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A Checklist of Benthic Marine Algae of the Coast of Texas

MICHAEL J. WYNNE

A synthesis of the benthic marine algal flora for the Texas coastline is compiled. A total of 208 taxa of benthic macroalgae is presented, including 114 taxa of Rhodophyceae (red algae), 28 taxa of Phaeophyceae (brown algae), and 66 taxa of Ulvophyceae (green algae). These algal taxa are placed in an arrangement according to the most currently accepted schemes of classification, reflecting the results of comparative phylogenetic treatments. Explanatory “Notes” with information on taxonomic and nomenclatural changes are included.

Studies on the benthic marine macroalgae of the Texas coast go back to the early publications of Taylor (1936, 1941, 1954). These were followed by Breuer’s (1962) ecological survey of the Lower Laguna Madre and the detailed list made by Humm and Hilldebrand (1962) for the entire Gulf coast of Texas and Mexico. These lists were soon followed by Conover’s (1964) study of the phenology, distribution, and composition of the macroalgae occurring in some Texas lagoons. Edwards’ (1970) illustrated guide to the algae in the vicinity of Port Aransas, Nueces County, was a major contribution in describing and depicting the algae occurring both on the exposed boulder jetties and the more protected habitats of the seagrass flats and oyster beds of the region. In her compendium of the marine algae and seagrasses for the entire Gulf of Mexico, Earle (1972) did not categorize Texas records per se, but “Area C” in her plate 6 largely corresponds to the Texas coast. Earle summarized all previous records but did not differentiate between current and obsolete nomenclature. Edwards and Kapraun (1973) conducted an ecological study of the benthic algae occurring at Port Aransas. Baca et al. (1977) reported the presence of several species for the first time from the Texas coast and followed that paper with a detailed checklist for the South Texas coast (Baca et al., 1979). Sorensen (1979) contributed a useful illustrated guide to the seaweeds of South Padre Island, a region with some more tropical elements present. Life history studies were reported on *Ulva* [= *Enteromorpha*] by Kapraun (1971) and on members of the Chaetophoraceae by Yarish (1975, 1976). Kapraun (1979) also investigated the systematics of many species of *Polysiphonia* present at Port Aransas.

One of the few deepwater surveys was conducted by Eiseman and Blair (1982), who reported many new reports for the benthic algal flora from their scuba-based collections made at East Flower Garden Bank. Over the years there

have been first reports of the occurrence of certain species from locations in Texas (Kaldy, 1997; De Yoe and Hockaday, 2001; Strenth, 2001). On occasion a new species or new genus of algae is described on the basis of Texas specimens (Wynne and Edwards, 1970; Fiore, 1975; Wynne, 1993; Scott et al., 2006).

There have also been published more regional checklists, such as those by Lowe and Cox (1978) on Galveston Island, Boyd and Wardle (1996) on Freeport, Wardle (1999) on Galveston, and by Lehman (1999) on Corpus Christi Bay. Superimposed on these ongoing ecological and floristic investigations being carried out on Texas algae have been major taxonomic revisions such that some genera have very different circumscriptions than formerly understood. These revisions are the result of ongoing investigations from phylogenetic analyses of some taxa. Such genera with new definitions include *Galaxaura*, *Jania*, *Gracilaria*, *Ceramium*, *Laurencia*, *Polysiphonia*, *Dictyota*, and *Ulva/Enteromorpha*. We also know from phylogenetic studies that some species, such as *Porphyra rosengurtii/Porphyra leucostica*, *Centroceras clavulatum*, *Digena simplex*, *Grateloupia filicina*, and the *Bostrychia radicans/Bostrychia moritziana* complex, represent examples of “cryptic speciation,” with several distinct taxa passing as a single species. So in some cases we are forced to use tentative names until Texas representatives of these uncertain taxa can be more thoroughly studied.

The present contribution is an attempt to compile previous records of species of benthic marine algae from the Texas coast and to place these records in the context of the current classification system being used. I have largely followed the system of classification used by Wynne (2005). The numbers in parentheses after the names of the taxa correspond to specific publications cited in Table 1, the sources of those reports. Relevant or follow-up information for some of the taxa is provided in the specific Notes. Updated information on

TABLE 1. Sources of the reports for Texas records.

1 Taylor (1936)
2 Taylor (1941)
3 Taylor (1954)
4 Taylor (1960)
5 Breuer (1962)
6 Humm and Hildebrand (1962)
7 Conover (1964)
8 Edwards (1970)
9 Wynne and Edwards (1970)
10 Kapraun (1971)
11 Yarish (1975)
12 Yarish (1976)
13 Baca et al. (1977)
14 Williams-Cowper (1978)
15 Lowe Jr. and Cox (1978)
16 Baca et al. (1979)
17 Sorensen (1979)
18 Kapraun (1979)
19 Kapraun (1980)
20 Medlin (1984)
21 Wardle (1992)
22 Wynne (1993)
23 Boyd and Wardle (1994)
24 Kaldy et al. (1995)
25 Boyd and Wardle (1996)
26 Lehman et al. (1996)
27 Kaldy (1997)
28 Lehman (1999)
29 Wardle (1999)
30 De Yoe and Hockaday (2001)
31 Strenth (2001)
32 Gavio and Fredericq (2003)
33 Gavio and Fredericq (2005)
34 Kopecky and Dunton (2006)
35 Scott et al. (2006)
36 Kowalski et al. (2007)
37 Earle (1969)
38 Earle (1972)
39 Eiseman and Blair (1982)
40 Fama et al. (2002)
41 Wynne (2008, in press)

classification in the three phyla of macroalgae has been provided by Maggs et al. (2007), Pröschold and Leliaert (2007), and de Reviere et al. (2007).

To convey the floristic affinities of the Texas marine algal flora, Table 2 is presented, in which data are provided for the numbers of taxa of red (R), green (G), and brown (B) algae and the total number of taxa reported. Comparable data are provided for other floristic regions. Two floristic indices are also indicated in Table 2. These indices have been developed to measure the relative temperate or tropical status of the floras. Feldmann's (1937) R:B index took into account only the total number of red algal taxa divided by the number of brown algal taxa, whereas Cheney's (1977) R+G:B index also took into account the number of green algal taxa. According to Cheney, R+C:B values of less than 3 were correlated with a temperate or cold-water flora, whereas values of 6 or greater indicated a tropical flora, and intermediate values suggested a mixed flora. The Cheney index value of 5.1 for Texas indicates a subtropical marine algal flora. Taylor (1941) had pointed out that the marine algal flora of Texas had "no marked North Temperate element." In terms of the total number of 208 taxa, the flora of Texas is very similar to that of North Carolina (with its 204 taxa) but less than a third of the species richness demonstrated in the seaweed flora of Florida, with its much more extensive coastline, richer habitat complexity, and greater latitudinal range. Taylor (1954) has cited the extensive sandy shores for much of the Texas coastline as being unstable substrates, discouraging the growth of benthic macroalgae. But the number of 208 taxa reported in this account is much greater than the total of 60 taxa reported by Taylor in 1941.

TABLE 2. Comparative data on marine algal flora by region, class, and indices.

Region	Total taxa (including infraspecific taxa)				Ratios		Reference
	Red (R)	Brown (B)	Green (G)	Total	R:B	R+G:B	
Texas	114	28	66	208	4.0	5.1	Present paper
Florida	367	102	224	693	3.6	5.9	Dawes and Mathieson 2008
North Carolina	186	58	60	204	3.2	4.2	Schneider and Searles 1991
Bermuda	257	69	124	450	3.7	5.5	Schneider 2003, pers. comm.
Puerto Rico	291	64	137	492	4.5	6.7	Ballantine and Aponte 2002
Bahamas	229	50	151	430	4.6	7.6	Schneider, pers. comm.
Subtropical and Tropical western Atlantic	827	200	415	1442	4.1	6.2	Wynne 2005

CHECKLIST OF BENTHIC MARINE ALGAE

Phylum Rhodophyta**Subphylum Rhodophytina****Class Porphyridiophyceae** [Note 1]

Order Porphyridiales

Family Porphyridaceae

ERYTHROBOLUS J.L. Scott, J.B. Baca, F.D. Ott
et J.A. West, 2006 [Note 2]

coxiae J.L. Scott, J.B. Baca, F.D. Ott et J.A. West
(35)

Class Stylonematophyceae [Note 1]

Order Stylonematales

Family Stylonemataceae

CHROODACTYLON Hansg., 1885 [Note 3]
[ASTEROCYTIS]

ornatum (C. Agardh) Basson (6, 8, 16, 28, 38)
[Note 4]
[Asterocytis ornata; A. ramosa]

STYLONEMA Reinsch, 1875 [Note 5]
[GONIOTRICHUM]

alsidii (Zanardini) K.M. Drew (2, 4, 6, 8, 15, 16,
19, 25, 28, 29, 38) [Note 6]
[Goniotrichum alsidii]

Subphylum Metarhodophytina**Class Compsopogonophyceae**

Order Erythropeltidales

Family Erythrotrichiaceae

ERYTHROTRICHIA Aresch., 1850, nom. cons.

carnea (Dillwyn) J. Agardh (7, 8, 15, 16, 17, 19,
25, 28, 29, 38)

SAHLINGIA Kornmann, 1989 [Note 7]

subintegra (Rosenv.) Kornmann (6, 8, 15, 16,
19, 25, 28, 29, 38)
[Erythrocladia subintegra]

Subphylum Eurhodophytina**Class Bangiophyceae**

Order Bangiales

Family Bangiaceae

BANGIA Lyngb., 1819

fuscopurpurea (Dillwyn) Lyngbye (1, 2, 4, 6, 7, 8,
15, 16, 17, 23, 25, 28, 29, 38) [Note 8]
[atropurpurea sensu auct.]

PORPHYRA C. Agardh, 1824, nom. cons.

rosengurtii Coll et J. Cox [Note 9]
[leucosticta sensu auct. (7, 8, 16, 21, 24, 25, 28,
29, 38)]

yezoensis Ueda [Note 127]

Class Florideophyceae

Subclass Nemaliophycidae

Order Acrochaetiales

Family Acrochaetiaceae

ACROCHAETIUM Nägeli in Nägeli & Cramer,
1858

flexuosum Vickers (6, 8, 16, 19, 28, 29, 38)
[Audouinella flexuosa]

hoytii Collins (6, 8, 16, 19, 25, 28, 38)
[Audouinella hoytii]

hypneae (Børgesen) Børgesen (6, 8, 16, 19, 25,
28, 38) [Note 10]
[seriatum; Audouinella hypneae]

microscopicum (Nägeli ex Kütz.) Nägeli (2, 4, 8,
19, 28, 29, 38) [Note 11]
[crassipes; Audouinella crassipes, Kylinia cras-
sipes]

secundatum (Lyngb.) Nägeli (8, 16, 19, 28, 38)
[Note 12]

[virgatulum; Audouinella secundata]

spp. (24)

Family Galaxauraceae

TRICLEOCARPA Huisman et Borow. 1990

cylindrica (J. Ellis et Sol.) Huisman et Borow.
(39) [Note 13]

[Galaxaura cylindrica]

fragilis (L.) Huisman et R.A. Towns. (39) [Note
14]

[Galaxaura oblongata]

Order Corallinales

Family Corallinaceae

Subfamily Mastophoroideae

HYDROLITHON (Foslie) Foslie, 1909 [Note 15]
[FOSLIELLA]

farinosum (J.V. Lamour.) Penrose et Y.M.
Chamb. (6, 16, 28, 38)

[Fosliella farinosa]

PNEOPHYLLUM Kütz., 1843 [Note 16]
[HETERODERMA]

fragile Kütz. (6, 7, 8, 16, 28, 38) [Note 17]
[Fosliella lejolisii; Heteroderma lejolisii]

Subfamily Corallinoideae

CORALLINA L., 1758 [Note 18]

- officinalis* L. (7, 16, 38)
- JANIA J.V. Lamour., 1812 [Note 19]
[HALIPTILON]
- adhaerens* J.V. Lamour. (29)
[decussato-dichotoma] [Note 20]
- capillacea* Harv. (2, 4, 8, 14, 16, 17, 24, 28, 34, 38)
[adhaerens sensu auct.] [Note 22]
- cubensis* Mont. ex Kütz. (2, 3, 4, 6, 8, 16, 17, 19,
24, 28, 38) [Note 19]
[Corallina cubensis; Haliptilon cubense]
- rubens* (L.) J.V. Lamour. (6, 38)
- subulata* J. Ellis et Sol. (4, 6, 8, 16, 17, 19, 24, 28,
38)
[Corallina subulata; Haliptilon subulatum]
- Subfamily Lithophylloideae
- AMPHIROA J.V. Lamour., 1812
- fragilissima* (L.) J.V. Lamour. (6, 7, 16, 38)
- rigida* J.V. Lamour. (39) [Note 22]
[A. rigida var. antillana]
- tribulus* (J. Ellis et Sol.) J.V. Lamour. (39)
- TITANODERMA Nägeli, 1858 [Note 23]
[DERMATOLITHON]
- pustulatum* (J.V. Lamour.) Nägeli (6, 8, 16, 19,
28, 38)
[Dermatolithon pustulatum; Lithophyllum
pustulatum]
- Order Ceramiales
Family Callithamniaceae [Note 125]
- AGLAOTHAMNION Feldm.-Maz., 1941
- halliae* (Collins) N. Aponte, D.L. Ballant. et J.N.
Norris (6, 16, 17, 28, 38) [Note 24]
[byssoides sensu auct.; westbrookiae; Callitham-
nion byssoides sensu auct.]
- cordatum* (Børgese) Feldm.-Maz. (19) [Note 25]
[Callithamnion cordatum]
- Family Ceramiaceae [Note 125]
- CENTROCERAS Kütz., 1841
- clavulatum* (C. Agardh in Kunth) Mont. in
Durieu de Maisonneuve (1, 2, 4, 6, 7, 8, 16,
17, 24, 28, 29, 38) [Note 27]
- CERAMIUM Roth, 1797, nom. cons.
- cimbricum* H.E. Petersen in Rosenv. (8, 16, 19,
28, 38) [Note 28]
[fastigiatum]
- f. flaccidum* (H.E. Petersen) Furnari et Serio in
Cecere et al. (6) [Note 29]
[C. fastigiatum f. flaccidum]
- deslongchampsii* Chauv. ex Duby (2, 4, 8, 15, 16,
19, 25, 28, 29, 38) [Note 30]
[strictum]
- subtile* J. Agardh (2, 4)
- GAYLIELLA T.O. Cho, L. McIvor et S.M. Boo, 2008
- transversalis* (Collins et Herv.) T.O. Cho et
Fredericq in Cho et al. (2, 4, 6, 8, 16, 28, 38)
[Note 31]
[Ceramium byssoideum; C. gracillimum var.
byssoideum; C. flaccidum sensu auct.]
- Family Spyridiaceae [Note 125]
- SPYRIDIA Harv. in Hook., 1833
- clavata* Kütz. (6, 38) [Note 33]
- filamentosa* (Wulfen) Harv. in Hook. (6, 8, 15,
16, 17, 28, 29, 38)
- hypnoides* (Bory in Belanger) Papenf. (6, 7, 8,
16, 17, 28, 38) [Note 34]
[aculeata]
- Family Wrangeliaceae [Note 125]
- ANOTRICHIMUM Nägeli, 1862
- tenuis* (C. Agardh) Nägeli (8, 28, 38) [Note 26]
[Griffithsia tenuis]
- COMPSOTHAMNION (Nägeli) F. Schmitz, 1889
- thuyoides* (Sm.) F. Schmitz (39)
- SPERMOTHAMNION Aresch., 1847
- sp. (8, 19) [Note 32]
- Family Dasyaceae
- DASYA C. Agardh, 1824, nom. cons.
- baillouviana* (S.G. Gmel.) Mont. (2, 4, 38)
[Note 35]
[pedicellata]
- corymbifera* J. Agardh (39)
- rigidula* (Kütz.) Ardiss. (6, 13, 16, 38)
- Family Delesseriaceae
- APOGLOSSUM J. Agardh, 1898
- ruscifolium* (Turner) J. Agardh (39)
- HYPOGLOSSUM Kütz., 1843
- tenuifolium* (Harv.) J. Agardh (39)

- POLYNEURA Kylin, 1924, nom. cons.
[SEARLESIA]
subtropica (C.W. Schneid.) T. Yoshida et Mi-
kami (39) [Note 36]
[Searlesia subtropica]
- Family Rhodomelaceae
- ACANTHOPHORA J.V. Lamour., 1813
spicifera (Vahl) Børgesen (6, 7, 16, 17, 38)
- BOSTRYCHIA Mont., 1842, nom. cons.
moritziana (Sonder ex Kütz.) J. Agardh (1, 2)
[Note 37]
radicans (Mont.) Mont. in Orbigny (29) [Note
37]
- BRYOCLADIA F. Schmitz, 1897
cuspidata (J. Agardh) De Toni (1, 2, 4, 6, 7, 8,
15, 16, 17, 19, 23, 24, 25, 28, 29, 38)
thyrsigera (J. Agardh) F. Schmitz in Falkenb. (8,
16, 17, 19, 20, 24, 28, 38)
- CHONDRIA C. Agardh, 1817, nom. cons.
atropurpurea Harv. (2, 4, 7, 38)
capillaris (Huds.) M.J. Wynne (6, 7, 28, 38)]
[Note 38]
[tenuissima]
enicophylla (Melvill) De Toni (8, 16, 17, 28, 38)
curvilineata Collins et Herv. (6, 38)
dasyphylla (Woodw.) C. Agardh (8, 16, 17, 28)
littoralis Harv. (8, 16, 17, 28, 38)
sedifolia Harv. (7, 38)
spp. (24)
- DIGENEA C. Agardh, 1823
simplex (Wulfen) C. Agardh (2, 4, 6, 7, 8, 14, 16,
17, 24, 28, 34, 38) [Note 124]
- HERPOSIPHONIA Nägeli, 1846
secunda (C. Agardh) Ambronn (6, 28, 38)
[Note 39]
tenella (C. Agardh) Ambronn (6, 8, 16, 19, 28,
38) [Note 39]
[secunda f. tenella]
- LAURENCIA J.V. Lamour., 1813, nom. cons.
intricata J.V. Lamour. (6, 38)
obtusata (Huds.) J.V. Lamour. (6, 28, 38)
- LOPHOSIPHONIA Falkenb. in Engler & Prantl
obscura (C. Agardh) Falkenb. in Engler &
Prantl (2) [Note 40]
[subadunca]
- NEOSIPHONIA M.-S. Kim et I.K. Lee, 1999
[Note 41]
ferulacea (Suhr ex J. Agardh) S.M. Guim. et M.T.
Fujii (2, 4, 6, 7, 38) [Note 42]
[Polysiphonia ferulacea]
flaccidissima (Hollenb.) M.-S. Kim et I.K. Lee
(18) [Note 43]
[Polysiphonia flaccidissima]
gorgoniae (Harv.) S.M. Guim. et M.T. Fujii (8,
15, 16, 18, 28, 29, 38) [Note 42]
[Polysiphonia gorgoniae]
tepidata (Hollenb.) S.M. Guim. et M.T. Fujii (4,
8, 15, 16, 18, 25, 28, 29, 38) [Note 42]
[Polysiphonia tepidata, P. howei *sensu auct.*]
[Note 44]
- PALISADA K.W. Nam, 2007 [Note 45]
papillosa (C. Agardh) K.W. Nam (2) [Note 46]
[Chondrophycus papillosus; Laurencia papil-
losa]
poiteaui (J.V. Lamour.) K.W. Nam (2, 4, 6, 7, 8,
14, 16, 17, 24, 28, 34, 38) [Note 46]
[Chondrophycus poiteaui; Laurencia poiteaui;
L. poitei] [Note 47]
poiteaui (J.V. Lamour.) K.W. Nam var. *gemmifera*
(Harv.) Senties, M.T. Fujii et Díaz-Larrea (2,
4) [Note 48]
[Chondrophycus poiteaui var. *gemmiferus*;
Laurencia *gemmifera*, Palisada *gemmifera*]
- POLYSIPHONIA Grev., 1823, nom. cons.
atlantica Kapraun et J.N. Norris (6, 7, 18, 19,
28, 38) [Note 49]
[macrocarpa Harv. in Mackay, non (C.
Agardh) Spreng.]
binneyi Harv. (2)
boldii M.J. Wynne et P. Edwards (8, 9, 18, 25,
28, 29, 38) [Note 50]
[P. hemisphaerica var. *boldii*]
denudata (Dillwyn) Grev. ex Harv. in Hook. (6,
8, 15, 16, 17, 18, 19, 24, 25, 28, 38)
echinata Harv. (7, 8, 16, 17, 18, 28, 38)
[fracta *sensu auct.*]
hapalacantha Harv. (6, 16, 28, 38)
havanensis Mont. (6, 7, 8, 16, 17, 18, 28, 38)
ramentacea Harv. (6, 28, 38)

- subtilissima* Mont. (4, 6, 8, 15, 16, 17, 18, 19, 24, 28, 29, 38)
- WRIGHTIELLA F. Schmitz, 1893
- tumanowiczii* (Gatty ex Harv.) F. Schmitz (1, 2) [Note 51]
- Order Gelidiales
Family Gelidiaceae
- GELIDIUM J.V. Lamour., 1813, nom. cons. [Note 52]
- americanum* (W.R. Taylor) Santel. (4) [Note 53]
[Pterocladia americana]
- crinale* (Turner) Gaillon (4, 6, 7, 8, 15, 16, 17, 19, 24, 28, 38)
- var. *platycladum* W.R. Taylor (4) [Note 54]
- pusillum* (Stackh.) Le Jolis (1, 2, 4, 25, 28, 29)
- PTEROCLADIELLA Santel. et Hommers., 1997 [Notes 55, 56]
- bartlettii* (W.R. Taylor) Santel. (4, 8, 16, 17, 19, 24, 25, 28, 38, 39) [Note 57]
[Pterocladia bartlettii]
- Order Gigartinales
Family Cystocloniaceae
[Hypneaceae]
- HYPNEA J.V. Lamour., 1813
- cornuta* (Kütz.) J. Agardh (7, 8, 14, 16, 17, 24, 38) [Note 58]
- musciformis* (Wulfen in Jacq.) J.V. Lamour. (1, 2, 4, 6, 7, 8, 14, 16, 17, 19, 24, 28, 38)
- spinella* (C. Agardh) Kütz. (1, 2, 4, 5) [Note 59]
[cervicornis]
- valentiae* (Turner) Mont. (28) [Note 58]
- Family Gigartinaceae [Note 60]
Family Kallymeniaceae
- KALLYMENIA J. Agardh, 1842
- westii* Ganesan (39)
- Family Peyssonneliaceae
- PEYSSONNELIA Dene., 1841
- rubra* (Grev.) J. Agardh (39)
- simulans* Weber Bosse in Børgesen (39)
- Family Solieriaceae
- AGARDHIELLA F. Schmitz in Schmitz & Hauptfleisch, 1896
- subulata* (C. Agardh) Kraft et M.J. Wynne (1, 2, 3, 4, 6, 7, 8, 14, 16, 19, 26, 28, 34, 38) [Note 61]
[tenera; Neoagardhiella baileyi]
- SOLIERIA J. Agardh, 1842
- filiformis* (Kütz.) P.W. Gabrielson (16, 17, 28) [Note 61]
[Agardhiella tenera *sensu auct. p. p.*; Solieria tenera *sensu auct. p. p.*]
- Order Gracilariales
Family Gracilariaceae
- GRACILARIA Grev., 1830, nom. cons. [Notes 62, 63, 64]
- blodgettii* Harv. (1, 4, 2, 5, 6, 7, 38)
- bursa-pastoris* (S.G. Gmel.) P.C. Silva (4) [Note 65]
[compressa]
- cervicornis* (Turner) J. Agardh (6, 38) [Note 66]
[ferox]
- tikvahiae* McLachlan (2, 7, 8, 14, 20, 28, 29) [Note 67]
[foliifera *sensu auct.*; foliifera var. *angustissima*]
spp. (34)
- HYDROPUNTIA Mont., 1842 [Notes 68, 69]
- caudata* (J. Agardh) Gurgel et Fredericq (2, 3, 6, 7, 8, 16, 28, 38) [Note 70]
[Gracilaria caudata; G. confervoides *sensu auct.*; Gracilaria verrucosa *sensu auct.*]
- cornea* (J. Agardh) M.J. Wynne (6, 7, 14, 16, 17, 28, 38) [Note 71]
[Gracilaria cornea; G. debilis *sensu auct.*, non Fucus debilis Forssk., 1775]
- Order Halymeniales
Family Halymeniaceae
- CRYPTONEMIA J. Agardh, 1842
- sp. (39)
- GRATELOUPIA C. Agardh, 1822 nom. cons. [Note 72]
[PRIONITIS]
- filicina* (J.V. Lamour.) C. Agardh (6, 7, 8, 14, 16, 17, 19, 24, 28, 29, 38, 39) [Note 73]
- gibbesii* Harv. (7, 38)
- pterocladina* (M.J. Wynne) S. Kawaguchi et H.W. Wang in Wang et al. (22, 24, 28, 29) [Note 74]

- [Prionitis pterocladina; Gigartina elegans *sensu auct.*; Grateloupia filicina *sensu auct. pro parte*; Pterocladia bartlettii *sensu auct. pro parte*; Pterocladia capillacea *sensu auct.*]
- HALYMENIA C. Agardh, 1817 nom. cons.
floridana J. Agardh (6, 28, 38)
Order Nemastomatales
Family Schizymeniaceae
- TITANOPHORA (J. Agardh) Feldmann, 1942
incrustans (J. Agardh) Børgesen (39)
Order Rhodymeniales
Family Rhodymeniaceae
- BOTRYOCLADIA (J. Agardh) Kylin, 1931, nom. cons.
monoica Schnetter (32, 33) [Note 75]
occidentalis (Børgesen) Kylin (26, 28, 39)
- CHRYSYMENIA J. Agardh, 1842
halymenioides Harv. (39)
- COELARTHURUM Børgesen, 1910
cliftonii (Harv.) Kylin (39) [Note: 76]
[albertisii]
- RHODYMENIA Grev., 1830, nom. cons.
pseudopalmata (J.V. Lamour.) P.C. Silva (6, 7, 8, 16, 17, 19, 24, 26, 28, 38) [Note 77]
[var. caroliniana]
Family Champiaceae
- CHAMPIA Desv., 1809
parvula (C. Agardh) Harv. (6, 8, 16, 17, 28, 38)
Family Faucheaceae
- GLOIOCLADIA J. Agardh, 1842
[FAUCHEA]
hassleri (M. Howe et W.R. Taylor) Sánchez et Rodríguez-Prieto in Rodríguez-Prieto et al. (39) [Note 78]
[Faucha hassleri]
Family Lomentariaceae
- LOMENTARIA Lyngb., 1819
baileyana (Harv.) Farl. (6, 8, 16, 17, 19, 23, 28, 38)
[uncinata *sensu auct.*]
- Phylum Ochrophyta**
Class Phaeophyceae
Order Dictyotales
Family Dictyotaceae
- CANISTROCARPUS De Paula et De Clerck in De Clerck et al., 2006 [Note 79]
cervicornis (Kütz.) De Paula et De Clerck in De Clerck et al. (5, 6, 7, 16, 34, 37, 38) [Note 80]
[Dictyota cervicornis; D. indica]
- DICTYOPTERIS J.V. Lamour., 1809, nom. cons.
delicatula J.V. Lamour. (6, 16, 38)
justii J.V. Lamour. (39)
- DICTYOTA J.V. Lamour., 1809, nom. cons.
bartayresiana J.V. Lamour. (39)
ciliolata Sond. ex Kütz. (24)
menstrualis (Hoyt) Schnetter, Hörnig et Weber-Peukert (6, 7, 8, 14, 15, 16, 17, 19, 20, 24, 26, 28, 29, 37, 38, 39) [Note 81]
[dichotoma var. menstrualis; dichotoma *sensu auct.*, non (Huds.) J.V. Lamour.]
- LOBOPHORA J. Agardh, 1894
variegata (J.V. Lamour.) Womersley ex E.C. Oliveira (39)
- PADINA Adans., 1763, nom. cons.
glabra Gaillard (41) [Note 126]
gymnospora (Kütz.) Sond. (2, 4, 6, 7, 8, 14, 16, 17, 19, 24, 28, 37, 38) [Note 82]
[vickersiae]
- SPATOGLOSSUM Kütz., 1843
schroederi (C. Agardh) Kütz. (13, 16, 17, 39)
- STYPOPODIUM Kütz., 1843
zonale (J.V. Lamour.) Papenf. (39)
Order Sphacelariales
Family Sphacelariaceae
- SPHACELARIA Lyngb., 1819
rigidula Kütz. (6, 7, 16, 20, 29, 38) [Note 83]
[furgigera]
sp. (28)
Order Ectocarpales
[Chordariales, Dictyosiphonales, Scytosiphonales]

Family Acinetosporaceae

FELDMANNIA Hamel, 1939

indica (Sond.) Womersley et A. Bailey (1, 4, 6, 7, 8, 16, 17, 28, 37, 38) [Note 84]
[Ectocarpus duchassaingianus; Giffordia duchassaingiana; Giffordia indica]

HINCKSIA J.E. Gray, 1864 [Note 85]
[GIFFORDIA]

mitchelliae (Harv.) P.C. Silva (1, 4, 6, 7, 8, 16, 17, 25, 28, 29, 37, 38)
[Giffordia mitchelliae]

Family Chordariaceae

[Dictyosiphonaceae, Myrionemataceae,
Myriotrichiaceae]

CLADOSIPHON Kütz., 1843

occidentalis Kylin (7, 8, 16, 17, 28, 38) [Note 86]
[zosteræ *sensu auct.*; Eudesme zosteræ *sensu auct.*]

HECATONEMA Sauv., 1898

floridanum (W.R. Taylor) W.R. Taylor (7) [Note 87]
[Phycocelis floridana]

HUMMIA J. Fiore, 1975 [Note 88]

[FARLOWIELLA]

onusta (Kütz.) J. Fiore (6, 8, 16, 28, 37, 38)
[Note 88]
[Farlowiella onusta; Myriotrichia subcorymbosa; Stictyosiphon subsimplex]

STREBLONEMA Derbès et Solier in Castagne

oligosporum Strömf. (8, 16, 28, 38)
sp. (8)

Family Ectocarpaceae

BACHELOTIA (Bornet) Kuck. ex Hamel, 1939

antillarum (Grunow) Gerloff (6, 7, 16, 28, 38)
[Note 89]
[Pylaiella antillarum]

ECTOCARPUS Lyngb., 1819, nom. cons.

rallsiae Vickers (1, 4, 6, 8, 16, 17, 19, 25, 28, 38)
[Note 90]
[Giffordia rallsiae]
siliculosus (Dillwyn) Lyngb. (1, 4, 6, 7, 8, 15, 16, 24, 28, 29, 38) [Note 91]
[confervoides]

Family Scytosiphonaceae

HYDROCLATHRUS Bory, 1825

clathratus (C. Agardh) M. Howe (38)

PETALONIA Derbès & Solier, 1850, nom. cons.

fascia (O.F. Müll.) Kuntze (6, 7, 8, 15, 16, 17, 29, 29, 37, 38)

ROSENVINGEA Børgesen, 1914

orientalis (J. Agardh) Børgesen (16, 17, 38)

Order Fucales

Family Sargassaceae

SARGASSUM C. Agardh, 1820, nom. cons.

filipendula C. Agardh (2, 4, 7, 16, 17, 24, 37, 38)

fluitans (Børgesen) Børgesen (1, 2, 4, 6, 8, 15, 16, 17, 24, 28, 29, 38)

natans (L.) Gaillon (1, 2, 4, 6, 7, 8, 15, 16, 17, 24, 28, 29, 38)

pteropleuron Grunow (2, 4, 37)

Phylum Chlorophyta

Class Ulvophyceae

Order Ulotrichales

Family Ulotrichaceae

ULOTHRIX Kütz., 1833

flacca (Dillwyn) Thuret in Le Jolis (8, 17, 25, 28, 29, 38)

Order Ulvales

Family Ctenocladaceae

BOLBOCOLEON Pringsh., 1863 [Note 92]

piliferum Pringsh. (11, 16)

Family Ulvaceae

ULVA L., 1753 [Note 93]

[ENTEROMORPHA]

clathrata (Roth) C. Agardh (6, 7, 8, 10, 15, 16, 17, 23, 25, 28, 29, 38) [Note 94]
[Enteromorpha clathrata; E. muscoides; E. ramulosa]

fasciata Delile (2, 3, 4, 6, 7, 8, 10, 16, 17, 19, 24, 28, 38) [Note 95]

flexuosa Wulfen (1, 2, 4, 5, 6, 7, 8, 10, 15, 16, 17, 19, 23, 25, 26, 28, 29, 38) [Note 96]

subsp. *flexuosa*

[Enteromorpha flexuosa; E. lingulata]

subsp. *paradoxa* (C. Agardh) M.J. Wynne (2, 4, 7, 16, 17, 38) [Note 97]
[Enteromorpha plumosa]

intestinalis L. (4, 7, 38)
[Enteromorpha intestinalis]

lactuca L. (1, 2, 4, 6, 7, 8, 10, 15, 16, 17, 28, 29, 38, 39) [Note 95]
[lactuca var. *latissima sensu auct.*] [Note 98]

prolifera O.F. Müll. (2, 4, 6, 7, 8, 10, 15, 16, 17, 19, 23, 25, 28, 29, 38) [Note 99]
[Enteromorpha salina]

rigida C. Agardh (7)
[lactuca var. *rigida*]

Family Ulvellaceae

ENTOCLADIA Reinke, 1879

testarum Kylin (12, 16)
[Epicladia testarum]

viridis Reinke (6, 8, 16, 28, 38) [Note: 100]
[Acrochaete viridis; Phaeophila viridis]

wittrockii Wille (6, 28) [Note 100]
[Acrochaete wittrockii]

EPICLADIA Reinke, 1889 [Note 101]

flustrae Reinke (11, 16)
[Entocladia flustrae]

heterotricha (Yarish) R. Nielsen (11, 12) [Note 102]
[Pseudulvella heterotricha; Ulvella heterotricha]

ULVELLA P. Crouan et H. Crouan, 1859
[PSEUDULVELLA]

lens P. Crouan et H. Crouan (6, 8, 16, 25, 28, 38)

prostrata N.L. Gardner (11, 12, 16) [Note 103]
[Pseudulvella prostrata]

Order Phaeophilales
Family Phaeophilaceae

PHAEOPHILA Hauck, 1876 [Note 104]

dendroides (P. Crouan et H. Crouan) Batters (6, 28, 38)

ramulosa (L. Moewus) R. Nielsen (11, 12, 16) [Note 105]
[Ectochaete ramulosa; Entocladia ramulosa] [Note 106]

vagans (Børgesen) R. Nielsen (11) [Note 107]

[Endoderma vagans; Ectochaete vagans]

Order Cladophorales
Family Anadyomenaceae

ANADYOMENE J.V. Lamour., 1812, nom. cons.

stellata (Wulf. in Jacquin) C. Agardh (39)

MICRODICTYON Decne., 1841

boergesenii Setch. (39)

Family Boodleaeae

STRUVEA Sond., 1845, nom. cons.

sp. (39) [Note 108]

Family Cladophoraceae

CHAETOMORPHA Kütz., 1845, nom. cons.

antennina (Bory) Kütz. (6, 16, 24) [Note 109]
[media]

brachygona Harv. (2, 4, 6, 7, 16, 28, 38)

clavata Kütz. (2, 16)

geniculata Mont. (2, with ?)

gracilis Kütz. (6, 28, 38)

linum (O.F. Müll.) Kütz. (8, 14, 15, 16, 17, 19, 23, 25, 28, 29, 38)

CLADOPHORA Kütz., 1843, nom. cons. [Note 110]

albida (Nees) Kütz. (4, 6, 8, 16, 17, 28, 38) [Note 111]
[glaucescens]

coelothrix Kütz. (6) [Note 112]
[repens]

dalmatica Kütz. (7, 8, 15, 16, 19, 23, 25, 28, 29, 38) [Note 113]
[luteola]

dichotomo-divaricata P. Crouan et H. Crouan in Schramm & Mazé

montagneana Kütz. (6, 8, 15, 16, 28, 29, 38) [Notes 111, 114]
[delicatula]

prolifera (Roth) Kütz. (19, 28)

ruchingeri (C. Agardh) Kütz. (8, 16, 17, 19, 25, 28, 29, 38)

vagabunda (L.) C. Hoek (1, 2, 3, 4, 6, 7, 8, 16, 17, 19, 24, 25, 28, 29, 38) [Note 115]
[fascicularis]

RHIZOCLONIUM Kütz., 1843

africanum Kütz. (29)

riparium (Roth) Kütz. ex Harv. (6, 7, 38)

Family Siphonocladaceae

CLADOPHOROPSIS Børgesen, 1905, nom. cons.

macromeres W.R. Taylor (7, 38)

membranacea (C. Agardh) Børgesen (7, 16, 29, 38)

Family Valoniaceae

VALONIA C. Agardh, 1823

macrophysa Kütz. (39)

ventricosa J. Agardh (39)

Order Bryopsidales

Family Bryopsidaceae

BRYOPSIS J.V. Lamour., 1809

hypnoides J.V. Lamour. (6, 7, 8, 16, 17, 19, 20, 28, 38)

pennata J.V. Lamour. (6, 16, 20, 24, 25, 28, 29, 38)

plumosa (Huds.) C. Agardh (8, 16, 17, 19, 28, 38)

DERBESIA Solier, 1846

vaucheriaeformis (Harv.) J. Agardh (8, 19, 28, 38)
sp. (16)

Family Ostreobiaceae

OSTREOBIUM Bornet et Flahault, 1889

quekettii Bornet et Flahault (6, 16, 38)

Family Codiaceae

CODIUM Stackh., 1797

taylorii P.C. Silva (30, 39) [Note 116]

Family Caulerpacaeae

CAULERPA J.V. Lamour., 1809

macrophysa (Sond. ex Kütz.) G. Murray (39)
[Note 117]

[*racemosa* var. *macrophysa*]

mexicana Sond. ex Kütz. (6, 7, 13, 16, 17, 38)
[Note 118]

[*crassifolia*; *crassifolia* f. *mexicana*]

microphysa (Weber Bosse) Feldmann (39, 40)
[Note 122]

peltata J.V. Lamour. (39) [Note 119]

prolifera (Forssk.) J.V. Lamour. (31, 38) [Note 120]

f. *obovata* (J. Agardh) Weber Bosse (30, 31)
[Note 121]

sertularioides (S.G. Gmel.) M. Howe (6, 16, 38)

CAULERPELLA Prud'homme et Lokhorst, 1992

ambigua (Okamura) Prud'homme et Lokhorst
(40) [Note 122]

Family Udoteaceae

HALIMEDA J.V. Lamour., 1812, nom. cons.

discoidea Decne. (39)

gracilis Harv. (39)

incrassata (J. Ellis) J.V. Lamour. (27)

PENICILLUS Lam., 1813

capitatus Lam. (6, 7, 16, 17, 36, 38)

UDOTEA J.V. Lamour., 1812

cyathiformis Decne. (39)

flabellum (J. Ellis et Sol.) J.V. Lamour. (39)

Order Dasycladales

Family Dasycladaceae

BATOPHORA J. Agardh, 1854

oerstedii J. Agardh (2, 3, 4, 6, 7, 13, 16, 17, 28, 38)

Family Polyphysaceae

ACETABULARIA J.V. Lamour., 1812, nom. cons.
[Note 123]

[ACICULARIA]

crenulata J.V. Lamour. (2, 3, 4, 5, 6, 7, 8, 16, 17,
20, 24, 28, 38)

farlowii Solms-Laubach (28, 38)

schlenckii K. Möbius (6, 28, 38) [Note 123]
[Acicularia *schlenckii*]

NOTES

Note 1: In their treatment of phylogenetic relationships within the red algae, Yoon et al. (2006) established two new classes, the Porphyridiophyceae and the Stylonematophyceae.

Note 2: *Erythrobolus* was established by Scott et al. (2006) as a new monotypic genus on the basis of a collection originally isolated from submerged rocks at the U.S. Coast Guard Station (26°4'N 97°1'W), South Padre Island, TX.

- Note 3: According to Drew and Ross (1965) *Chroodactylon* and *Asterocytis* are congeneric, the former genus having priority.
- Note 4: There have been several reports of *Asterocystis ramosa* (Thwaites) Gobi, the name that has been traditionally applied to the plant from marine conditions, whereas *Asterocystis* [*Chroodactylon*] *ornata* (C. Agardh) Hamel had been applied to the freshwater counterpart. Lewin and Robertson (1971) demonstrated that material collected from the ocean at La Jolla, CA, and called by them as *A. ornata* could be grown in media at one-quarter-strength seawater. This observation reduced the justification for maintaining this pair of species as distinct. John et al. (1979) and Schneider and Searles (1991) have treated these taxa as conspecific. Basson (1979) is credited with the validation of the name *Chroodactylon ornatum*.
- Note 5: Wynne (1985) presented reasons for using the name *Stylonema* rather than *Gonio-trichum*.
- Note 6: In their genetic analysis of strains of *Stylonema alsidii* isolated from disparate locations around the world, Zuccarello et al. (2008) observed this species to be a "true ubiquitous taxon."
- Note 7: Kornmann (1989) segregated *Erythrocladia subintegra* Rosenvinge in the new genus *Sahlingia*, distinct from *Erythrocladia*.
- Note 8: There have been several reports of this species as *Bangia atropurpurea* (Roth) C. Agardh from the Texas coast. Geesink (1973) presented experimental evidence that *B. atropurpurea* and *Bangia fuscopurpurea* were conspecific, the former name having priority. Later, Sheath and Cole (1984) also offered evidence that the Atlantic North American populations of *Bangia* represent a single species. However, Nelson (2007) has provided molecular evidence that these two species represent different genera. *Bangia*, as typified by the marine species *B. fuscopurpurea*, was distinguished from the freshwater-based entity, for which the new genus *Bangiadulcis* was established.
- Note 9: A record of *Porphyra rosengurtii* on the basis of a Wynne collection from Port Isabel, TX, in the MICH Herbarium (and identified as "*Porphyra leucosticta*") was made by Brodie et al. (2007). They also listed a collection made at Port Aransas as being *P. rosengurtii*. This species was first described by Coll and Cox (1977) from North Carolina. At that time Coll and Cox discounted previous records of *P. leucosticta* from North Carolina. In light of the revelations made by Brodie et al. (2007), reports of *P. leucosticta* for Texas must be reconsidered in terms of the distinction between *P. leucosticta* vs *P. rosengurtii*. Christopher Neefus (pers. comm.) has indicated that there is no evidence for the occurrence of genuine *P. leucosticta* on the Texas coast.
- Note 10: Schneider (1983) proposed to treat *Acrochaetium seriatum* Børgesen as a taxonomic synonym of *A. hypneae* (Børgesen) Børgesen.
- Note 11: Woelkerling (1972) proposed treating *Acrochaetium crassipes* (Børgesen) Børgesen as a taxonomic synonym of *Acrochaetium microscopium*. Stegenga and Kemperman (1983), however, were not convinced that these two species were conspecific.
- Note 12: Woelkerling (1973a,b) and Schneider (1983) proposed treating *Acrochaetium virgatum* (Harv.) Bornet as conspecific with *Acrochaetium secundatum*. Dixon and Irvine (1977) maintained this pair of species as distinct "pending detailed investigation of the relationship."
- Note 13: Eiseman and Blair (1982) reported *Galaxaura cylindrica* (J. Ellis & Sol.) J.V. Lamour. from Flower Garden Coral Banks. Huisman and Borowitzka (1990) established the segregate genus *Tricleocarpa* from *Galaxaura*, and that included *Tricleocarpa cylindrica*.
- Note 14: Eiseman and Blair (1982) reported *Galaxaura oblongata* (J. Ellis & Sol.) J.V. Lamour. from Flower Garden Coral Banks. This species was initially transferred to the segregate genus *Tricleocarpa*. Later, Huisman and Townsend (1993) proposed to treat this species as a later taxonomic synonym of *Eschara fragilis* Linnaeus, making the new combination of *Tricleocarpa fragilis*.
- Note 15: Penrose and Chamberlain (1993) proposed treating *Fostiella* Howe (1920) as a heterotypic synonym of *Hydrolithon* Foslie (1909).
- Note 16: Chamberlain (1983) treated *Heteroderma* as a taxonomic synonym of *Pneophyllum*.
- Note 17: Penrose and Woelkerling (1991) proposed to treat *Heteroderma lejolisii* (Rosanoff) Foslie as conspecific with *Pneophyllum fragile*, a treatment earlier suggested by Chamberlain (1983).
- Note 18: Reports (5, 16) of *Corallina granifera* J. Ellis et Sol., with a type locality of the Mediterranean coast of Africa, were regarded as doubtful by Baca et al. (1979).
- Note 19: Kim et al. (2007) recently offered both morphological and molecular evidence to treat *Haliptilon* (Decne.) J. Lindley as congeneric with *Jania*.

- Note 20: According to Johansen (1971), *Jania decussato-dichotoma* (Yendo) Yendo is conspecific with *Jania adhaerens*.
- Note 21: According to Baca et al. (1979), a South Texas collection identified by Humm and Hildebrand (1962) as *Jania adhaerens* was redetermined to be *Jania capillacea*.
- Note 22: Eiseman and Blair (1982) reported *Amphiroa rigida* var. *antillana* Børgesen from the Flower Garden Coral Banks. This variety was merged within the nominate variety by Riosmena-Rodriguez and Siqueiros-Beltrones (1996).
- Note 23: Bailey (1999) provided molecular evidence to support the distinction of *Titanoderma* from *Lithophyllum*. Woelkerling et al. (1985) treated *Dermatolithon* as congeneric with *Titanoderma*.
- Note 24: Several workers had misapplied to Texas collections the name *Callithamnion byssoides* Arn. ex Harv., a European-based species, now known as *Aglaothamnion tenuissimum* (Bonnem.) Feldm.-Maz. (Furnari et al., 1998). Rueness and L'Hardy-Halos (1991) recognized the Texas material as distinct from the European species and described it as the new species *Aglaothamnion westbrookiae*, with a type locality of Port Aransas. Later, Aponte et al. (1997) recognized that the poorly known species *Callithamnion halliae* Collins was identical to the Texas species, and they transferred this species to *Aglaothamnion*.
- Note 25: Kapraun (1980) made the first report of this species (as *Callithamnion cordatum* Børgesen) from the coast of Texas. The report of *Callithamnion corymbosum* (Sm.) Lyngb. by Humm and Hildebrand (1962) was questioned by Baca et al. (1979) and may refer to *Aglaothamnion cordatum*.
- Note 26: Baldock (1976) provided distinguishing characteristics separating *Anotrichium* from *Griffithsia*, including tetrasporangial and spermatangial traits.
- Note 27: The numerous reports of the occurrence of *Centroceras clavulatum* from the Texas coast are now all suspect in light of the findings made by Won et al. (2004). According to those authors, *C. clavulatum*, with a type locality of Callao, Peru, represents an example of "cryptic speciation," with several distinct species passing under that name. Work is needed to determine which name is to be applied for the collections from the Texas coast.
- Note 28: The illegitimate name *Ceramium fastigiatum* Harv. in Hook. has been replaced by *Ceramium cimbrium* (Rueness, 1992; Maggs and Hommersand, 1993).
- Note 29: Furnai and Serio (in Cecere et al., 1996) transferred f. *flaccidum* H. Petersen in Rosenvinge from *C. fastigiatum* nom. illeg. to *C. cimbrium*.
- Note 30: According to Maggs and Hommersand (1993), *Ceramium strictum* (Kütz.) Harv. is a later taxonomic synonym of *Ceramium deslongchampsii*.
- Note 31: Cho et al. (2008) have recognized *Gayliella* as a segregate genus from *Ceramium*, the distinction based on both morphological and molecular data. *Gayliella* is based on *Gayliella flaccida* (Kütz.) T.O. Cho et L. McIvor, with an Atlantic Europe distribution. The results of Cho et al. (2008) did not support Womersley's (1978) view that *G.* [as *Ceramium*] *flaccida* has a worldwide distribution. The name *Gayliella transversalis* (Coll. et Herv.) T.O. Cho et Fredericq was applied for the representatives of this complex from North America and Bermuda. According to Cho et al. (2008), this species includes Harvey's (1853) *Ceramium byssoides*, on the basis of material from Key West, FL. That name, however, was not available because it was predated by *Ceramium byssoides* (Gooden. et Woodw.) Ducl.
- Note 32: There have been records (e.g., Edwards, 1970; Edwards and Kapraun, 1973) of *Spermothamnion* from the Texas coast but without determination of the species.
- Note 33: The single report by Humm and Hildebrand (1962) and repeated by Earle (1972) of this species from the Texas coast was regarded by Baca et al. (1979) as "doubtful at this time."
- Note 34: Papenfuss (1968) proposed treating *Spyridia aculeata* (C. Agardh ex Decne.) Kütz. as conspecific with *Spyridia hypnoides*.
- Note 35: According to Dixon and Irvine (1970), *Dasya pedicellata* (C. Agardh) C. Agardh is a later taxonomic synonym of *Dasya baillouviana*. There seem to be no additional reports of this since since Taylor's (1941) record of a Schott collection from Indianola (now a "ghost town"), Calhoun County.
- Note 36: Eiseman and Blair (1982) reported *Searlesia subtropica* (C.W. Schneid.) C.W. Schneid. et Eiseman from Flower Garden Coral Banks. Later, Yoshida and Mikami (1991) proposed the merger of *Searlesia* within *Polyneura*, resulting in the transfer of this species to that genus.
- Note 37: According to Zuccarello and West (2003), there is evidence for the existence of cryptic species within the *Bostrychia radicans*/*Bostrychia moritziana* complex.
- Note 38: See Wynne (1991) for the proposal that the name *Chondria capillaris* should be

- used rather than *Chondria tenuissima* (Gooden. et Woodw.) C. Agardh.
- Note 39: Schneider and Searles (1997) presented evidence for maintaining *Herposiphonia secunda* and *Herposiphonia tenella* as distinct species.
- Note 40: Silva et al. (1996) offered reasons for using the name *Lophosiphonia obscura* rather than *Lophosiphonia subadunca* (Kütz.) Falkenb.
- Note 41: Kim and Lee (1999) used several criteria, including both morphological and reproductive characteristics, to justify the recognition of *Neosiphonia* as a segregate genus from *Polysiphonia*.
- Note 42: See Guimarães et al. (2004) for the transfer of this species of *Polysiphonia* to *Neosiphonia*.
- Note 43: See Kim and Lee (1999) for the transfer of this species of *Polysiphonia* to *Neosiphonia*.
- Note 44: According to Baca et al. (1979), a collection identified by Humm and Hildebrand (1962) as *Polysiphonia howei* Hollenb. in W.R. Taylor was redetermined to be *Polysiphonia tepida*.
- Note 45: Nam (2006) presented reasons for the recognition of the segregate genus *Palisada*, and he subsequently validated this generic name (Nam, 2007) and transferred to that genus a number of species formerly placed in *Laurencia* and *Chondrophyucus*.
- Note 46: Nam (2007) transferred this species to his segregate genus *Palisada*.
- Note 47: According to Silva et al. (1987), the correct spelling of this epithet is "*poiteaui*," the species being named after Pierre Antoine Poiteau.
- Note 48: Taylor (1941) first reported this taxon (as *Laurencia gemmifera*) from Aransas Pass and Ransom Island. There has been recent evidence offered by Díaz-Larrea et al. (2007) to treat it as a variety within *Chondrophyucus poiteaui*. Subsequently, this variety was recognized within *Palisada poiteaui* (Senties and Díaz-Larrea, 2008).
- Note 49: Kapraun and Norris (1982) proposed *Polysiphonia atlantica* as a new name to replace the illegitimate name *Polysiphonia macrocarpa* Harvey in Mackay, non (C. Agardh) Sprengel.
- Note 50: Wynne and Edwards (1970) described this species with a type locality of Fulton, Aransas County, TX. In culture experiments Rueness (1973) demonstrated a partial inter-fertility with *Polysiphonia hemisphaerica* Aresch. of northern Europe, and he proposed treating *Polysiphonia boldii* at the varietal level within that species. Offering their disjunct distributions and phenological differences, Kapraun (1979) continued to treat *P. boldii* at the species level.
- Note 51: Because Baca et al. (1979) did not re-collect any material of this species, they regarded its occurrence in Texas as "doubtful at this time."
- Note 52: Although there have been several reports of "*Gelidium corneum*" from Texas (1, 2, 4, 6, 7), the presence of this European-based species cannot be confirmed. After the name had been rejected as being ambiguous (Dixon, 1967), Silva et al. (1996) reinstated the name *G. corneum* (Huds.) J.V. Lamour., applying the concept of this species to the alga then known in Europe as *Gelidium sesquipedale* (Clemente) Thur. This species is a robust alga reaching up to 40 cm in height (Dixon and Irvine, 1977). No specimens from the Texas coast conform to the present circumscription of *G. corneum*. Baca et al. (1979) thought that earlier workers had most likely confused "*G. corneum*" with *Pterocladia bartlettii*.
- Note 53: The type locality of this species is St. Louis du Sud, Haiti. Taylor (1943) also reported it from Texas (thus, a paratype from Texas), indicating that his earlier (Taylor, 1941) report of *Gelidium crinale* from Texas belongs to this species. Santelices (1976) transferred this species to *Gelidium*.
- Note 54: Taylor's (1941) var. *platycladum* of *G. crinale* was based on a type collection from Port Aransas, TX. It was distinguished by its more robust stature and that the axes were flattened throughout, except near the base.
- Note 55: Santelices and Hommersand (1997) recognized the new genus *Pterocladia* [type species *Pterocladia capillacea* (S.G. Gmel.) Santel. et Hommers.] as a segregate genus from *Pterocladia* [with *Pterocladia lucida* (Turner) J. Agardh as the type species].
- Note 56: Although there have been reports (8, 16, 19) of "*Pt. capillacea*" from Texas, according to Wynne (1993) these have been mis-identifications of his *Prionitis pterocladina*.
- Note 57: Santelices (1998) transferred *Pterocladia bartlettii* W.R. Taylor to the genus *Pterocladia* Santelices et Hommersand (1997), an assignment confirmed by Thomas and Freshwater (2001).
- Note 58: Mshigeni and Chapman (1994) offered evidence to regard *Hypnea cornuta* and *Hypnea valentiae* as distinct species. *Hypnea valentiae* can be distinguished from *H. cornuta* by the production of horizontal, scattered short, subulate, usually simple branches (Yamagishi et al., 2003).
- Note 59: Haroun and Prud'homme van Reine (1993) proposed that *Hypnea spinella* and

Hypnea cervicornis J. Agardh are conspecific, the former name having priority. According to those authors, the “spinella” form is expressed in habitats with rough wave action, and the “cervicornis” form is expressed in permanently submerged habitats.

Note 60: Past Texas reports (Taylor, 1960) of *Gigartina elegans* Grev. in J. St.-Hil., a Brazil-based species now known as *Chondracanthus elegans* (Grev. In J. St.-Hil.) Guiry, have been dismissed by Wynne (1993), who recognized these collections as *Prionitis pterocladina*.

Note 61: Two different species, assignable to two different genera in the Solieriaceae, occur on the Texas coast. Earlier they had both passed under the same name *Agardhiella tenera*. Taylor and Rhyne (1970), working with collections from Dominica in the Caribbean, were the first to recognize that these two entities were distinguishable. Gabrielson (1985) selected a different lectotype for *Rhabdonia tenera* J. Agardh than had been selected by Taylor (in Taylor and Rhyne, 1970), which resulted in changes in nomenclature. The one entity, with a more northerly distribution, is now called *Agardhiella subulata* (see Kraft and Wynne, 1979). The other entity, with a more southerly distribution, is now called *Solieria filiformis* by Gabrielson (1985). These two species coexist not only along the Texas coast but also in Mexico, North Carolina, Florida, and in the Caribbean. In addition to differences in their cystocarpic structure, these two taxa are easily separable by their attachments: a simple discoid holdfast in *A. subulata* but a more complex system with many secondary fibrous rhizoids in *S. filiformis*.

Note 62: The genus *Gracilaria* has been in a heightened state of taxonomic and nomenclatural flux for the past two decades, and many of the old names (e.g., *Gracilaria compressa*, *Gracilaria debilis*, *Gracilaria foliifera*, *Gracilaria lacunculata*, and *Gracilaria verrucosa*) that have been applied to collections from Texas are no longer appropriate or correct. It will take time and careful reinvestigation to classify Texas collections according to the large amount of new information on systematics within this genus and family. *Gracilaria foliifera* (Forssk.) Børgesen has been restricted to the Red Sea, Arabian Sea, and Indian Ocean (Guiry and Freamhainn, 1985). See Note 64 below. The illegitimate name *G. lacunculata* (Forssk.) M. Howe was replaced with the new name *Gracilaria isabellana* Gugel, Fredericq et J.N. Norris (Gurgel et al., 2004a), but its occurrence on the Texas coast has yet to be verified. The name “*G. verrucosa*” has been replaced

with the name *Gracilaria gracilis* M. Steentoft, L.M. Irvine et W.F. Farnham (Steentoft et al., 1995), but this European species does not appear to occur on the Texas coast. Also see Note 69.

Note 63: The report (6) of *Gracilaria armata* (C. Agardh) J Agardh has been discounted (Baca et al., 1979).

Note 64: There have been many reports (6, 7, 10, 15, 16, 17, 25, 38) of *Gracilaria foliifera* from the Texas coast. But such reports of an alga with strap-shaped, or flattened, branches/axes are now discounted. According to Gurgel et al. (2004c), some collections of *G. foliifera* sensu Taylor (1960) are now identifiable as *Gracilaria intermedia* J. Agardh, a species with a type locality of St. Augustine, Florida (J. Agardh, 1901). But other collections of *G. foliifera* sensu Taylor (1960) were assigned by Gurgel et al. (2004a) to *G. isabellana*, their nomen novum to replace *G. lacunculata* (Vahl) M. Howe nom. illeg. Wynne (2005, Note 232) pointed out that *Gracilaria patens* P. Crouan et H. Crouan (in Schramm and Maze, 1865), described from Guadeloupe, French West Indies, must be considered as an older name for a *Gracilaria*, with thalli consisting of a spreading clump of mostly dichotomously branched compressed axes. Such a species name predates *G. isabellana*. It is clear that Texas specimens must be analyzed and gene-sequence data obtained so that they can be compared with known taxa in the phylogenetic trees that are now available.

Note 65: *Gracilaria compressa* (C. Agardh) Grev. is now known as *Gracilaria bursa-pastoris* (Silva, 1952). Littler and Littler (2000) and Dawes and Mathieson (2008) recognized *G. bursa-pastoris* as occurring in the Gulf of Mexico. Thus, old Texas records of *G. compressa* may belong to *G. bursa-pastoris*.

Note 66: Oliveira et al. (1983) proposed treating *Gracilaria ferox* J. Agardh as conspecific with *Gracilaria cervicornis*.

Note 67: Texas specimens that have previously been identified as *Gracilaria foliifera* var. *angustissima* (Harv.) W.R. Taylor are now referred to as *Gracilaria tikvahiae* McLachlan, a species with a type locality of Barrachois Harbour, Colchester County, Nova Scotia, Canada (McLachlan, 1979). But recent research on the basis of gene-sequencing data by Gurgel et al. (2004b) has revealed that there are at least four distinct haplotypes. One of these haplotypes was recognized from the eastern Gulf of Mexico, and a second haplotype was recognized from the western Gulf of Mexico.

- Note 68: Wynne (1989) reinstated the older generic name *Hydropuntia* as a heterotypic synonym of *Polycavernosa* (Chang and Xia, 1964).
- Note 69: The report (7) of *Gracilaria crassissima*, a species now known as *Hydropuntia crassissima* (P. Crouan et H. Crouan in Schramm and Mazé) M.J. Wynne, was more or less dismissed by Baca et al. (1979), who indicated it was no longer present in the area of the Texas coast.
- Note 70: The old name *Gracilaria caudata* J. Agardh, on the basis of a syntypes from the island of St. Croix (Lesser Antilles) and from the Gulf of Mexico (Agardh, 1852), was resurrected by Plastino and Oliveira (1997) and used for western Atlantic specimens that had been misidentified as *G. verrucosa* (among other incorrect names). The spermatangia are produced from the lining of deep subcortical conceptacles ('*verrucosa*-type'). Gurgel and Fredericq (2004) transferred this species to *Hydropuntia*. According to Dawes and Mathieson (2008) this species has a distribution in the Gulf of Mexico.
- Note 71: Most previous records of *Gracilaria debilis* from the region of the Gulf of Mexico are now attributed to *Hydropuntia cornea*. Genuine *G. debilis* (Forssk.) Børgesen was based on a type (*Fucus debilis* Forssk.) from Mocha, Yemen, on the Red Sea (Børgesen, 1932). The type of *Gracilaria cornea* J. Agardh was "Pernambuco," Brazil (Agardh, 1852).
- Note 72: Wang et al. (2001) presented a morphological and molecular analysis of the genera *Grateloupia* and *Prionitis* and concluded that the species of this pair of genera, including the two generitypes, constitute a large monophyletic clade, and thus they merged *Prionitis* within *Grateloupia*. More recently, Gabrielson (2008) has continued to recognize some species of *Prionitis* from the Northeast Pacific, stating that it is premature to transfer these species to *Grateloupia* until sequence data for both vegetative and reproductive characters have been assessed. He expressed the opinion that "Likely more than one genus is present within the currently circumscribed *Grateloupia sensu lato*."
- Note 73: Although Texas specimens easily match the usual description of *Grateloupia filicina*, De Clerck et al. (2005) have discovered that a number of cryptic taxa can be differentiated in this complex on the basis of gene-sequencing data. According to those authors, genuine *G. filicina* may be restricted to the Mediterranean. They also observed that a separate clade of tropical forms was present. Work remains to determine what name (available or new) might be applied to the populations from Texas.
- Note 74: Wynne (1993) described the new species *Prionitis pterocladina* with a range from Aransas Pass, TX, southward to Ciudad Madero, Mexico. According to Wynne, early reports (2, 4) of *Gigartina elegans* from Texas and reports (8, 16) of *Pterocladia capillacea* from Texas were misidentifications of *Prionitis pterocladina*. Some Texas specimens identified as *Grateloupia filicina* and *Pterocladia* [now *Pterocladia*] *bartlettii* were also the new species, although those two species are also present on the Texas coast.
- Note 75: Gavio and Fredericq (2003, 2005) reported this species from Flower Garden National Marine Sanctuary, Texas. The species was described from Punta Betín, Santa Marta, Atlantic Colombia, by Schnetter (1978).
- Note 76: Eiseman and Blair (1982) reported *Coelarthrum albertisii* (Piccone) Børgesen from the Flower Garden Coral Banks. Huisman (1996) proposed that *C. albertisii* is conspecific with *Coelarthrum cliftonii*.
- Note 77: Schneider and Searles (1991) presented reasons for not recognizing Taylor's (1960) var. *caroliniana*, saying that it represented merely one extreme in a continuum of morphological variation.
- Note 78: Eiseman and Blair (1982) reported *Leptofaucha hassleri* M. Howe et W.R. Taylor from Flower Garden Coral Banks. Rodríguez-Prieto et al. (2007) presented evidence for the merger of *Faucha* within *Gloiocladia*, resulting in the transfer of *Faucha hassleri* to the latter genus.
- Note 79: *Canistrocarpus* was established as a segregate genus out of *Dictyota* by De Paula and De Clerck (in De Clerck et al., 2006) on the basis of both morphological and molecular evidence, and *Dictyota cervicornis* Kütz. was transferred to this genus.
- Note 80: According to Hörnig et al. (1992), an examination of an isotype specimen of *Dictyota indica* Kütz. [with a type locality of Havana, Cuba, according to De Clerck (2003)] revealed it to be conspecific with *D. cervicornis* [now *Canistrocarpus cervicornis*]. So most Western Atlantic records of *D. indica* are now treated as *C. cervicornis*. On the other hand, *D. indica sensu* Vickers (1908, pl 18) was described as *Dictyota caribaea* by Hörnig and Schnetter in Hörnig et al. (1992).
- Note 81: From their research that included crossing experiments, Schnetter et al. (1987) concluded that there was no evidence that *Dictyota dichotoma* (Huds.) J.V. Lamour. has an amphiatlantic distribution. American plants

- that had passed as "*D. dichotoma*" do not interbreed in culture with European *D. dichotoma*, and so the former plant, described by Hoyt (1927) as *D. dichotoma* var. *menstrualis*, were treated as a distinct species, *Dictyota menstrualis*.
- Note 82: Allender and Kraft (1983) recognized that the "*Padina gymnospora*" of various authors had been misinterpreted to be usually three cells in thickness, but the type (*Zonaria gymnospora* Kütz.) has eight or nine cell layers. Therefore, *Padina vickersiae* Hoyt is a later taxonomic synonym of *P. gymnospora*.
- Note 83: According to Prud'homme van Reine (1982), *Sphacelaria furcigera* Kütz. is a later taxonomic synonym of *Sphacelaria rigidula*.
- Note 84: This taxon was transferred to *Feldmannia* by Womersley and Bailey (1970) on the basis of the presence of numerous discoid chloroplasts and distinct growth regions at the base of long, unbranched filaments.
- Note 85: Silva in Silva et al. (1996) proposed treating the genus *Giffordia* (Batters, 1893) as a later taxonomic synonym of *Hincksia*.
- Note 86: Sansón et al. (2006) confirmed that *Cladosiphon occidentalis* is not conspecific with *Cladosiphon zosteræ* (J. Agardh) Kylin, a species described from the Swedish west coast. Old reports of *C. zosteræ* and *Eudesme zosteræ* from the Texas coast pertain to *C. occidentalis*.
- Note 87: The sole basis for the occurrence of this taxon on the Texas coast was the report (with a query) by Conover (1964, as *Phycocelis floridana*).
- Note 88: The generic name *Farlowiella* was applied to this taxon by Kornmann in Kuckuck (1956), but this name for an algal genus was illegitimate, being a later homonym of a fungal genus of Saccardo (1883). Fiore (1975) thus proposed the name *Hummia* as a nom. nov., and he later showed (Fiore, 1977) by both fieldwork and life history studies that *Stictyosiphon subsimplex* Holden and *Farlowiella onusta* (Kütz.) Kornmann were sporophytic and gametophytic generations, respectively, of a single species with an alternation of heteromorphic generations. The oldest available name for this species is *Ectocarpus onustus* Kütz. (Kützling, 1849), which was described from Galveston, Texas.
- Note 89: Gerloff (1959) transferred *Pylaiella antillarum* (Grunow, 1867) into *Bachelotia*, replacing the junior taxonomic synonym *Bachelotia fulvescens* (Bornet) Kuckuck ex Hamel, on the basis of *Pylaiella fulvescens* (Bornet, 1889).
- Note 90: Kristiansen et al. (1993) demonstrated that material of this taxon from the Canary Islands agreed with Vickers' (1908) depiction of *Ectocarpus rallsiae* in lacking meristematic zones and in having ribbon-shaped chloroplasts. Their evidence supported its retention in the genus *Ectocarpus* rather than its placement in *Giffordia*, as done by Taylor (1960).
- Note 91: The relationship of the names *Ectocarpus siliculosus* and *Ectocarpus confervoides* (Roth) Le Jol. has been discussed in detail by Silva in Silva et al. (1996). Parke et al. in Parke and Dixon (1976) and Womersley (1987) and others have treated *E. confervoides* as conspecific with *E. siliculosus*.
- Note 92: Although this genus had been earlier placed in the Ulvellaceae, Gabrielson et al. (2004) presented evidence to assign the genus to the family Ctenocladaceae. This family is reported to be at the base of the order Ulvales in phylogenetic constructions by O'Kelly et al. (2004); these latter authors, however, applied the family name Kornmanniaceae.
- Note 93: Using evidence on the basis of gene-sequence analysis, Hayden et al. (2003) presented evidence that *Ulva* and *Enteromorpha*, genera traditionally distinguished on morphological grounds, were polyphyletic. They proposed that these genera be merged into one.
- Note 94: Blomster et al. (1999) proposed to treat *Enteromorpha clathrata* (Roth) Grev. as conspecific with *Enteromorpha muscoides* (Clem.) J. Cremades. The former name, however, has priority: *Conferva clathrata* (Roth, 1806) vs *Fucus muscoides* (Clemente, 1807). Cremades and Pérez-Cirera (1990) proposed treating *Enteromorpha ramulosa* (J.E. Smith) Carmichael in Hooker, on the basis of *Ulva ramuolsa* J.E. Smith (1810) as a taxonomic synonym of *E. muscoides* (Clem.) Cremades, on the basis of *U. muscoides* Clem. (Clemente, 1807). See also Note 93.
- Note 95: A brief Note in *Science* (Holden, 2007) announced that C. Maggs and F. Mineur completed mapping the genome of the type specimen of *Ulva lactuca* in the Linnean Herbarium and discovered that it matches the map known for *Ulva fasciata*. It is anticipated that a more detailed article will be published by Maggs and Mineur to resolve this complicated situation that has been unearthed by their discovery.
- Note 96: According to Bliding (1963), *Enteromorpha lingulata* J. Agardh was "synonymous or closely related to *Enteromorpha flexuosa* subsp. *flexuosa*."
- Note 97: Bliding (1963) treated *Enteromorpha plumosa* Kütz. in taxonomic synonymy with *E. flexuosa* subsp. *paradoxa* (Dillw.) Bliding. After *Enteromorpha* was merged within *Ulva* by

- Hayden et al. (2003), Wynne (2005) transferred this subsp. *paradoxa* within *Ulva flexuosa*.
- Note 98: There have been records (2, 7) of *Ulva lactuca* var. *latissima* (L.) DC. According to Papenfuss (1960), however, his examination of the type of *Ulva latissima* in the Linnaean Herbarium has shown it to be representative of *Laminaria saccharina* (L.) J.V. Lamour. More recently, it has come to serve as the correct name of the type species of Stackhouse's (1809) resurrected genus *Saccharina*, *Saccharina latissima* (L.) C.E. Lane, C. Mayes, Druel et G.W. Saunders (Lane et al., 2006).
- Note 99: Bliding (1963) proposed treating *Enteromorpha salina* Kütz. as conspecific with *Enteromorpha prolifera* (O.F. Müll.) J. Agardh. Brodie et al. (2007) accepted that treatment.
- Note 100: Humm and Hildebrand (1962) were the first to report *Entocladia viridis* and *Entocladia wittrockii* from the Texas coast. Nielsen (1979) proposed the merger of *Entocladia* within *Acrochaete*. O'Kelly and Yarish (1981) disagreed with Nielsen's (1979) proposal to merge this pair of genera, and they asserted that *Acrochaete* has both erect and prostrate filaments, in contrast to *Entocladia* with entirely prostrate filaments except for the setae and sporangia developed perpendicular to the substratum.
- Note 101: Although O'Kelly and Yarish (1981) circumscribed *Entocladia* to include *Epicladia*, Nielsen (1984, 1988) presented arguments to regard these as distinct genera.
- Note 102: *Pseudulvella heterotricha* Yarish (1975) was transferred to *Ulvella* by Wynne (1986) and later to *Epicladia* by Nielsen (1988).
- Note 103: Although Yarish (1975) and Baca et al. (1979) assigned this species to the genus *Pseudulvella* Wille, Nielsen (1977) argued that there is no basis to separate *Pseudulvella* from *Ulvella*.
- Note 104: Chappell et al. (1990) presented arguments for the removal of *Phaeophila* from the Ulvellaceae (order Ulotrichales) to its own family and order (Phaeophilales).
- Note 105: Nielsen (1972) proposed the transfer of *Ectochaete ramulosa* Moewus, which had been reported from Texas by Yarish (1975), to *Phaeophila*.
- Note 106: "*Entocladia ramulosa*" appeared as a nomen nudum in Baca et al. (1979).
- Note 107: This species was reported by Yarish (1975) as *Ectochaete vagans* (Børgesen) Thivy. Nielsen (1972) transferred this species, with the basionym of *Endoderma vagans* Børgesen, to *Phaeophila*.
- Note 108: Eiseman and Blair (1982) reported on their detecting a fragment of an unnamed species of this genus. Since the time of that report, Kraft and Wynne (1996) have circumscribed *Struvea* with a more narrow definition and have resurrected the genus *Phyllocladon* J.E. Gray for some of the species formerly placed in *Struvea* s.l.
- Note 109: Børgesen (1940) proposed treating *Chaetomorpha media* (C. Agardh) Kütz. as a later taxonomic synonym of *Chaetomorpha antennina*.
- Note 110: The *Cladophora refracta* (Roth) Kütz. reported by Conover (1964) is a species treated by van den Hoek (1963) in the category "Doubtful and Erroneous Names." *Cladophora gracilis* Kütz. was treated as conspecific with *Cladophora flexuosa* (O.F. Müll.) Kütz. by van den Hoek (1982). The report of *C. gracilis* by Humm and Hildebrand (1962) was discounted by Baca et al. (1979), who did not find this species in their study area.
- Note 111: According to van den Hoek (1963:94), isotype material of *Conferva glaucescens* Griffiths ex Harv. [= *Cladophora glaucescens* (Griffiths ex Harv.) Harv.] is heterogeneous, consisting of both *Cladophora albida* and *Cladophora sericea*. Although van den Hoek (1982) reported the occurrence of *C. albida* on the coast of Texas, he made no reports of the occurrence of *C. sericea* within the Gulf of Mexico.
- Note 112: The occurrence of this species from Texas is based on the single record of it from Baffin Bay made by Humm and Hildebrand [1962, as *Cladophora repens* (J. Agardh) Harv.]. According to van den Hoek (1982), *C. repens* is conspecific with *Cladophora coelothrix*. van den Hoek did not report *C. coelothrix* from Texas.
- Note 113: According to van den Hoek (1982), *Cladophora luteola* Harv., described from Key West, FL (Harvey, 1858), is conspecific with *Cladophora dalmatica* Kütz.
- Note 114: According to van den Hoek (1982), *Cladophora delicatula* Mont. is conspecific with *Cladophora montagneana*.
- Note 115: According to van den Hoek (1982), *Cladophora fascicularis* (Mert. ex C. Agardh) Kütz. is conspecific with *Cladophora vagabunda*.
- Note 116: This species, with a type locality of Pass-a-Grille Beach, Pinellas County, FL (Silva, 1960), was reported from the East Flower Garden Coral Bank (Eiseman and Blair, 1982) and from the Lower Laguna Madre (De Yoe and Hockaday, 2001).
- Note 117: Eiseman and Blair (1982) reported this taxon as a variety of *Caulerpa racemosa* from the Flower Garden Coral Banks. Littler and Littler (2000) proposed to restore this taxon to the species level. It had originally been

- described by Kützinger (1857) as *Chavoinia macrophysa* with a type locality of the coast of Central America.
- Note 118: Papenfuss (1956) proposed treating *Caulerpa crassifolia* (C. Agardh) J. Agardh as conspecific with *Caulerpa mexicana*.
- Note 119: There has been much debate about whether this taxon should be treated as a discrete species, *Caulerpa peltata* J.V. Lamour., or as a variety within *C. racemosa* (Forssk.) J. Agardh, as proposed by Eubank (1946). According to Kraft (2007), observations on Australian material has led him to distinguish between a simple peltate form with very thin stolons and forming irregular tangles of thalli [= *C. peltata* J.V. Lamour.] and a peltate form with branched assimilators with coarse (>1 mm diam) stolons [= "*C. racemosa* (Forssk.) J. Agardh var. *peltata* Eubank-type"].
- Note 120: Strenth (2001) reported the presence of both the nominate form of *Caulerpa prolifera* as well as forma *obovata*.
- Note 121: The correct authorship of this taxon at the level of forma is "(J. Agardh) Weber Bosse" in that Weber-van Bosse (1898) treated J. Agardh's (1873) *C. prolifera* var. *obovata* at the level of forma.
- Note 122: This taxon was included in a table in Fama et al. (2002) and was based on a B. Wysor collection made at Texas Flower Gardens.
- Note 123: Taxonomic opinion on the merit of recognizing *Acicularia* as distinct from *Acetabularia* has swayed back and forth. In his monographic treatment of the Acetabulariaceae, Solms-Laubach (1895) recognized *Acicularia* of D'Archiac (1843). Taylor (1960) also recognized *Acicularia* as distinct on the basis of the gametangia ["spores"] being encased in limestone within the cap rays and the absence of a "corona inferior." Bailey et al. (1976) offered evidence to merge *Acicularia* within *Acetabularia*. Then in their classic treatment of the Dasycladales, Berger and Kaever (1992) restored *Acicularia* as an autonomous genus. But the most recent treatment is that by Berger et al. (2003), who used data from a DNA analysis to provide evidence for the merger of *Acicularia* within the genus *Acetabularia*.
- Note 124: According to S. Brennan and J. Lopez-Bautista (pers. comm., 18 Aug. 2008), *Digena simplex* may be an example of "cryptic speciation." Their conclusion, on the basis of *rbcL* gene-sequence analyses, was that isolates from the Atlantic, Mediterranean, and Pacific may be comprised of different species showing a similar morphology. *Digena simplex* is probably to be restricted to the Mediterranean Sea.
- Note 125: In a major reorganization of the family Ceramiaceae, Choi et al. (2008) presented evidence, supported by both morphological and molecular data, to recognize several segregate families, including the Callithamniaceae, Spyridiaceae, and Wrangeliaceae. A more restricted concept of the Ceramiaceae was offered.
- Note 126: Wynne (2008, in press) reported on the occurrence of *Padina glabra* from the Port Aransas jetty, Mustang Island (Nueces County) and Isla Blanca Beach State Park jetty, South Padre Island at Port Isabel (Cameron County), representing the first report of this species from the coast of Texas and the Gulf of Mexico.
- Note 127: The presence of *Porphyra yezeensis*, a widespread species originally described from Japan (Ueda, 1932), had recently been molecularly identified on the Texas coast at San Jacinto Park, Galveston, Galveston County, and at Port Aransas, Nueces County, and GenBank entries have been filed (Bray, 2006, pers. comm.).

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