

## **Recent changes in Scleractinian coral nomenclature and classification.**

### **(A practical guide for coral and reef ecologists)**

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The following document provides information on changes which were introduced recently in the classification and nomenclature of scleractinian corals. Such changes stem to a large extent from the research activity and the syntheses carried out by the members of the international "Scleractinian Systematics Working Group" (SSWG) over the last few years. They are the result of a multi-pronged approach combining the information provided by the implementation of relatively new techniques, which have only recently been applied to scleractinian coral taxonomy. Such new tools include, *inter alia*, morphometrics, microstructural analyses, anatomy of soft parts and molecular genetics.

The changes thus made to the nomenclature and classification of scleractinian corals underlie a move towards a classification reflecting more and more the phylogeny of various taxa, and as a result may place side by side morphologically very dissimilar species. Furthermore, such a move will require a re-definition of numerous genera (and of some families, which from a practical viewpoint is less critical) in accordance with the rules set out in the International Code of Zoological Nomenclature. Such a work is still to be done and a number of genera remain to this day without an adequate revised diagnostic morphological characterization.

Several important studies are still in progress and one may expect additional changes in the near future. The present document, therefore, does not pretend to represent a complete revision of scleractinian coral taxonomy. It did occur to me, however, that the modifications presently accepted were sufficiently significant and important to be taken into account by the broad coral research community, and that the time had come to produce a progress report on the current status. Such an update is essentially aimed at providing some assistance to non-taxonomist colleagues working on reef corals and in need of reliable information on their nomenclature to make the transition towards the system which is gradually implemented and has started to percolate through the scientific literature. By introducing criteria other than skeletal features, the effort has by necessity focused mostly on extant zooxanthellate species and in the following

pages many families and genera of azooxanthellate or extinct species have not been taken into account.

It is to be noted that the previously accepted suborders (Astrocoeniina, Fungiina, Faviina, Caryophylliina, Dendrophylliina) are no longer in use and that the families are now ascribed to two large groups or clades named "Robust" and "Complex".

In the document below, blue arrows indicate genera presently ascribed to a family which is different from the "original" family (the latter is indicated on the right hand side of the blue arrow). Green arrows indicate genera (designated on the right hand side of the arrow) now considered as junior synonyms of earlier and valid genera. Black arrows refer to cases which are not yet fully clarified. Finally, the most significant changes (in particular for generic names) are indicated in red.

Literature references in which the changes are introduced are indicated by a sequential number, shown in bold in parentheses. The numbers refer to the list provided at the end of the document. Additional background references are also given in a separate list. Such a list is not meant to be comprehensive, but points out to the major papers published recently and is to be considered as a source of supplementary information. (Publications dealing "simply" with description of new taxa are not included).

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# Classification and nomenclature of zooxanthellate scleractinians

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## Groupe I («Complex clade»)

### ACROPORIDAE Verrill, 1902

ACROPORA

ISOPORA (*palifera, cuneata,.....*) ← Separated from ACROPORA (1)

ANACROPORA

MONTIPORA

ASTREOPORA

ALVEOPORA ← Transferred from PORITIDAE (2)

### AGARICIIDAE Gray, 1847

AGARICIA

PAVONA

LEPTOSERIS → (The status of the genus *HELIOSERIS* is not completely resolved)

GARDINEROSERIS

PACHYSERIS

COELOSERIS

} → [ Membership of the family  
Agariciidae is under re-evaluation

### DENDROPHYLLIIDAE Gray, 1847

TURBINARIA

DUNCANOPSAMMIA

HETEROPSAMMIA (Some populations do harbour zooxanthellae)

### EUPHYLLIDAE Alloiteau 1952 (3)

EUPHYLLIA ← CARYOPHYLLIIDAE (s/f EUSMILIINAE)

GYROSMILIA ← CARYOPHYLLIIDAE (s/f EUSMILIINAE)

GALAXEA

ACRHELIA

SIMPLASTREA

} ← OCULINIDAE (s/f GALAXEINAE)

CTENELLA ← MEANDRINIDAE

MONTIGYRA ← FAVIIDAE (s/f FAVIINAE)

PLEROGYRA

PHYSOGYRA

### PORITIDAE Gray, 1842

PORITES ← (includes SYNARAEA)

GONIOPORA ← MACHADOPORITES (4)

BERNARDPORA (*Goniopora stutchburyi*) (4)

NAPOPORA

STYLARAEA

**SIDERASTREIDAE Vaughan & Wells, 1943**

*SIDERASTREA*

*PSEUDOSIDERASTREA*

**Groupe II («Robust clade»)**

**FUNGIIDAE Dana, 1846 (5)**

*CYCLOSERIS* (Occasionally considered previously as a subgenus of *FUNGIA*)

*CANTHARELLUS*

*FUNGIA*

*HELIOFUNGIA*

*DANAFUNGIA* (Occasionally considered previously as a subgenus *FUNGIA*)

*LITHOPHYLLON* ← *FUNGIA* (*VERRILLOFUNGIA*) or *VERRILLOFUNGIA*

*LOBACTIS* (Occasionally considered previously as a subgenus *FUNGIA*)

*PLEURACTIS* (Occasionally considered previously as a subgenus of *FUNGIA*, and now including the former genus or subgenus *WELLSOFUNGIA*)

*HERPOLITHA*

*HALOMITRA*

*ZOOPILUS*

*PODABACIA*

*SANDALOLITHA*

*POLYPHYLLIA*

*CTENACTIS*

(See complete list of Fungiidae species in Annexe I)

**MUSSIDAE Ortmann, 1890 (ATLANTIC only) (3)**

**S/F Mussinae Ortmann, 1890**

*MUSSA*

*ISOPHYLLIA*

*ISOPHYLLASTREA*

*MYCETOPHYLLIA*

*SCOLYMIA* (ATLANTIC only)

**S/F Faviinae Gregory, 1900**

***FAVIA* (ATLANTIC only)**

*COLPOPHYLLIA*

*DIPLORIA*

*PSEUDODIPLORIA*

*MANICINA*

*MUSSISMILIA*

**MERULINIDAE Verrill, 1866 (3)**

This family now includes genera previously belonging to the former families Faviidae, Merulinidae, Pectiniidae and Trachyphylliidae

MERULINA  
BONINASTREA  
PARACLAVARINA  
SCAPOPHYLLIA  
HYDNOPHORA  
BARABATTOIA  
ASTREOSMILIA  
CAULASTREA  
FAVITES  
GONIASTREA  
LEPTORIA  
OULOPHYLLIA  
PLATYGYRA  
AUSTRALOGYRA  
ERYTHRASTREA  
CYPHASTREA  
ECHINOPORA

**DIPSASTRAEA**. (Replaces the genus name *Favia* for the Indo-Pacific species)

**PHYMASTREA** (Replaces the genus name *Montastraea* for the Indo-Pacific species)

**ORBICELLA** (Genus name now applied to the Atlantic species of the «*annularis*» complex)

TRACHYPHYLLIA ← TRACHYPHYLLIIDAE

WELLSOPHYLLIA ← TRACHYPHYLLIIDAE

? MOSELEYA

PECTINIA ← PECTINIIDAE

MYCEDIUM ← PECTINIIDAE

#### **MONTASTRAEIDAE Yabe & Sugiyama, 1941 (3)**

MONTASTRAEA ( Only for the Atlantic species *cavernosa*)

#### **DIPLOASTREIDAE Chevalier & Beauvais, 1987 (3)**

DIPLOASTREA

#### **LOBOPHYLLIIDAE Dai & Horng, 2009 (6)**

LOBOPHYLLIA  
ACANTHASTREA  
SYMPHYLLIA  
AUSTRALOMUSSA  
MICROMUSSA  
CYNARINA

**HOMOPHYLLIA** (Partly replaces *Scolymia*, in particular for *S. australis*) (3)

**PARASCOLYMIA** (Partly replaces *Scolymia*, in particular for *S. vitiensis*) (3)

OXYPORA ← PECTINIIDAE (3)

ECHINOPHYLLIA ← PECTINIIDAE (3)

(ECHINOMORPHA) (Is considered by MP as a junior synonym of *Echinophyllia*)

**OCULINIDAE Gray, 1847**

OCULINA

SCHIZOCULINA

CLADOCORA ← (FAVIIDAE) (3)

SOLENASTREA ← (FAVIIDAE) (3)

**MEANDRINIDAE Gray, 1847**

MEANDRINA

DICHOCOENIA

DENDROGYRA

EUSMILIA ← CARYOPHYLLIIDAE (s/f EUSMILIINAE) (3)

**COSCINARAEIDAE Benzoni *et.al.*, 2012 (7)**

COSCINARAEA

HORASTREA

CRATERASTREA

ANOMASTRAEA

**POCILLOPORIDAE Gray, 1842**

STYLOCOENIELLA ← (ASTROCOENIIDAE) (2)

MADRACIS

POCILLOPORA

STYLOPHORA

SERIATOPORA

**PSAMMOCORIDAE Chevalier & Beauvais, 1987 (8)**

PSAMMOCORA

**ASTROCOENIIDAE Koby, 1890**

STEPHANOCOENIA (Membership of the family Astrocoeniidae still to be confirmed)

**INCERTAE SEDIS**

BLASTOMUSSA (Is not a Lobophylliidae)

INDOPHYLLIA

LEPTASTREA

NEMENZOPHYLLIA

OULASTREA

PARASIMPLASTREA

PLESIASTREA

## ANNEXE I

### *List of Species in the family FUNGIIDAE*

(After : (5) Gittenberger *et al.*, 2011, updated)

- Cantharellus doederleini* (Von Marenzeller, 1907)  
*Cantharellus jebbi* Hoeksema, 1993  
*Cantharellus noumeae* Hoeksema & Best, 1984  
*Ctenactis albitentaculata* Hoeksema, 1989 -  
*Ctenactis crassa* (Dana, 1846) -  
*Ctenactis echinata* (Pallas, 1766) -  
*Cycloseris costulata* (Ortmann, 1889)  
*Cycloseris curvata* (Hoeksema, 1989)  
*Cycloseris cyclolites* (Lamarck, 1815)  
*Cycloseris distorta* (Michelin, 1842)  
*Cycloseris explanulata* (Van der Horst, 1922) (formerly *Psammocora explanulata*) (9)  
*Cycloseris fragilis* (Alcock, 1893)  
*Cycloseris hexagonalis* (Milne Edwards & Haime, 1848)  
*Cycloseris mokai* (Hoeksema, 1989) (formerly *Lithophyllum mokai*)  
*Cycloseris sinensis* Milne Edwards & Haime, 1851  
*Cycloseris somervillei* (Gardiner, 1909)  
*Cycloseris tenuis* (Dana, 1846)  
*Cycloseris vaughani* (Boschma, 1923)  
*Cycloseris wellsii* (Veron & Pichon, 1980) (formerly *Coscinaraea wellsii*) (9)  
*Danafungia horrida* (Dana, 1846)  
*Danafungia scruposa* (Klunzinger, 1879)  
*Fungia fungites* (Linnaeus, 1758)  
*Halomitra clavator* Hoeksema, 1989 -  
*Halomitra pileus* (Linnaeus, 1758) -  
*Heliofungia actiniformis* (Quoy & Gaimard, 1833) -  
*Heliofungia fralinae* (Nemenzo, 1955)  
*Herpolitha limax* (Esper, 1797) -  
*Lithophyllum concinna* (Verrill, 1864)  
*Lithophyllum ranjathi* Ditlev, 2003 -  
*Lithophyllum repanda* (Dana, 1846)  
*Lithophyllum scabra* (Döderlein, 1901)  
*Lithophyllum spinifer* (Claereboudt & Hoeksema, 1987)  
*Lithophyllum undulatum* Rehberg, 1892 -  
*Lobactis scutaria* (Lamarck, 1801)  
*Pleuractis granulosa* (Klunzinger, 1879)  
*Pleuractis gravis* (Nemenzo, 1955)

*Pleuractis moluccensis* (Van der Horst, 1919)  
*Pleuractis paumotensis* (Stutchbury, 1833)  
*Pleuractis seychellensis* (Hoeksema, 1993)  
*Pleuractis taiwanensis* (Hoeksema & Dai, 1991)  
*Podabacia crustacea* (Pallas, 1766) -  
*Podabacia kunzmanni* Hoeksema, 2009 -  
*Podabacia motuporensis* Veron, 1990 -  
*Podabacia sinai* Veron, 2002  
*Polyphyllia novaehiberniae* (Lesson, 1831) -  
*Polyphyllia talpina* (Lamarck, 1801) -  
*Sandalolitha boucheti* Hoeksema, 2012  
*Sandalolitha dentata* Quelch, 1884 -  
*Sandalolitha robusta* (Quelch, 1886) -  
*Zoopilus echinatus* Dana, 1846 -



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