. Agardh, 1898
Apoglossum ruscifolium (Turner) J. Agardh

Tribe Delesserieae J. Agardh, 1841

Delesseria J. V. Lamouroux, 1813
Delesseria sanguinea (Hudson)
 J. V. Lamouroux

Tribe Hypoglosseae M. J. Wynne, 2001

Hypoglossum Kützing, 1843
Hypoglossum hypoglossoides (Stackhouse)
 Collins & Hervey

Tribe Membranoptereae M. J. Wynne, 2001

Membranoptera Stackhouse, 1809
Membranoptera alata (Hudson) Stackhouse

Subfamily Nitophylloideae Stizenberger, 1860

Tribe Cryptopleureae M. J. Wynne, 2001

Acrosorium Zanardini ex Kützing, 1869
 * *Acrosorium ciliolatum* (Harvey) Kylin

Cryptopleura Kützing, 1843
Cryptopleura ramosa (Hudson) L. Newton
 [incl. *Acrosorium uncinatum* (Turner)
 Kylin, 1924]

Gonimophyllum Batters, 1892
Gonimophyllum buffhamii Batters

Gonimocolax Kylin, 1924

Gonimocolax roscoffensis Feldmann & G. Feldmann

Tribe Myriogrammeae M. S. Hommersand & S. Fredericq, 1997

Haraldiophyllum A. D. Zinova, 1981

Haraldiophyllum bonnemaisonii (Kylin) A. D. Zinova
[= *Myriogramme bonnemaisonii* Kylin, 1924]

Myriogramme Kylin, 1924

Myriogramme alliacea (P. Crouan & H. Crouan) Athanasiadis
[previously '*alliaceum*']
Myriogramme minuta Kylin

Tribe Nitophylleae Willkomm, 1854

Drachiella J. Ernst & Feldmann, 1957

Drachiella heterocarpa (Chauvin ex Duby) Maggs & Hommersand
[= *Myriogramme heterocarpa* (Chauvin ex Duby) P. S. Dixon & L. M. Irvine, 1976]
Drachiella spectabilis J. Ernst & Feldmann

Nitophyllum Greville, 1830

Nitophyllum punctatum (Stackhouse) Greville

Tribe Phycodryeae M. J. Wynne, 2001

Asterocolax Feldmann & G. Feldmann, 1951

Asterocolax erythroglossi Feldmann & G. Feldmann

Erythroglossum J. Agardh, 1898

Erythroglossum laciniatum (Lightfoot) Maggs & Hommersand
[= *Polyneura laciniata* (Lightfoot) P. S. Dixon, 1983 and *Porphyra umbilicalis* f. *laciniata* (Lightfoot) Thuret, 1863]

* *Erythroglossum lusitanicum* Ardré

Erythroglossum sandrianum (Kützing) Kylin

Haraldia Feldmann, 1939

Haraldia lenormandii (Derbès & Solier) Feldmann

Phycodrys Kützing, 1843

Phycodrys rubens (Linnaeus) Batters

Polyneura (J. Agardh) Kylin, 1924

Polyneura bonnemaisonii (C. Agardh) Maggs & Hommersand
[= *Polyneura hilliae* (Greville) Kylin, 1924]

Tribe Valeriemayaeae M. J. Wynne & A. J. K. Millar, 2001

Radicilingua Papenfuss, 1956

Radicilingua thysanorhizans (Holmes) Papenfuss

Family Rhodomelaceae Horaninow, 1847

Tribe Amansieae Schmitz & Hauptfleisch, 1897

Halopithys Kützing, 1843

Halopithys incurva (Hudson) Batters
[previously '*incurvus*']

Rytiphlaea C. Agardh, 1817

Rytiphlaea tinctoria (Clemente) C. Agardh

Tribe Bostrychieae Falkenberg, 1901

Bostrychia Montagne, 1842

Bostrychia scorpioides (Hudson) Montagne

Tribe Chondrieae F. Schmitz & Falkenberg, 1897

Chondria C. Agardh, 1817

Chondria capillaris (Hudson) M. J. Wynne
[= *Chondria tenuissima* (Withering) C. Agardh, 1817]
Chondria coeruleascens (J. Agardh) Sauvageau
Chondria dasyphylla (Woodward) C. Agardh
Chondria scintillans G. Feldmann

Tribe Herposiphonieae F. Schmitz & Falkenberg, 1897

Herposiphonia Nägeli, 1846

* *Herposiphonia parca* Setchell
Herposiphonia secunda (C. Agardh) Ambronn

Tribe Laurencieae F. Schmitz, 1889

Laurencia J. V. Lamouroux, 1813

Laurencia obtusa (Hudson) J. V. Lamouroux
Laurencia pyramidalis Bory ex Kützing

Osmundea Stackhouse, 1809

Osmundea hybrida (A. P. De Candolle)

K. W. Nam
 [= *Laurencia hybrida* (A. P. De Candolle)
 T. Lestiboudois, 1827]

Osmundea oederi (Gunnerus) G. Furnari
 [= *Laurencia platycephala* Kützing, 1865]

Osmundea osmunda (S. G. Gmelin) K. W. Nam
 & Maggs

[= *Laurencia osmunda* (S. G. Gmelin)
 Maggs & Hommersand, 1993]

Osmundea pinnatifida (Hudson) Stackhouse
 [= *Laurencia pinnatifida* (Hudson)
 J. V. Lamouroux, 1813]

* *Osmundea truncata* (Kützing) K. W. Nam &
 Maggs

Tribe Lophosiphoniae Kylin, 1956

Lophosiphonia Falkenberg, 1897
Lophosiphonia obscura (C. Agardh)
 Falkenberg
 [= *Lophosiphonia subadunca* (Kützing)
 Falkenberg, 1901]

Tribe Ophidocladaceae Díaz-Tapia & Maggs, 2017

Ophidocladus Falkenberg, 1897
Ophidocladus simpliciusculus (P. Crouan &
 H. Crouan) Falkenberg
 [= *Polysiphonia simpliciuscula* P. Crouan
 & H. Crouan, 1852]

Tribe Polysiphoniae Ardissonne, 1883

Polysiphonia Greville, 1823
Polysiphonia atlantica Kapraun & J. N. Norris
 [incl. *Polysiphonia macrocarpa* Harvey,
 1836]
Polysiphonia brodiei (Dillwyn) Sprengel
 [previously '*brodiaei*']
Polysiphonia ceramiiformis P. Crouan &
 H. Crouan
 [previously '*ceramiaeformis*']
Polysiphonia denudata (Dillwyn) Greville ex
 Harvey
Polysiphonia elongata (Hudson) Sprengel
Polysiphonia elongella Harvey
Polysiphonia fibrata (Dillwyn) Harvey
Polysiphonia fibrillosa (Dillwyn) Sprengel
 * *Polysiphonia morrowii* Harvey
Polysiphonia opaca (C. Agardh) Moris &
 De Notaris
Polysiphonia polyspora (C. Agardh) Montagne
Polysiphonia rhumensis Thuret

Polysiphonia stricta (Mertens ex Dillwyn)
 Greville

[= *Polysiphonia urceolata* (Lightfoot ex
 Dillwyn) Greville, 1824]

Tribe Pterosiphoniae Falkenberg, 1901

Pterosiphonia Falkenberg, 1897
Pterosiphonia complanata (Clemente)
 Falkenberg

Symphyocladia Falkenberg, 1897
Symphyocladia parasitica (Hudson) Savoie &
 G. W. Saunders
 [= *Pterosiphonia parasitica* (Hudson)
 Falkenberg, 1901]

* *Symphyocladia tanakae* (Uwai & Masuda)
 Savoie & G. W. Saunders

Xiphosiphonia Savoie & G. W. Saunders, 2016
Xiphosiphonia ardreana (Maggs &
 Hommersand) Savoie & G. W. Saunders
 [= *Pterosiphonia ardreana* Maggs &
 Hommersand, 1993]

Xiphosiphonia pennata (C. Agardh) Savoie &
 G. W. Saunders
 [= *Pterosiphonia pennata* (C. Agardh)
 Sauvageau, 1897]

* *Xiphosiphonia pinnulata* (Kützing) Savoie &
 G. W. Saunders

Tribe Rhodomeleae Schmitz & Falkenberg, 1897

Odonthalia Lyngbye, 1819
Odonthalia dentata (Linnaeus) Lyngbye

Rhodomela C. Agardh, 1822
Rhodomela confervoides (Hudson) P. C. Silva
Rhodomela lycopodioides (Linnaeus)
 C. Agardh

Tribe Streblocladiaceae Díaz-Tapia & Maggs, 2017

Leptosiphonia Kylin, 1956
Leptosiphonia schousboei (Thuret) Kylin

Melanothamnus Bornet & Falkenberg, 1901
Melanothamnus collabens (C. Agardh) Díaz-
 Tapia & Maggs
 [= *Streblocladia collabens* (C. Agardh)
 Falkenberg, 1901]
Melanothamnus ferulaceus (Suhr ex J. Agardh)
 Díaz-Tapia & Maggs

- [= *Polysiphonia ferulacea* Suhr ex J. Agardh, 1863]
Melanothamnus harveyi (Bailey) Díaz-Tapia & Maggs
 [= *Polysiphonia insidiosa* (J. Agardh) P. Crouan & H. Crouan, 1867]
- Vertebrata** S. F. Gray, 1821
Vertebrata byssoides (Goodenough & Woodward) Kuntze
 [= *Brongniartella byssoides* (Goodenough & Woodward) F. Schmitz, 1893]
Vertebrata foetidissima (Cocks ex Bornet) Díaz-Tapia & Maggs
 [= *Polysiphonia foetidissima* Cocks ex Bornet, 1892]
Vertebrata fruticulosa (Wulfen) Kuntze
 [= *Polysiphonia fruticulosa* (Wulfen) Sprengel, 1827]
Vertebrata fucoides (Hudson) Kuntze
 [= *Polysiphonia nigrescens* (Hudson) Greville ex Harvey, 1833]
Vertebrata furcellata (C. Agardh) Kuntze
 [= *Polysiphonia furcellata* (C. Agardh) Harvey, 1833]
Vertebrata hypnoides (Welwitsch) Kuntze
 [= *Ctenosiphonia hypnoides* (Welwitsch) Falkenberg, 1897]
Vertebrata lanosa (Linnaeus) T. A. Christensen
 [= *Polysiphonia lanosa* (Linnaeus) Tandy, 1931]
Vertebrata nigra (Hudson) Díaz-Tapia & Maggs
 [= *Polysiphonia nigra* (Hudson) Batters, 1902]
Vertebrata reptabunda (Suhr) Díaz-Tapia & Maggs
 [= *Lophosiphonia reptabunda* (Suhr) Kylin, 1956]
Vertebrata simulans (Harvey) Kuntze
 [= *Polysiphonia simulans* Harvey, 1849]
Vertebrata subulifera (C. Agardh) Kuntze
 [= *Polysiphonia subulifera* (C. Agardh) Harvey, 1834]
Vertebrata thuyoides (Harvey) Kuntze
 [= *Pterosiphonia thuyoides* (Harvey) Batters, 1902]
- PHAEOPHYCEAE** Kjellman, 1891
- Order Sphacelariales** Migula, 1908
Family Cladostephaceae Oltmanns, 1922
- Cladostephus* C. Agardh, 1817
Cladostephus spongiosum (Hudson) C. Agardh [previously 'spongiosus']
Chaetopteris Kützing, 1843
Chaetopteris plumosa (Lyngbye) Kützing
 [= *Sphacelaria plumosa* Lyngbye, 1819]
- Herpodiscus* G. R. South, 1974
Herpodiscus sympodiocarpus (Sauvageau) S. G. A. Draisma, W. F. Prud'homme van Reine & H. Kawai
 [= *Sphacelaria sympodiocarpa* Sauvageau, 1900]
- Sphacelaria* Lyngbye, 1819
Sphacelaria cirrosa (Roth) C. Agardh
Sphacelaria fusca (Hudson) S. F. Gray
Sphacelaria plumula Zanardini
Sphacelaria rigidula Kützing
Sphacelaria tribuloides Meneghini
- Sphacelorbis* Draisma, Prud'homme & H. Kawai, 2010
Sphacelorbis nanus (Nägeli ex Kützing) Draisma, Prud'homme & H. Kawai
 [= *Sphacelaria nana* Nägeli ex Kützing, 1855, incl. *Sphacelaria britannica* Sauvageau, 1901]
- Family Sphacelodermaceae** Draisma, Prud'homme & H. Kawai, 2010
Sphaceloderma Kuckuck, 1894
Sphaceloderma caespitulum (Lyngbye) Draisma, Prud'homme & H. Kawai
 [= *Sphacelaria caespitula* Lyngbye, 1819]
- Family Stypocaulaceae** Oltmanns, 1922
- Halopteris* Kützing, 1843
Halopteris filicina (Grateloup) Kützing
Halopteris scoparia (Linnaeus) Sauvageau
- Protohalopteris* Draisma, Prud'homme & H. Kawai, 2010
Protohalopteris radicans (Dillwyn) Draisma, Prud'homme & H. Kawai
 [= *Sphacelaria radicans* (Dillwyn) C. Agardh, 1824]

Dumortier, 1822

Tribe Dictyoteae Greville, 1833

Dictyota J. V. Lamouroux, 1809

Dictyota dichotoma (Hudson) J. V. Lamouroux

Dictyota fasciola (Roth) J. V. Lamouroux

[= *Dilophus fasciola* (Roth) M. Howe, 1914]

Dictyota spiralis Montagne

[= *Dilophus spiralis* (Montagne) Hamel, 1939]

Tribe Zonarieae O. C. Schmidt, 1938

Dictyopteris J. V. Lamouroux, 1809

Dictyopteris polypodioides (A. P. De Candolle)

J. V. Lamouroux

[= *Dictyopteris membranacea* Batters, 1902]

Padina Adanson, 1763

Padina pavonica (Linnaeus) Thivy

Spatoglossum Kützing, 1843

Spatoglossum solieri (Chauvin ex Montagne)

Kützing

Taonia J. Agardh, 1848

Taonia atomaria (Woodward) J. Agardh

Order Scytothamnales A. F. Peters &

M. N. Clayton, 1998

Family Bachelotiaceae T. Silberfeld,

M.-F. Racault, R. L. Fletcher, F. Rousseau &

B. de Reviers, 2011

Bachelotia (Bornet) Kuckuck ex Hamel, 1939

Bachelotia antillarum (Grunow) Gerloff

Order Ectocarpales Bessey, 1907

Family Acinetosporaceae G. Hamel ex Feldmann, 1937

Acinetospora Bornet, 1892

Acinetospora crinita (Carmichael) Sauvageau

Feldmannia Hamel, 1939

Feldmannia globifera (Kützing) Hamel

Feldmannia irregularis (Kützing) Hamel

Feldmannia lebelii (Areschoug ex P. Crouan & H. Crouan) Hamel

[= *Feldmannia caespitula* (J. Agardh) Knoepffler-Péguy, 1970]

Feldmannia mitchelliae (Harvey) H.-S. Kim

[= *Hincksia mitchelliae* (Harvey) P. C. Silva, 1987]

Feldmannia padinae (Buffham) Hamel

Feldmannia paradoxa (Montagne) Hamel

Feldmannia simplex (P. Crouan & H. Crouan) Hamel

Herponema J. Agardh, 1882

Herponema desmarestiae (H. Gran) Cardinal

Herponema solitarium (Sauvageau) Hamel

Herponema valiantei (Bornet) Hamel

Herponema velutinum (Greville) J. Agardh

Hincksia J. E. Gray, 1864

Hincksia fenestrata (Berkeley ex Harvey)

P. C. Silva

Hincksia granulosa (Smith) P. C. Silva

[incl. *Hincksia recurvata* (Cardinal) Athanasiadis, 1996]

Hincksia hincksiae (Harvey) P. C. Silva

Hincksia ovata (Kjellman) P. C. Silva

[incl. *Hincksia intermedia* (Rosenvinge) P. C. Silva, 1987]

Hincksia sandriana (Zanardini) P. C. Silva

Hincksia secunda (Kützing) P. C. Silva

Kuetzingiella Kornmann, 1956

Kuetzingiella battersii (Bornet ex Sauvageau)

Kornmann

Pogotrichum Reinke, 1892

Pogotrichum filiforme Reinke

Pylaiella Bory de Saint-Vincent, 1823

Pylaiella littoralis (Linnaeus) Kjellman

Family Petrospongiaceae Racault, Fletcher,

De Reviers, G. Y. Cho, S. M. Boo, Parente &

F. Rousseau, 2009

Petrospongium Nägeli ex Kützing, 1858

Petrospongium berkeleyi (Greville) Nägeli ex Kützing

[= *Cylindrocarpus berkeleyi* (Greville) P. Crouan & H. Crouan]

Family Chordariaceae Greville, 1830

Asperococcus J. V. Lamouroux, 1813

Asperococcus bullosus J. V. Lamouroux

[= *Asperococcus turneri* (Dillwyn ex Smith) W. J. Hooker, 1833]

- Asperococcus ensiformis* (Delle Chiaje)
M. J. Wynne
[= *Asperococcus compressus*
A. W. Griffiths ex W. J. Hooker, 1833]
Asperococcus fistulosus (Hudson) W. J. Hooker
[incl. phase *Chilionema reptans* (P. Crouan
& H. Crouan) Sauvageau, 1897]
* *Asperococcus scaber* Kuckuck
- Chilionema* Sauvageau, 1898
Chilionema hispanicum (Sauvageau)
R. L. Fletcher
Chilionema ocellatum (Kützing) Kornmann
- Chordaria* C. Agardh, 1817
Chordaria flagelliformis
(O. F. Müller) C. Agardh
- Cladosiphon* Kützing, 1843
Cladosiphon contortus (Thuret) Kylin
Cladosiphon zosteræ (J. Agardh) Kylin
- Clathrodiscus* Hamel, 1935
Clathrodiscus mandoulii (Sauvageau) Hamel
[incl. *Myrionema mandoulii* Sauvageau,
1933]
- Climacosorus* Sauvageau, 1933
Climacosorus mediterraneus Sauvageau
- Corynophlaea* Kützing, 1843
Corynophlaea crispa (Harvey) Kuckuck
- Cylindrocarpus* P. Crouan & H. Crouan, 1851
Cylindrocarpus microscopicus P. Crouan &
H. Crouan
- Dictyosiphon* Greville, 1830
Dictyosiphon foeniculaceus (Hudson) Greville
[= *Dictyosiphon foeniculaceus* f.
hippuroides (Lyngbye) Levring, 1940]
- Elachista* Duby, 1830
Elachista flaccida (Dillwyn) Fries
Elachista fucicola (Vellej) Areschoug
Elachista intermedia P. Crouan & H. Crouan
Elachista scutulata (Smith) Areschoug
Elachista stellaris Areschoug
- Endodictyon* Gran, 1897
Endodictyon infestans Gran
- Eudesme* J. Agardh, 1882
Eudesme virescens (Carmichael ex Berkeley)
J. Agardh
- Giraudya* Derbès & Solier, 1851
Giraudya sphaclarioides Derbès & Solier
- Halothrix* Reinke, 1888
Halothrix lumbricalis (Kützing) Reinke
- Hecatonema* Sauvageau, 1898
Hecatonema terminale (Kützing) Kylin
[= *Hecatonema maculans* (Collins)
Sauvageau, 1897], may refer to several
species
- Isthmoplea* Kjellman, 1877
Isthmoplea sphaerophora (Carmichael) Gobi
- Laminariocolax* Kylin, 1947
Laminariocolax aecidioides (Rosenvinge)
A. F. Peters
[= *Gononema aecidioides* (Rosenvinge)
P. M. Pedersen, 1981]
Laminariocolax tomentosoides (Farlow) Kylin
- Leathesia* S. F. Gray, 1821
Leathesia marina (Lyngbye) Decaisne
[= *Leathesia difformis* Areschoug, 1847]
- Leblondiella* Hamel, 1939
Leblondiella densa (Batters) Hamel
- Leptonematella* P. C. Silva, 1959
Leptonematella fasciculata (Reinke) P. C. Silva
- Litosiphon* Harvey, 1849
Litosiphon laminariae (Lyngbye) Harvey
[incl. *Litosiphon pusillus* (Carmichael)
Harvey, 1849 and phase *Streblonema*
thuretii Sauvageau, 1936]
- Mesogloia* C. Agardh, 1817
Mesogloia lanosa P. Crouan & H. Crouan
Mesogloia leveillei (J. Agardh) Meneghini
[= *Liebmannia leveillei* J. Agardh, 1842]
Mesogloia vermiculata (Smith) S. F. Gray
- Microspongium* Reinke, 1888
Microspongium globosum Reinke
Microspongium stilophoræ (P. Crouan &
H. Crouan) Cormaci & G. Furnari
[= *Streblonema stilophoræ* (P. Crouan &
H. Crouan) De Toni, 1897]

- Mikrosyphar* Kuckuck, 1895
Mikrosyphar polysiphoniae Kuckuck
Mikrosyphar porphyrae Kuckuck
- Myriactula* Kuntze, 1898
Myriactula areschougii (P. Crouan & H. Crouan) Hamel
Myriactula chordae (Areschoug) Levring
Myriactula clandestina (P. Crouan & H. Crouan) Feldmann
Myriactula rivulariae (Suhr ex Areschoug) Feldmann
Myriactula stellulata (Harvey) Levring
- Myriocladia* J. Agardh, 1841
Myriocladia lovenii J. Agardh
Myriocladia tomentosa P. Crouan & H. Crouan
- Myrionema* Greville, 1827
Myrionema corunnae Sauvageau
Myrionema feldmannii Loiseaux
Myrionema foecundum (Strömfelt) Sauvageau
 [= *Chilionema foecundum* (Strömfelt) R. L. Fletcher, 1987]
Myrionema magnusii (Sauvageau) Loiseaux
Myrionema papillosum Sauvageau
Myrionema strangulans Greville
- Myriotrichia* Harvey, 1834
Myriotrichia claviformis Harvey
 [previously '*clavaeformis*', incl. phase
Streblonema sphaericum (Derbès & Solier) Thuret, 1863]
- Pilocladus* Kornmann, 1954
Pilocladus volubilis (P. Crouan & H. Crouan) Kornmann
 [= *Streblonema volubile* (P. Crouan & H. Crouan) Pringshein, 1862]
- Protectocarpus* Kornmann, 1955
Protectocarpus speciosus (Børgesen) Kornmann
- Punctaria* Greville, 1830
Punctaria crispata (Kützing) Trevisan
Punctaria latifolia Greville
 [incl. *Punctaria crouanii* (Thuret) Bornet and *Punctaria hiemalis* Kylin, 1907]
 * *Punctaria plantaginea* (Roth) Greville
Punctaria tenuissima (C. Agardh) Greville
 [incl. *Desmotrichum undulatum* (J. Agardh) Reinke, 1889 and phase
- Streblonema effusum* Kylin, 1907]
- Sauvageaugloia* Hamel ex Kylin, 1940
Sauvageaugloia divaricata (Clemente) Cremades
 [= *Sauvageaugloia chordariiformis* (P. Crouan & H. Crouan) Kylin, 1940 and *Sauvageaugloia griffithsiana* (Greville) Hamel ex Kylin, 1940]
- Spermatocchnus* Kützing, 1843
Spermatocchnus paradoxus (Roth) Kützing
- Sphaerotrichia* Kylin, 1940
Sphaerotrichia divaricata (C. Agardh) Kylin
- Stictosiphon* Kützing, 1843
Stictosiphon griffithsianus (Le Jolis) Holmes & Batters
Stictosiphon soriferus (Reinke) Rosenvinge
Stictosiphon tortilis (Gobi) Reinke
- Stilophora* J. Agardh, 1841
Stilophora tenella (Esper) P. C. Silva
 [= *Stilophora rhizodes* (C. Agardh) J. Agardh, 1841]
- Stilopsis* Kuckuck, 1929
Stilopsis lejolisii (Thuret) Kuckuck & Nienburg ex Hamel
- Streblonema* Derbès & Solier, 1851
Streblonema breve (Sauvageau) De Toni
Streblonema fasciculatum Thuret
Streblonema maculans G. R. South & Tittley
Streblonema parasiticum (Sauvageau) De Toni
Streblonema zanardinii (P. Crouan & H. Crouan) De Toni
- Strepsithalia* Bornet ex Sauvageau, 1896
Strepsithalia curvata Sauvageau
Strepsithalia liagorae Sauvageau
Strepsithalia liebmanniae Miranda
- Striaria* Greville, 1828
Striaria attenuata (Greville) Greville
- Ulonema* Foslie, 1893
Ulonema rhizophorum Foslie
- Family Ectocarpaceae** C. Agardh, 1828
Ectocarpus Lyngbye, 1819

- Ectocarpus crouaniorum* Thuret
[= *Ectocarpus confervoides* var. *crouanii*
A. Cardinal, 1964]
- Ectocarpus fasciculatus* Harvey
[= *Ectocarpus fasciculatus* var.
fasciculatus Harvey, 1841, *Ectocarpus*
draparnaldioides (P. Crouan & H. Crouan)
Kjellman and *Ectocarpus fasciculatus* var.
pyncocarpus Cardinal]
- Ectocarpus siliculosus* (Dillwyn) Lyngbye
[= *Ectocarpus confervoides* var.
siliculosus (Dillwyn) Farlow, 1881,
Ectocarpus confervoides var. *arctus*
(Kützing) L. Newton and *Ectocarpus*
confervoides var. *confervoides* (Roth)
Kjellmann]
- Kuckuckia* Hamel, 1939
Kuckuckia spinosa (Kützing) Kornmann
[incl. *Kuckuckia kyllinii* Cardinal, 1964]
- Phaeostroma* Kuckuck, 1893
Phaeostroma pustulosum Kuckuck
[incl. *Streblonema aequale* Oltmanns,
1894]
- Pilinia* Kützing, 1843
Pilinia rimosa Kützing
[= *Waermiella lucifuga* (Kuckuck) Kylin,
1947]
- Pleurocladia* A. Braun, 1855
Pleurocladia lacustris A. Braun
[= *Ectocarpus maritimus* (Kjellman)
Rosenvinge, 1910]
- Spongonema* Kützing, 1849
Spongonema tomentosum (Hudson) Kützing
- Family Scytosiphonaceae** Farlow, 1881
- Colpomenia* (Endlicher) Derbès & Solier, 1851
Colpomenia peregrina Sauvageau
Colpomenia sinuosa (Mertens ex Roth) Derbès
& Solier
- Petalonia* Derbès & Solier, 1850
Petalonia fascia (O. F. Müller) Kuntze
- Planosiphon* McDevit & G. W. Saunders, 2017
Planosiphon zosterifolius (Reinke) McDevit &
G. W. Saunders
[= *Petalonia zosterifolia* (Reinke)
- Kuntze, 1898]
- Scytosiphon* C. Agardh, 1820
Scytosiphon lomentaria (Lyngbye) Link
[incl. prostrate phase *Microspongium*
gelatinosum Reinke, 1888]
- Sorapion* Kuckuck, 1894
Sorapion simulans Kuckuck
- Stragularia* Strömfelt, 1886
Stragularia clavata (Harvey) Hamel
[= *Ralfsia disciformis* P. Crouan &
H. Crouan, 1867]
Stragularia spongiocarpa (Batters) Hamel
- Symphycarpus* Rosenvinge, 1893
Symphycarpus strangulans Rosenvinge
- Order Ralfsiales** Nakamura ex P.-E. Lim &
H. Kawai, 2007
Family Ralfsiaceae W. G. Farlow, 1881
- Ralfsia* M. J. Berkeley, 1843
Ralfsia verrucosa (Areschoug) Areschoug
- Pseudolithoderma* Svedelius, 1911
Pseudolithoderma extensum (P. Crouan &
H. Crouan) S. Lund
Pseudolithoderma roscoffense Loiseaux
[previously '*roscoffensis*']
- Order Sporochnales** Nakamura ex P.-E. Lim &
H. Kawai, 2007
Family Sporochneaceae W. G. Farlow, 1881
- Carpomitra* Kützing, 1843
Carpomitra costata (Stackhouse) Batters
- Sporochnus* C. Agardh, 1817
Sporochnus pedunculatus (Hudson) C. Agardh
- Order Tilopteridales** Nakamura ex P.-E. Lim &
H. Kawai, 2007
Family Halosiphonaceae W. G. Farlow, 1881
- Halosiphon* Jaasund, 1957
Halosiphon tomentosus (Lyngbye) Jaasund
[= *Chorda tomentosa* Lyngbye, 1819]
- Family Phyllariaceae** Tilden, 1935
Phyllariopsis E. C. Henry & G. R. South, 1987

- Phyllariopsis brevipes* (C. Agardh) E. C. Henry & G. R. South
[previously '*Phyllaria*']
- Saccorhiza* Bachelot de la Pylaie, 1830
Saccorhiza polyschides (Lightfoot) Batters
- Haplospora* Kjellman, 1872
Haplospora globosa Kjellman
- Tilopteris* Kützing, 1849
Tilopteris mertensii (Turner) Kützing
- Family Cutleriaceae** J. W. Griffith & A. Henfrey, 1856
- Cutleria* Greville, 1830
Cutleria adspersa (Mertens ex Roth) De Notaris
[incl. prostrate phase *Aglaozonia melanoidea* Sauvageau, 1899]
Cutleria multifida (Turner) Greville
[incl. prostrate phase *Aglaozonia parvula* (Greville) Zanardini, 1843]
- Zanardinia* Nardo ex Zanardini, 1841
Zanardinia typus (Nardo) P. C. Silva
[previously '*prototypus*']
- Order Desmarestiales** Setchell & Gardner, 1925
Family Arthrocladiaceae Chauvin, 1842
- Arthrocladia* Duby, 1830
Arthrocladia villosa (Hudson) Duby
- Family Desmarestiaceae** (Thuret) Kjellman, 1880
- Desmarestia* J. V. Lamouroux, 1813
Desmarestia aculeata (Linnaeus)
J. V. Lamouroux
Desmarestia dudresnayi J. V. Lamouroux ex Léman
Desmarestia ligulata (Stackhouse)
J. V. Lamouroux
Desmarestia viridis (O. F. Müller)
J. V. Lamouroux
- Order Laminariales** Migula, 1909
Family Alariaceae Setchell & N. L. Gardner, 1925
- Alaria* Greville, 1830
Alaria esculenta (Linnaeus) Greville
- Undaria* Suringar, 1873
- Undaria pinnatifida* (Harvey) Suringar
- Family Chordaceae** Dumortier, 1822
- Chorda* Stackhouse, 1797
Chorda filum (Linnaeus) Stackhouse
- Family Laminariaceae** Bory de Saint-Vincent, 1820
- Laminaria* J. V. Lamouroux, 1813
Laminaria digitata (Hudson) J. V. Lamouroux
Laminaria hyperborea (Gunnerus) Foslie
Laminaria ochroleuca Bachelot de la Pylaie
- Saccharina* Stackhouse, 1809
Saccharina latissima (Linnaeus) C. E. Lane, C. Mayes, Druehl & G. W. Saunders
[= *Laminaria saccharina* (Linnaeus) J. V. Lamouroux, 1813]
- Order Fucales** Migula, 1909
Family Sargassaceae Kützing, 1843
- Bifurcaria* Stackhouse, 1809
Bifurcaria bifurcata R. Ross
- Cystoseira* C. Agardh, 1820
Cystoseira baccata (S. G. Gmelin) P. C. Silva
Cystoseira foeniculacea (Linnaeus) Greville
Cystoseira humilis Schousboe ex Kützing
Cystoseira nodicaulis (Withering) M. Roberts
Cystoseira tamariscifolia (Hudson) Papenfuss
Cystoseira usneoides (Linnaeus) M. Roberts
- Halidrys* Lyngbye, 1819
Halidrys siliquosa (Linnaeus) Lyngbye
- Sargassum* C. Agardh, 1820
Sargassum flavifolium Kützing
Sargassum muticum (Yendo) Fensholt
Sargassum natans (Linnaeus) Gaillon
Sargassum vulgare C. Agardh
- Family Fucaeeae** Adanson, 1763
- Ascophyllum* Stackhouse, 1809
Ascophyllum nodosum (Linnaeus) Le Jolis
- Fucus* Linnaeus, 1753
Fucus ceranoides Linnaeus
Fucus chalonii Feldmann
Fucus cottonii M. J. Wynne & Magne

- * *Fucus guiryi* Zardi, Nicastro, E. S. Serrão & G. A. Pearson
- Fucus serratus* Linnaeus
- Fucus spiralis* Linnaeus
- Fucus vesiculosus* Linnaeus
[incl. *Fucus balticus* C. Agardh, 1814]

Pelvetia Decaisne & Thuret, 1845
Pelvetia canaliculata (Linnaeus) Decaisne & Thuret

Family Himanthaliaceae (Kjellman) De Toni, 1891

Himanthalia Lyngbye, 1819
Himanthalia elongata (Linnaeus) S. F. Gray

CHLOROPHYTA Pascher, 1914

Class Trebouxiophyceae Friedl, 1995

Order Prasiolales J. H. Schaffner, 1922

Family Prasiolaceae F. F. Blackman & A. G. Tansley, 1902

Prasiola (C. Agardh) Meneghini, 1938

- * *Prasiola calophylla* (Carmichael ex Greville) Kützing
- * *Prasiola furfuracea* (Mertens ex Hornemann) Trevisan
- Prasiola stipitata* Suhr ex Jessen

Rosenvingiella (C. Agardh) P. C. Silva, 1957
Rosenvingiella polyrhiza (Rosenvinge) P. C. Silva

- * *Rosenvingiella radicans* (Carmichael ex Greville) (Kützing) Rindi, L. McIvor & Guiry

Class Ulvophyceae K. R. Mattox & K. D. Stewart, 1984

Order Cladophorales Haeckel, 1894

Family Cladophoraceae Wille, 1884

Chaetomorpha Kützing, 1845
Chaetomorpha aerea (Dillwyn) Kützing

Chaetomorpha ligustica (Kützing) Kützing
[= *Chaetomorpha capillaris* (Kützing) Børgesen, 1925, incl. *Rhizoclonium arenosum* (Carmichael) Kützing, 1849 and *Rhizoclonium lubricum* Setchell & N. L. Gardner, 1919]

Chaetomorpha linum (O. F. Müller) Kützing
Chaetomorpha melagonium (F. Weber & D. Mohr) Kützing

Cladophora Kützing, 1845
Cladophora albida (Nees) Kützing

Cladophora coelothrix Kützing
Cladophora dalmatica Kützing

- * *Cladophora flexuosa* (O. F. Müller) Kützing
- Cladophora fracta* (O. F. Müller ex Vahl) Kützing
- * *Cladophora globulina* (Kützing) Kützing
- Cladophora glomerata* (Linnaeus) Kützing
- Cladophora hutchinsiae* (Dillwyn) Kützing
- Cladophora laetevirens* (Dillwyn) Kützing
- Cladophora lehmanniana* (Lindenberg) Kützing
- Cladophora liniformis* Kützing
- Cladophora prolifera* (Roth) Kützing
- Cladophora retroflexa* (Bonnemaison ex P. Crouan & H. Crouan) Hamel
- * *Cladophora ruchingeri* (C. Agardh) Kützing
- Cladophora rupestris* (Linnaeus) Kützing
- Cladophora sericea* (Hudson) Kützing
- Cladophora vagabunda* (Linnaeus) Hoek

Lychaete J. Agardh, 1846

- Lychaete battersii* (C. Hoek) M. J. Wynne
[= *Cladophora battersii* C. Hoek, 1963]
- Lychaete pellucida* (Hudson) M. J. Wynne
[= *Cladophora pellucida* (Hudson) Kützing, 1843]
- Lychaete pygmaea* (Reinke) M. J. Wynne
[= *Cladophora pygmaea* Reinke, 1888]
- * *Lychaete rhodolithicola* (Leliaert) M. J. Wynne

Rhizoclonium Kützing, 1843

Rhizoclonium riparium (Roth) Harvey
[incl. *Rhizoclonium kernerii* Stockmayer, 1890 and *Pseudoclonium riparium* (Roth) Harvey]

Rhizoclonium tortuosum (Dillwyn) Kützing

Family Okellyaceae Leliaert & Rueness, 2009

Okellya Leliaert & Rueness, 2009
Okellya curvata (Printz) Leliaert & Rueness
[= *Uronema curvatum* Printz, 1926]

Family Pithophoraceae Wittrock, 1877

Aegagropila Kützing, 1843

- * *Aegagropila linnaei* Kützing

Wittrockiella Wille, 1909

Wittrockiella amphibia (Collins) C. Boedeker & G. I. Hansen

[= *Wittrockiella paradoxa* Wille, 1909]

Order Bryopsidales J. H. Schaffner, 1922

Family Chaetosiphonaceae F. F. Blackman & Tansley, 1902

Blastophysa Reinke, 1889

Blastophysa rhizopus Reinke

Family Bryopsidaceae Bory de Saint-Vincent, 1829

Bryopsis J. V. Lamouroux, 1809

Bryopsis hypnoides J. V. Lamouroux

Bryopsis plumosa (Hudson) C. Agardh

Family Codiaceae Kützing, 1843

Codium Stackhouse, 1797

Codium adhaerens C. Agardh

Codium bursa (Olivi) C. Agardh

Codium decorticans (Woodward) M. Howe

Codium fragile (Suringar) Hariot

Codium tomentosum Stackhouse

Codium vermilara (Olivi) Delle Chiaje

Family Derbesiaceae Hauck, 1884

Derbesia Solier, 1846

Derbesia marina (Lyngbye) Solier

[incl. the gametophyte phase *Halicystis*

ovalis (Lyngbye) Areschoug, 1850]

Derbesia tenuissima (Moris & De Notaris)

P. Crouan & H. Crouan

[incl. the gametophyte phase *Halicystis*

parvula F. Schmitz ex Murray, 1893]

Family Ostreobiaceae P. C. Silva ex Maggs & J. Brodie, 2007

Ostreobium Bornet & Flahault, 1889

Ostreobium quekettii Bornet & Flahault

Pedobesia MacRaid & Womersley, 1974

Pedobesia simplex (Meneghini ex Kützing)

M. J. Wynne & F. Leliaert

[= *Pedobesia lamourouxii* (J. Agardh)

Feldmann, Loreau, Codomier & Couté,

1975]

Chlorochytrium Cohn, 1872

Chlorochytrium cohnii E. P. Wright

Sykidion E. P. Wright, 1881

* *Sykidion droebakense* Wille

Order Oltmannsiellopsidales T. Nakayama, Shin Watanabe & I. Inouye, 1996

Family Oltmannsiellopsidaceae T. Nakayama, Shin Watanabe & I. Inouye, 1996

Halochlorococcum P. J. L. Dangeard ex Guiry, 2017

* *Halochlorococcum moorei* (N. L. Gardner) Kornmann & Sahling ex Guiry

Neodangemania M. J. Wynne, G. Furnari, A. Kryvenda & T. Friedl, 2014

Neodangemania microcystis M. J. Wynne, G. Furnari, Kryvenda & Friedl

[= *Planophila microcystis*

(P. J. L. Dangeard) Kornmann & Sahling, 1983]

Order Ulotrichales Borzi, 1895

Family Ulotrichaceae Kützing, 1843

Acrosiphonia J. Agardh, 1846

Acrosiphonia arcta (Dillwyn) Gain

[= *Acrosiphonia arctuscula* (Kützing)

Jónsson and *Acrosiphonia centralis*

(Lyngbye) Kjellman, 1893]

Acrosiphonia spinescens (Kützing) Kjellman

Chlorothrix Y. Berger-Perrot, 1982

Chlorothrix gracilis (Berger-Perrot)

Berger-Perrot & Thomas

Chlorothrix intermedia (Berger-Perrot)

G. R. South & Tittley

Chlorothrix kormmannii (Berger-Perrot)

Berger-Perrot & Thomas

Spongomorpha Kützing, 1843

Spongomorpha aeruginosa (Linnaeus) Hoek

Ulothrix Kützing, 1833

Ulothrix flacca (Dillwyn) Thuret

Ulothrix implexa (Kützing) Kützing

Ulothrix palusals Lokhorst

Ulothrix spectiosa (Carmichael) Kützing

Ulothrix subflaccida Wille

Urospora Areschoug, 1866

Urospora bangioides (Harvey) Holmes & Batters

Urospora neglecta (Kornmann) Lokhorst &

- Trask
Urospora penicilliformis (Roth) Areschoug
Urospora wormskioldii (Mertens) Rosenvinge
- Order Ulvales** Blackman & Tansley, 1902
Family Bolbocoleonaceae C. J. O'Kelly & B. Rinkel, 2007
- Bolbocoleon* Pringsheim, 1863
Bolbocoleon piliferum Pringsheim
- Family Capsosiphonaceae** V. J. Chapman, 1952
- Capsosiphon* Gobi, 1879
Capsosiphon fulvescens (C. Agardh) Setchell & N. L. Gardner
- Family Gayraliaceae** K. L. Vinogradova, 1969
- Gayralia* K. L. Vinogradova, 1969
Gayralia oxysperma (Kützing)
 K. L. Vinogradova ex Scagel *et al.*
 [= *Monostroma oxyspermum* (Kützing)
 Doty, 1947]
- Family Gomontiaceae** De Toni, 1889
- Eugomontia* Kornmann, 1960
Eugomontia sacculata Kornmann
- Gomontia* Bornet & Flahault, 1888
Gomontia polyrhiza (Lagerheim) Bornet & Flahault
 [incl. *Gomontia manxiana* Chodat, 1897]
- Monostroma* Thuret, 1854
Monostroma grevillei (Thuret) Wittrock
- Family Kornmanniaceae** L. Golden & K. M. Cole, 1986
- Blidingia* Kylin, 1947
Blidingia chadefaudii (Feldmann) Bliding
Blidingia marginata (J. Agardh)
 P. J. L. Dangeard ex Bliding
Blidingia minima (Nägeli ex Kützing) Kylin
- Kornmannia* Bliding, 1969
 * *Kornmannia leptoderma* (Kjellman) Bliding
- Pseudendoclonium* Wille, 1901
Pseudendoclonium dynamenae R. Nielsen
Pseudendoclonium submarinum Wille
- Tellamia* Batters, 1895
Tellamia contorta Batters
- Neostromatella* M. J. Wynne, G. Furnari & R. Nielsen, 2014
Neostromatella monostromatica M. J. Wynne, G. Furnari & R. Nielsen
 [= *Stromatella monostromatica* (P. J. L. Dangeard) Kornmann & Sahling, 1985]
- Family Phaeophilaceae** D. F. Chappell, C. J. O'Kelly, L. W. Wilcox, & G. L. Floyd, 1990
- Phaeophila* Hauck, 1876
Phaeophila dendroides (P. Crouan & H. Crouan) Batters
 [incl. *Phaeophila engleri* Reinke, 1889]
- Family Ulvaceae** J. V. Lamouroux ex Dumortier, 1822
- Ochlochaete* Thwaites, 1849
Ochlochaete hystrix Thwaites
 [= *Ochlochaete ferox* Huber, 1893]
- Percursaria* Bory de Saint-Vincent, 1823
Percursaria percursa (C. Agardh) Rosenvinge
- Ulva* Linnaeus, 1753
 * *Ulva ardreana* M. Cormaci, G. Furnari & G. Alongi
 * *Ulva australis* Areschoug
Ulva clathrata (Roth) C. Agardh
 [= *Enteromorpha clathrata* (Roth) Greville, 1830, incl. *Enteromorpha musciformis* P. J. L. Dangeard, 1962 and *Enteromorpha ramulosa* (Smith) Carmichael, 1833]
Ulva compressa Linnaeus
 [= *Enteromorpha compressa* (Linnaeus) Nees, 1820, incl. *Enteromorpha usneoides* Bonnemaison ex J. Agardh, 1883]
Ulva curvata (Kützing) De Toni
Ulva fasciata Delile
Ulva flexuosa Wulfen
 [= *Enteromorpha flexuosa* (Wulfen) J. Agardh, 1883, incl. *Enteromorpha tubulosa* (Kützing) Kützing, 1856]
Ulva gigantea (Kützing) Bliding
Ulva intestinalis Linnaeus
 [= *Enteromorpha intestinalis* (Linné) Link, 1820]

Ulva kyllinii (Bliding) H. S. Hayden, Blomster, Maggs, P. C. Silva, M. J. Stanhope & J. R. Waaland

[= *Enteromorpha kyllinii* Bliding, 1948]

Ulva lactuca Linnaeus

Ulva linza Linnaeus

[= *Enteromorpha linza* (Linnaeus) J. Agardh, 1883, incl. *Enteromorpha ahneriana* Bliding, 1944 and *Ulva bertolonii* C. Agardh, 1823]

Ulva pilifera (Kützing) Škaloud & Leliaert

[= *Enteromorpha pilifera* Kützing, 1856]

Ulva prolifera O. F. Müller

[= *Enteromorpha prolifera* (O. F. Müller) J. Agardh, 1883]

Ulva pseudocurvata Koeman & Hoek

Ulva pseudorotundata Cormaci, G. Furnari & Alongi

[= *Ulva rotundata* Bliding, 1969]

Ulva radiata (J. Agardh) H. S. Hayden, Blomster, Maggs, P. C. Silva, M. J. Stanhope & J. R. Waaland

[= *Enteromorpha radiata* J. Agardh, 1883]

Ulva ralfsii (Harvey) Le Jolis

[= *Enteromorpha ralfsii* Harvey, 1851]

Ulva simplex (K. L. Vinogradova)

H. S. Hayden, Blomster, Maggs, P. C. Silva, M. J. Stanhope & J. R. Waaland

[= *Enteromorpha simplex* (K. L. Vinogradova) R. P. T. Koeman & Hoek, 1982]

Ulva rigida C. Agardh

[incl. *Ulva scandinavica* Bliding, 1969]

Ulva torta (Mertens) Trevisan

[= *Enteromorpha torta* (Mertens) Reinbold, 1893]

Ulvaria Ruprecht, 1850

Ulvaria obscura (Kützing) Gayral ex Bliding

[= *Monostroma obscurum* (Kützing) J. Agardh, 1883]

Ulvaria splendens (Ruprecht) K. L. Vinogradova

[= *Monostroma fuscum* (Postels & Ruprecht) Wittrock, 1866]

Umbraulva E. H. Bae & I. K. Lee, 2002

Umbraulva dangeardii M. J. Wynne & G. Furnari

[= *Ulva olivascens* P. J. L. Dangeard, 1961]

Family Ulvellaceae Schmidle, 1899

Epicladia Reinke, 1889

Epicladia flustrae Reinke

[= *Entocladia flustrae* (Reinke) W. R. Taylor, 1937]

Epicladia perforans (Huber) R. Nielsen

[= *Entocladia perforans* (Huber) Levring, 1937]

Pseudopringsheimia Wille, 1909

Pseudopringsheimia confluens (Rosenvinge) Wille

Ulvella P. Crouan & H. Crouan, 1859

Ulvella geniculata (N. L. Gardner) R. Nielsen, C. J. O'Kelly & B. Wysor

[= *Pseudodictyon geniculatum* N. L. Gardner, 1909]

* *Ulvella inflata* (Ercegovic) R. Nielsen, C. J. O'Kelly & B. Wysor

Ulvella lens P. Crouan & H. Crouan

Ulvella leptochaete (Huber) R. Nielsen, C. J. O'Kelly & B. Wysor

[= *Entocladia leptochaete* (Huber) Burrows, 1991]

Ulvella repens (Pringsheim) R. Nielsen, C. J. O'Kelly & B. Wysor

[= *Acrochaete repens* Pringsheim, 1862]

Ulvella scutata (Reinke) R. Nielsen, C. J. O'Kelly & B. Wysor

[= *Pringsheimiella scutata* (Reinke) Hoenel ex Marchewianka]

Ulvella setchellii P. J. L. Dangeard

Ulvella viridis (Reinke) R. Nielsen, C. J. O'Kelly & B. Wysor

[= *Entocladia viridis* Reinke, 1879]

Ulvella wittrockii (Wille) R. Nielsen, C. J. O'Kelly & B. Wysor

[= *Entocladia wittrockii* Wille, 1880 and *Chlorofilum ephemereum* P. J. L. Dangeard, 1965]

Family Microsporaceae Bohlin, 1901

Microspora Thuret, 1850

Microspora ficulinae P. J. L. Dangeard

Discussion

The specific richness remains comparable to what has been reported from neighboring countries (Table 1). With a total of 707 species, this area represents 6.5 % of the world macroalgal species number (ranging between 10 000 and 11 000 species). Such diversity may be explained by the fact that the studied area crosses a transition from the warm to the cold temperate biogeographic region (Dinter, 2001), which particularly affects the distribution of macroalgae (Ramos *et al.*, 2014).

Table 1: Total number of macroalgal species per group for France (Channel and Atlantic Ocean) and for two neighboring countries.

	Britain (Brodie <i>et al.</i> , 2015)	Spain, North Atlantic (Gallardo <i>et al.</i> , 2016)	France, Channel and Atlantic Ocean (this study)
Red macroalgae	347	365	403
Brown macroalgae	183	155	183
Green macroalgae	109	94	121
Total	639	614	707

The bibliographic and database analysis performed here reveals a global decrease of the total macroalgal specific richness when compared to the list by Dizerbo & Herpe (2007): the number of red macroalgal species falls from 423 to 403, from 226 to 183 for brown macroalgae and that for green macroalgae from 153 to 121. The reasons for such decrease both come from the exclusion of 92 species (following the rules given in Materials and methods): 41 red (Table 2), 21 brown (Table 3) and 30 green macroalgae (Table 4) but also by a high proportion of former recognized species pooled under a single name (e.g. *Ectocarpus* spp. or *Porphyrostromium ciliare*).

Sixty eight new macroalgal species have been added to the list (51 red, 3 brown and 14 green macroalgae). Among these, 17 are non native species, pointing out the continuous spread of alien species and the potential competitive threats for the native ones (Gouletquer, 2016). Studying the pattern of colonization of these alien species has been strongly recommended (Katsanevakis *et al.*, 2014, a work still needed for France). Several species deserve a special interest: although there is no evidence of their presence in the studied area, their occurrence is highly suspected. It is the case for species difficult to identify, recently recorded in the United Kingdom (Brodie *et al.*, 2015) such as *Ulva californica* Wille, or that have been recorded both from United Kingdom and northern Spain (Gallardo *et al.*, 2016). These are:

- *Ruthnielsenia tenuis* (Kyllin) C. J. O’Kelly, B. Wynsor & W. K. Bellows.
- *Dictyota cyanoloma* Tronholm, De Clerck, A. Gómez-Garreta & Rull Lluçh.
- *Cryptonemia lomation* (Bertoloni) J. Agardh.
- *Polysiphonia devoniensis* Maggs & Hommersand.

Targetted sampling session may help to address these uncertainties.

Finally, doubtful taxa remain for which status need clarification (i.e. *Grateloupia* and *Solieria* (Le Roux, 2018), *Pylaiella* (Geoffroy, 2012), *Ectocarpus* (Montecinos *et al.*, 2017)

or the *Caulacanthus* species). This work is a mere first step for assessing macroalgal diversity at regional scale. Going further would imply creating an atlas based on the maps provided by Dizerbo & Herpe (2007) together with the improvement of identification keys including updated taxa. Genetic characterization of taxa might also be suitable in an attempt to clarify the taxonomic position of several macroalgal species (Mineur, Le Roux, *et al.*, 2012).

Table 2: Red macroalgal species (Rhodophyta) excluded from check-list since Dizerbo & Herpe (2007).

Red macroalgae species (Rhodophyta)	Notes
<i>Acrochaetium stilophorae</i>	Previously as <i>Audouinella stilophorae</i> Levring. Recorded once in the studied area.
<i>Acrochaetium unifilum</i>	Previously as <i>Audouinella unifila</i> (Jao) Woelkerling. Recorded once in the studied area.
<i>Acrochaetium immersum</i> (Rosenvinge) Hamel	Previously as <i>Audouinella immersa</i> (Rosenvinge) G. R. South & Tittley. Recorded once in the studied area.
<i>Acrochaetium irregulare</i> (Reinsch)	Previously as <i>Audouinella irregularis</i> (Reinsch) G. R. South & Tittley. Doubtful taxon. Recorded once in the studied area.
<i>Acrochaetium mahumetanum</i> Hamel	Previously as <i>Audouinella mahumetana</i> (Hamel) Dizerbo. Doubtful taxon. Recorded once in the studied area.
<i>Acrochaetium reductum</i> (Rosenvinge) Hamel	Previously as <i>Audouinella kylinioides</i> (Feldmann) Dizerbo. Recorded once in the studied area. Needs further investigations.
<i>Amphiroa cryptarthrodia</i> Zanardini	See <i>Amphiroa rigida</i> .
<i>Amphiroa rigida</i> J. V. Lamouroux	Both <i>Amphiroa cryptarthrodia</i> Zanardini and <i>Amphiroa rigida</i> J. V. Lamouroux are absent from the studied zone (see Lugilde <i>et al.</i> , 2016)
<i>Antithamionella elegans</i> (Berthold) J. H. Price & D. M. John	Only one record in the studied area. In Europe, this species seems restricted to the Mediterranean sea.
<i>Asparagopsis taxiformis</i> (Delile) Trevisan	In Europe, the northern limit is in Spain.
<i>Audouinella pusillum</i> Dizerbo	Doubtful taxon. Recorded once in the studied area.
<i>Audouinella spermatochni</i> Dizerbo	Doubtful taxon. Recorded once in the studied area.
<i>Audouinella armoricanum</i> Dizerbo	Doubtful taxon.
<i>Audouinella boryana</i> Abdel-Rahman & Magne	Only obtained in culture.
<i>Audouinella laminariae</i> Dizerbo	Doubtful taxon. May be related to <i>Acrochaetium sparsum</i> (Harvey) Nägeli.
<i>Botryocladia chiajeana</i> (Meneghini) Kylin	No recent record.
<i>Ceramium boergesenii</i> H. E. Petersen	Only cited in the Channel islands.
<i>Ceramium crouanianum</i> J. Agardh	Represents several species (<i>C. pallidum</i> and <i>C. virgatum</i>) (Maggs & Hommersand, 1993).
<i>Ceramium derbesii</i> Solier ex Kützing	Represents several species (<i>C. virgatum</i> and <i>C. ciliatum</i>) (Maggs & Hommersand, 1993).
<i>Ceramium tenerrimum</i> (G. Martens) Okamura	No recent record. In Europe, this species seems restricted to the Mediterranean sea.

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Table 2: (Continued)

Red macroalgae species (Rhodophyta)	Notes
<i>Ceramium tenue</i> (J. Agardh) J. Agardh	Represent several species (<i>C. pallidum</i> , <i>C. virgatum</i> and <i>C. gaditanum</i>) (Maggs & Hommersand, 1993).
<i>Chylocladia torulosa</i> (Kützing) Dizerbo	Doubtful taxon.
<i>Colaconema conchicola</i> Lami	Previously as <i>Audouinella conchicola</i> Lami. Doubtful taxon. Recorded once in the studied area.
<i>Colaconema emergens</i> (Rosenvinge) R. Nielsen	Previously as <i>Audouinella emergens</i> (Rosenvinge) P. S. Dixon. Only one unsure record in the studied area.
<i>Erythrotrichia elongata</i> Lami	Only one record in the studied area. Needs further investigations.
<i>Gloiocladia furcata</i> (C. Agardh) J. Agardh	Northern limit in the Iberian Peninsula.
<i>Goniotrichopsis sublittoralis</i> G. M. Smith	Only one record in the studied area. Needs further investigations.
<i>Gracilaria armata</i> (C. Agardh) Greville	Only one record in the studied area. In Europe, this species seems to be restricted to the Mediterranean sea.
<i>Gymnogongrus patens</i> (Goodenough & Woodward) J. Agardh	Needs further investigations.
<i>Herposiphonia plumosa</i> (Agardh) Nägeli	Doubtful taxon.
<i>Hildenbrandia rivularis</i> (Liebmann) J. Agardh	Freshwater macroalgae.
<i>Laurencia brongniartii</i> J. Agardh	Recorded once in the studied area. Since then, recorded in Ireland (Stokes <i>et al.</i> , 2004).
<i>Lithophyllum dentatum</i> (Kützing) Foslie	See <i>Lithophyllum fasciculatum</i> .
<i>Lithophyllum fasciculatum</i> (Lamarck) Foslie	Specimens of both species <i>L. fasciculatum</i> and <i>L. dentatum</i> in the studied area may belong to <i>L. incrustans</i> Philippi. See Hernandez-Kantun <i>et al.</i> (2015).
<i>Peyssonnelia rubra</i> (Greville) J. Agardh	No recent record. In Europe, this species seems restricted to the Mediterranean sea.
<i>Polysiphonia isogona</i> Harvey	No recent record.
<i>Polysiphonia scopulorum</i> Harvey	Needs further investigations.
<i>Polysiphonia subulata</i> (Dillwyn) J. Agardh	Only one record in the studied area. Needs further investigations.
<i>Rhodymenia phylloides</i> L'Hardy-Halos	Needs further investigations. May be included in the species <i>R. delicatula</i> .
<i>Spermothamnion irregulare</i> (J. Agardh) Airdissone	No recent record. In Europe, this species seems restricted to the Mediterranean sea.

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Table 2: (Continued)

Red macroalgae species (Rhodophyta)	Notes
<i>Titanoderma mediterraneum</i> (Foslie) Woelkerling	Doubtful taxon, only one record in the study area. Absent from the studied zone (see Lugilde <i>et al.</i> , 2016)

Table 3: Brown macroalgal species (Phaeophyceae) excluded from check-list since Dizerbo & Herpe (2007).

Brown macroalgal species (Phaeophyceae)	Notes
<i>Actinema scutellum</i> Reinsch	Doubtful taxon.
<i>Battersia plumigera</i> (Holmes ex Hauck) Draisma, Prud'homme & H. Kawai	Previously as <i>Sphacelaria plumigera</i> Holmes ex Hauck. Only listed in the Channel islands.
<i>Cutleria chilosa</i> (Falkenberg) P. C. Silva.	Previously as <i>Cutleria monoica</i> Ollivier. Northern limit by the Portugal coasts.
<i>Cystoseira compressa</i> (Esper) Gerloff & Nizamuddin	Only one occurrence in the studied area. No recent record. In Europe, this species seems very related to the Mediterranean sea.
<i>Cystoseira platyclada</i> Sauvageau	Doubtful taxon.
<i>Dictyosiphon ekmanii</i> Areschoug	Needs further investigations.
<i>Elachista globulosa</i> (C. Agardh) J. Agardh	Seems restricted to the Canary Islands.
<i>Fucus dichotomus</i> Sauvageau	Probably a variety of the complex <i>Fucus spiralis/guiryi</i> .
<i>Hecatonema aggregatum</i> (P. J. L. Dangeard) P.-M. Pedersen	Only obtained in culture.
<i>Myriactula arabica</i> (Kützing) Feldmann	No recent record in the studied area. Probably a more southern species.
<i>Omphalophyllum ulvaceum</i> Rosenvinge	Recorded once in the studied area. Southern limit in Norway.
<i>Phaeostromatella elegans</i> P. J. L. Dangeard	Treated as an invalid taxon in Wynne & Furnari (2014).
<i>Pseudolithoderma adriaticum</i> (Hauck) Verlaque	Previously <i>Lithoderma adriaticum</i> Hauck. No recent records, this species seems very related to the Mediterranean sea.
<i>Pylaiella seriata</i> Kuckuck in Dizerbo & Herpe	Doubtful taxon.
<i>Ralfsia pusilla</i> (Strömfelt) Foslie	No recent records in the studied area. Needs further investigations.
<i>Sargassum natans</i> (Linnaeus) Gaillon	Pelagic species. No recent record.
<i>Sargassum acinarium</i> (Linnaeus) Setchell	Previously <i>Sargassum linifolium</i> C. Agardh. Only one occurrence in the studied area. In Europe this species seems very related to the Mediterranean sea.
<i>Stictyosiphon adriaticus</i> Kützing	No recent record in the studied area. Needs further investigations.
<i>Streblonema ambivalens</i> P. J. L. Dangeard	Only obtained in culture.
<i>Streblonema integratum</i> P. J. L. Dangeard	Only obtained in culture.
<i>Streblonema myriocladiae</i> (P. Crouan & H. Crouan) De Toni	No recent record in the studied area.

Table 4: Green macroalgal species (Chlorophyta) excluded from check-list since Dizerbo & Herpe (2007).

Green macroalgae species (Chlorophyta)	Notes
<i>Bryopsis balbisi</i> J. V. Lamouroux	Actually <i>B. duplex</i> De Notaris, with northern limit on the coasts of Portugal, unlikely to be present in the studied area.
<i>Bryopsis corymbosa</i> J. Agardh	Recorded once in the studied area. In Europe, <i>B. corymbosa</i> seems restricted to the Mediterranean sea.
<i>Bryopsis cupressoides</i> Feldmann	Recorded once in the studied area. Actually as <i>B. feldmannii</i> Gallardo & G. Furnari, which is restricted to the Mediterranean sea.
<i>Bryopsis pennata</i> J. V. Lamouroux	Recorded once in the studied area. Northern limit in Portugal.
<i>Chaetomorpha crassa</i> (C. Agardh) Kützting	Probably a variety of <i>C. linum</i> .
<i>Chlorormidium catenatum</i> (P. J. L. Dangeard) G. R. South & Tittley	Only obtained in cultures. Treated as invalid taxon in Wynne & Furnari (2014). (as <i>Hormidium catenatum</i> P. J. L. Dangeard).
<i>Cladophora nigrescens</i> Zanardini ex Frauenfeld	Recorded once in the studied area. In Europe, the species seems only found in the Mediterranean sea.
<i>Cladophora parriaudii</i> C. Hoek	Doubtful taxon. Recorded once in the studied area.
<i>Codium effusum</i> (Rafinesque) Delle Chiaje	Cited in N.-E. Atlantic by Cabioc'h <i>et al.</i> (2014) from the Channel to the Canaries but probably much more related to the Mediterranean sea.
<i>Elaterodiscus appendiculatus</i> P. J. L. Dangeard	Treated as invalid taxon in Wynne & Furnari (2014).
<i>Enteromorpha bayonnensis</i> P. J. L. Dangeard	Treated as invalid taxon in Wynne & Furnari (2014).
<i>Enteromorpha coziana</i> P. J. L. Dangeard	Treated as invalid taxon in Wynne & Furnari (2014).
<i>Enteromorpha dangeardii</i> H. Parriaud	Doubtful taxon. Recorded twice by a single author in the studied area.
<i>Enteromorpha hendayensis</i> P. J. L. Dangeard & H. Parriaud	Treated as invalid taxon in Wynne & Furnari (2014).
<i>Enteromorpha limosa</i> A. Parriaud	Doubtful taxon. Recorded once in the studied area.
<i>Enteromorpha robertii-lamii</i> H. Parriaud	Doubtful taxon. Needs further investigations.
<i>Enteromorpha sancti-joannis</i> P. J. L. Dangeard	Treated as invalid taxon in Wynne & Furnari (2014).
<i>Geminella marina</i> Hamel in Dizerbo & Herpe	Doubtful taxon.
<i>Gongrosira malardii</i> (Wille) Printz	Doubtful taxon. Recorded once in the studied area.
<i>Gongrosirella vermiformis</i> P. J. L. Dangeard	Treated as invalid taxon in Wynne & Furnari (2014).

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Table 4: (Continued)

Green macroalgae species (Chlorophyta)	Notes
<i>Halimeda tuna</i> (J. Ellis & Solander) J. V. Lamouroux	Recorded once in the studied area. In Europe, the species seems only found in the mediterranean sea.
<i>Pirula salina</i> (Dangeard) Printz	Unicellular to colonial taxon. Currently <i>Halofilum salinum</i> (P. A. Dangeard) Darienko & Pröschold (Xanthophyceae).
<i>Stromatella papillosa</i> (P. J. L. Dangeard) Kornmann & Sahling	Treated as invalid taxon in Wynne & Furnari (2014) (as <i>Ulvella papillosa</i> P. J. L. Dangeard).
<i>Thamniochloris atroviridis</i> P. J. L. Dangeard	Only obtained in culture. Treated as invalid taxon in Wynne & Furnari (2014).
<i>Thamniochloris ochlochaetoides</i> P. J. L. Dangeard	Only obtained in culture. Treated as invalid taxon in Wynne & Furnari (2014).
<i>Thamniochloris variabilis</i> P. J. L. Dangeard	Only obtained in culture. Treated as invalid taxon in Wynne & Furnari (2014).
<i>Ulva schousboei</i> Bornet	Doubtful taxon. Recorded once in the studied area.
<i>Ulvella protuberans</i> P. J. L. Dangeard	Treated as invalid taxon in Wynne & Furnari (2014).
<i>Ulvella stellata</i> P. J. L. Dangeard	Treated as invalid taxon in Wynne & Furnari (2014).
<i>Zygomitus reticulatus</i> Bornet & Flahault	Doubtful taxon. Recorded once in the studied area.

References

- Ar Gall, E. & Le Duff, M., 2014. Development of a quality index to evaluate the structure of macroalgal communities. *Estuarine, Coastal and Shelf Science*, **139**, pp. 99–109.
doi:10.1016/j.ecss.2013.12.028.
- Bárbara, I. & Díaz Tapia, P., 2012. New records and additions to the seaweeds of France. *Marine Biodiversity Records*, **5** (3), pp. 1–7.
doi:10.1017/S1755267212000589.
- Brodie, J., Wilbraham, J., Pottas, J. & Guiry, M. D., 2015. A revised check-list of the seaweeds of Britain. *Journal of the Marine Biological Association of the United Kingdom*, **96** (5), pp. 1005–1029.
doi:10.1017/S0025315415001484.
- Cabioc'h, J., Floc'h, J.-Y., Le Toquin, A., Boudouresque, C. F., Meinesz, A. & Verlaque, M., 2014. Algues des mers d'Europe. Delachaux et Niestlé, Paris. 272 p.
- Coppejans, E. & Kling, R., 1995. Flore algologique des côtes du Nord de la France et de la Belgique. 9. Jardin botanique national de Belgique, Meise. 454 p.
- Crouan, P. L. & Crouan, H. M., 1867. Florule du Finistère (éd. Lefournier, J. B. & Lefournier, A.) Klincksieck, F., Paris. 262 p.
- Dinter, W. P., 2001. Biogeography of the OSPAR maritime area. A synopsis and synthesis of biogeographical distribution patterns described for the North-East Atlantic. Federal Agency for Nature Conservation, Bonn. 167 p.
- Dizerbo, A. H. & Herpe, E., 2007. Liste et répartition des algues marines des côtes françaises de la Manche et de l'Atlantique, îles Anglo-Normandes incluses. Anaximandre, Landerneau. 315 p.
- Feldmann, J., 1954. Inventaire de la flore marine de Roscoff. Algues, champignons, lichens et spermatophytes. 6. Éditions de la Station biologique de Roscoff. 152 p.
- Feldmann, J. & Magne, F., 1964. Additions à l'inventaire de la flore marine de Roscoff : b algues, champignons, lichens. Éditions de la Station biologique de Roscoff. 28 p.
- Gallardo, T., Bárbara, I., Afonso-Carrillo, J., Bermejo, R., Altamirano, M., Gómez, A., Barceló, M. C., Rull, J., Ballesteros, E. & De la Rosa, J., 2016. Nueva lista crítica de las algas bentónicas marinas de España. *Algas, Boletín Informativo de la Sociedad Española de Ficología*, **51**, pp. 7-52.
- Geoffroy, A., 2012. Diversité génétique et délimitation d'espèces par des approches conjointes de barcoding et de génétique des populations : application à l'identification d'espèces d'algues marines nouvellement cultivées. Thèse de doctorat, Paris 6. 175 p.
- Gouletquer, P., 2016. Guide des organismes exotiques marins. Belin, Paris. 304 p.
- Guiry, M. D., 2012. A catalogue of Irish seaweeds. A. R. G. Gantner Verlag K.G., Ruggell. 250 p.
doi:978-3-90-599710-1.
- Guiry, M. D. & Guiry, G. M., 2018. AlgaeBase. Accessed on 2018-07-11. National University of Ireland, Galway. <<http://www.algaebase.org>>.
- Hardy, F. G. & Guiry, M. D., 2003. A check-list and atlas of the seaweeds of Britain and Ireland. British Phycological Society, London. 435 p.

- Hernandez-Kantun, J. J., Rindi, F., Adey, W. H., Heesch, S., Peña, V., Le Gall, L. & Gabrielson, P. W., 2015. Sequencing type material resolves the identity and distribution of the genotype *Lithophyllum incrustans*, and related European species *L. hibernicum* and *L. bathyporum* (Corallinales, Rhodophyta). *Journal of Phycology*, **51** (4), pp. 791–807. doi:10.1111/jpy.12319.
- Katsanevakis, S., Wallentinus, I., Zenetos, A., Leppäkoski, E., Çinar, M. E., Oztürk, B., Grabowski, M., Golani, D. & Cardoso, A. C., 2014. Impacts of invasive alien marine species on ecosystem services and biodiversity: a pan-European review. *Aquatic Invasions*, **9** (4), pp. 391–423. doi:10.3391/ai.2014.9.4.01.
- Lancelot, A., 1961. Recherches biologiques et océanographiques sur les végétaux marins des côtes françaises entre la Loire et la Gironde. *Revue algologique*, **Hors-Série 2**, pp. 1-210.
- Le Jolis, A., 1864. Liste des algues marines de Cherbourg. J. B. Baillière et Fils, Paris. 168 p.
- Le Roux, A., 2008. Les espèces marines introduites dans le Mor-Bihan. *Penn ar Bed*, (202), pp. 26-36.
- Le Roux, A., 2018. Additions à la liste des espèces marines introduites dans le golfe du Morbihan. *Penn ar Bed*, **230**, pp. 37-60.
- Lugilde, J., Peña, V. & Bárbara, I., 2016. El orden Corallinales sensu lato (Rhodophyta) en el Atlántico ibérico : estado actual de su conocimiento. *Anales del Jardín Botánico de Madrid*, **73** (2), pp. 1-17. doi:10.3989/ajbm.2424.
- Maggs, C. A. & Hommersand, M. H., 1993. Seaweeds of the British Isles. Volume 1 Rhodophyta. Part 3A Ceramiales. (Ed. British Museum (Natural History)) HMSO, London. 444 p.
- Mineur, F., De Clerck, O., Le Roux, A., Maggs, C. A. & Verlaque, M., 2010. *Polyopes lancifolius* (Halymeniales, Rhodophyta), a new component of the Japanese marine flora introduced to Europe. *Phycologia*, **49** (1), pp. 86–96. doi:10.2216/09-45.1.
- Mineur, F., Le Roux, A., Stegenga, H., Verlaque, M. & Maggs, C. A., 2012. Four new exotic red seaweeds on European shores. *Biological Invasions*, **14** (8), pp. 1635–1641. doi:10.1007/s10530-012-0186-0.
- Montecinos, A. E., Couceiro, L., Peters, A. F., Desrut, A., Valero, M. & Guillemin, M.-L., 2017. Species delimitation and phylogeographic analyses in the *Ectocarpus* subgroup *siliculosi* (Ectocarpaceae, Phaeophyceae). *Journal of Phycology*, **53** (1), pp. 17–31. doi:10.1111/jpy.12452.
- Ramos, E., Puente, A., Juanes, J. A., Neto, J. M., Pedersen, A., Bartsch, I., Scanlan, C., Wilkes, R., Van den Bergh, E., Ar Gall, E. & Melo, R., 2014. Biological validation of physical coastal waters classification along the NE Atlantic region based on rocky macroalgae distribution. *Estuarine, Coastal and Shelf Science*, **147**, pp. 103–112. doi:10.1016/j.ecss.2014.05.036.
- Stiger-Pouvreau, V. & Thouzeau, G., 2015. Marine species introduced on the French Channel-Atlantic coasts: a review of main biological invasions and impacts. *Open Journal of Ecology*, **5** (05), pp. 227–257. doi:10.4236/oje.2015.55019.

- Stokes, K., O'Neill, K. & McDonald, R., 2004. Invasive species in Ireland. Quercus project QU03-01 Unpublished report to Environment & Heritage Service and National Parks & Wildlife Service, Queens University Belfast. 151 p.
- Wynne, M. J. & Furnari, G., 2014. A census of J. P. L. Dangeard's invalid taxa with proposals to resolve the nomenclatural problems of some of them. *Nova Hedwigia*, **98 (3-4)**, pp. 515-527.
doi:10.1127/0029-5035/2014/0169.

CONSIGNES AUX AUTEURS

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An Aod accepte les articles originaux de recherche, les observations inédites, les inventaires et les synthèses régionales. Les études présentant la biologie ou l'écologie de certaines espèces ayant un intérêt particulier pourront être acceptées.

Chaque manuscrit sera évalué et critiqué par un ou plusieurs membres du comité éditorial. Le cas échéant, il pourra être transmis à des experts externes pour revue. Le comité de rédaction se réserve, seul, le droit d'accepter ou de refuser la version finale du manuscrit. Les articles seront publiés en ligne avec une fréquence de parution officielle semestrielle (deux numéros, constituant un volume, par année). Si le comité de rédaction le juge utile, un troisième numéro spécial pourra être publié.

Général

Les articles soumis pourront être rédigés en français ou en anglais, selon le choix de l'auteur. Ils pourront être soumis en format Microsoft Word (.doc ou .docx), OpenDocument (.odt) ou L^AT_EX (.tex).

L'espacement interligne sera de 1,5 et les lignes seront numérotées.

Si des sigles ou des acronymes sont utilisés, ils devront être spécifiés en totalité dès leur première apparition.

Les tableaux et les illustrations, avec leur légende, devront être incorporés à la fin du document soumis. Les illustrations devront également être jointes séparément dans leur format original matriciel de bonne qualité (.tiff, de préférence, ou .jpeg) ou vectoriel (.eps, .ps, .svg ou .pdf) afin de faciliter la mise en page.

Page de titre

La page de titre doit comporter les éléments suivant :

- **titre** : il doit être rédigé en français et en anglais. Il doit être aussi court que possible ;
- **liste des auteurs et affiliations** : les nom(s) et prénom(s) de tous les auteurs doivent être indiqués, ainsi que leur adresse professionnelle complète (Université, laboratoire, voie, code postal, ville, pays) ;
- **auteur correspondant** : les nom(s) et prénom(s) ainsi que l'adresse e-mail de l'auteur qui assurera la correspondance ;
- **résumé** : il doit être rédigé en français et en anglais. Il indiquera les principaux résultats et conclusions de l'étude, ainsi que toute information que l'auteur jugera nécessaire.

Aucune référence bibliographique ne doit apparaître dans le résumé. Il devra être suivi de quelques mots-clés, rédigés en français et en anglais, classés alphabétiquement.

Texte

Seuls les noms scientifiques des espèces devront être en italique, et leur première mention suivie par l'autorité et l'année.

Figures

Les figures peuvent être en nuances de gris ou en couleurs. Cependant, la palette de couleurs de type « arc-en-ciel » ne doit pas être utilisée. Les auteurs privilégieront les palettes telles que « viridis » ou « cividis », aisément perceptibles par les personnes souffrant de troubles de perception des couleurs.

Elles doivent être numérotées en chiffres arabes et leur référence dans le texte doit apparaître sous la forme « figure 1 ». Si une figure se compose de deux ou plusieurs sous-figures, ces dernières doivent être distinguées par une lettre capitale (« figure 1A » par exemple).

La taille d'un élément photographié doit être indiquée sous la forme d'une barre d'échelle sur la photo et non par un grossissement dans la légende. Une carte doit obligatoirement comporter : une flèche du nord, une échelle et une légende. Les symboles et abréviations utilisés devront être clairement explicités dans la légende. En règle générale, une figure doit se suffire à elle-même.

Tableaux

Les tableaux ne doivent pas être de taille excessive. Ils doivent être numérotés en chiffres arabes. Les en-têtes de colonnes doivent apparaître en gras et être aussi clairs et concis que possible.

Les symboles et abréviations utilisés devront être clairement explicités dans la légende. En règle générale, un tableau doit se suffire à lui-même.

Le tableau ci-dessous est un exemple de mise en forme.

Tableau 1 : Richesse phytocœnotique des différents compartiments écologiques du pré-salé.

Compartiment écologique	Richesse phytocœnotique (anse d'Yffiniac)				
	Années				Rich. phyt. max.
	1979	2002	2011	2012	
Haute slikke	3	2	2	3	3
Bas schorre	1	1	1	1	1
Schorre moyen	4	4	4	5	5
Haut schorre	5	7	6	7	8
Très haut schorre	7	5	6	6	8
Total	20	19	19	22	25

Références

Les références bibliographiques doivent être listées par ordre alphabétique (auteur-date) à la fin du manuscrit. Les références mentionnées dans le texte, et seulement celles-ci, doivent

apparaître dans la liste des références bibliographiques. Les titres d'articles et de journaux doivent être écrits en entier (pas d'abréviations). Tous les auteurs doivent apparaître. Les références doivent comporter les éléments suivants :

- article : Auteur(s), année. Titre. *Journal*, **volume (numéro)**, pages. doi ;
- livre : Auteur(s), année. Titre. (Éditeur(s)). Maison d'édition, ville de la maison d'édition. Nombre de page total ;
- chapitre d'un livre : Auteur(s), année. Titre du chapitre. In : *titre du livre* (Éditeur(s)) et/ou maison d'édition, ville de la maison d'édition, pages ;
- thèse : Auteur(s), année. Titre. Type de thèse (thèse de doctorat, thèse de doctorat d'État, etc.), Université, ville. Nombre de pages ;
- rapport : Auteur(s), année. Titre. Organisme. Nombre de pages.

La correspondance scientifique et les manuscrits doivent être adressés, soit par voie électronique à :

An.Aod@univ-brest.fr

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INSTRUCTIONS TO AUTHORS

Revised September 2018

Editorial policy

This journal, property of the European Institute for Marine Studies - University of Western Brittany aims to facilitate publication and diffusion of marine naturalist data to a wide audience, through free and open access. It is dedicated to the publication of species lists, but also to the description and biogeography of any taxon associated to estuarine, coastal and open ocean waters offshore Brittany. Its field of interest thus encompasses benthic as well as pelagic fauna and flora, from the intertidal (including salt marsh and mudflats) coastal to deeper waters of the continental shelf. We also intend to consider any data from waters surrounding Brittany (i.e. Channel or Atlantic coasts of France).

An Aod welcomes original research papers, species observations, inventories and regional syntheses. Studies dealing with the biology and/or ecology of species of interest will be considered.

Manuscripts will be reviewed by one or several members of the editorial board and may be sent to external reviewers. The redaction committee is the only habilitated to accept or refuse the final version of the manuscript. The official publication frequency is two issues (constituting one volume) by year. A third special issue could be published whenever the committee deems appropriate.

General

Papers must be written in French or in English. They should be submitted in Microsoft Word (.doc or .docx), OpenDocument (.odt) or L^AT_EX (.tex) format.

Text should be written on A4 paper and one half-spaced. Lines should be numbered.

If acronyms are used they must be specified in full on their first occurrence.

Tables and illustrations, with their legend, should be included at the end of the submitted document. Moreover, illustrations should be attached in a separate file and in their original format: good quality raster (.tiff preferably or .jpeg) or vector (.eps, .ps, .svg or .pdf).

Titlepage

The authors should indicate the following elements on the titlepage:

- **Title:** it must be written in French and in English. It should be as short as possible.
- **List of authors and their affiliation:** please indicate the given name(s) and family name(s) of each author. Each authors' affiliation address (University, laboratory, road, postal code, city, country) should be indicated after the list of authors.
- **Corresponding author:** please indicate the given name, the family name and the e-mail address of the author who will handle correspondence.
- **Abstract:** it must be written in French and in English, including the main results and conclusions of the work. No references should be given in this part. The abstract must be followed by some keywords written in French and in English. Keywords should be alphabetically ordered.

Text

Scientific names should be italicized and their first mention followed by the authority and the year.

Figures

Figures should either be in grey scale or in colour. However, the rainbow colour scale should not be used. Authors should prefer scales such as “viridis” or “cividis” colour scales because they can be easily perceptible by colour-blind people.

Figures are numbered in Arabic numerals and reference in the text appears as ‘figure 1’, ‘figure 2’, etc.

Size must be indicated by a scale bar on photographs, not by a magnification factor in the legend. A map must necessary have a north arrow, a scale bar and a legend. Symbols and acronyms must be clearly explained in the legend.

Tables

Tables should not be excessive in size. They are numbered in Arabic numerals and reference in the text appears as ‘table 1’, ‘table 2’, etc. Column headings are bold and must be as clear and short as possible.

Symbols and acronyms used must be clearly explained in the legend.

The following table gives an example of layout.

Table 1: Richesse phytocœnotique des différents compartiments écologiques du pré-salé.

Compartiment écologique	Richesse phytocœnotique (anse d'Yffiniac)				
	Années				Rich. phyt. max.
	1979	2002	2011	2012	
Haute slikke	3	2	2	3	3
Bas schorre	1	1	1	1	1
Schorre moyen	4	4	4	5	5
Haut schorre	5	7	6	7	8
Très haut schorre	7	5	6	6	8
Total	20	19	19	22	25

References

Bibliographic references must be sorted alphabetically (author-year) at the end of the manuscript. References quoted in the text, and only these, must appear in the references list. Title of the paper and title of journals must be written in full (not abbreviated). All authors must appear. References should be composed as:

- article: Author(s), year. Title. *Journal*, **volume (number)**, page range. doi.
- book: Author(s), year. Title. (Editor(s)). Publisher name, publisher location. Total number of pages.
- book chapter: Author(s), year. Title of the chapter. In: *title of book* (Editor(s)) Publisher name, publisher location, page range.

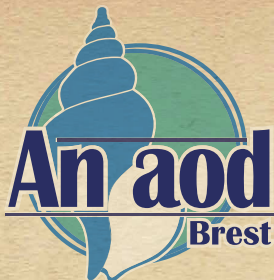
- thesis: Author(s), year. Title. Type of thesis (PhD thesis, master thesis, etc.), University name and location. Total number of pages.
- report: Author(s), year. Title. Organization. Total number of pages.

Scientific communications and manuscripts should be addressed by mail to:

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**Les cahiers naturalistes
de l'Observatoire marin**

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