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RESEARCH ARTICLE

Benthic marine flora of the Marmara Sea (Turkey)

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Abstract

In the present paper, the results of the new study on the benthic marine flora of the Marmara Sea (Turkey) are reported. Sampling was made from 25 different localities of the Marmara Sea from 2015 to 2017 by snorkerling and SCUBA diving. In total, 320 marine algal and four seagrass taxa at specific and infraspecific levels were found, seven of which are newly reported from Turkey, and 17 taxa are reported as alien in the Marmara Sea.

Keywords: Algae, alien species, marine flora, Marmara Sea, Turkey

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Introduction

The Marmara Sea with its two extensions, Çanakkale and İstanbul Straits, are called the Turkish Straits System which connects the Black Sea with the Aegean Sea in the eastern Mediterranean and separates Asia from Europe. The hydrodynamic regime of the Marmara Sea is characterized by a deep current from the Mediterranean Sea to the Black Sea and a shallow current from the the Black Sea to the Mediterranean Sea via the Turkish Straits System. The salinity of the deeper layer is higher than that of the shallower one (Özsoy 2016).

Due to its historical past, the area attracted botanists since pre-Linnean name. Using polynomials, Buxbaum (1728, 1729) described and illustrated several species from Istanbul and the Princes Islands. Until the turn of the 19th century and shortly after, Forsskål (1775), Lamouroux (1822), Grisebach (1844), Rigler (1852), Fritsch (1899), and Sauvageau (1912) made floristic contributions. By the middle of the 20th century, the modern study of seaweeds was started with Öztığ (1957, 1962), Güven and Öztığ (1971), Zeybek and Güner (1973), Aysel

et al. (1991, 1993, 2000, 2006), Güven *et al.* (1991), Atabey (1998), Koç and Aydın (2001), Erduğan *et al.* (2002), Turna and Ertan (2005), Taşkın (2008, 2012, 2013a,b, 2014a,b, 2016), Taşkın *et al.* (2003, 2006, 2012), Taşkın and Öztürk (2007), Taşkın and Pedersen (2012), Taşkın and Wynne (2013), and Taşkın and Sukatar (2013). Marine angiosperms have been studied by Yüksek and Okuş (2004), Meinesz *et al.* (2009), Cirik *et al.* (2010), Cirik and Akçalı (2013).

The most complete floristic lists of marine macrophytes (macroalgae and angiosperms) from the Marmara Sea are found in Taşkın *et al.* (2008) and Aysel *et al*. (2010) who reported 401 taxa at specific and infraspecific level (102 brown algae, 225 red algae, 71 green algae, and four marine angiosperms, 20 of which alien in the Marmara Sea) and 494 taxa at specific and infraspecific level (including 106 Phaeophyceae, 283 Rhodophyta, 101 Chlorophyta and four Spermatophyta), respectively.

The present study includes the number to a total of four seagrasses and 320 marine algal taxa at specific and infraspecific levels, seven of which are reported for the first time from Turkey. Seventeen taxa are reported as introduced to the Marmara Sea.

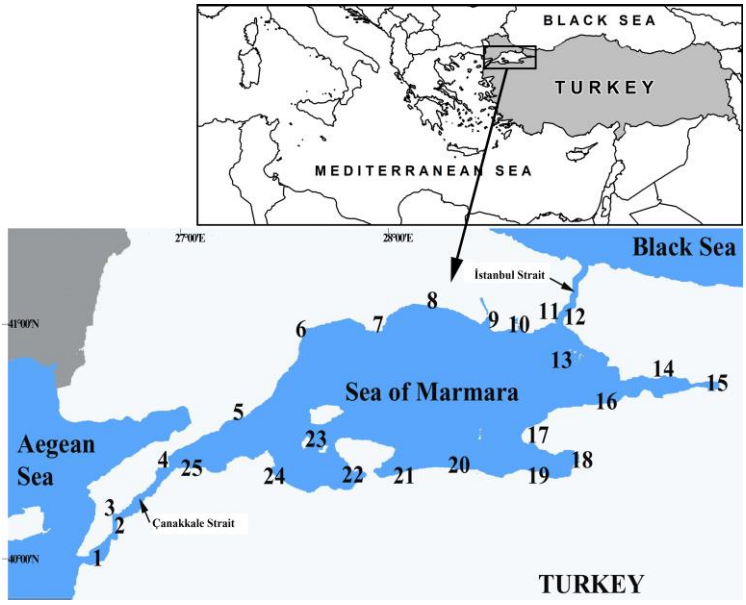

Figure 1. Map of the Marmara Sea showing sampling sites
1-İntepe; 2-Çanakkale; 3-Eceabat; 4-Gelibolu; 5-Şarköy; 6-Tekirdağ; 7-M.Ereğlisi; 8-Silivri; 9-Büyükçekmece; 10-Küçükçekmece; 11-Haliç; 12-Üsküdar; 13-Princes Islands; 14-Hereke; 15-Kocaeli; 16-Yalova; 17-Armutlu; 18-Gemlik; 19-Mudanya; 20-Susurluk-Boğaz; 21-Bandirma; 22-Erdek; 23-Paşalimanı Island; 24-Karabiga; 25-Lapseki

Materials and Methods

Sampling was made from 25 different localities in the Marmara Sea (Turkey) between 2015-2017 (Figure 1). Materials were collected by snorkelling and SCUBA-diving, and specimens were preserved in 2-5% formaldehyde in sea water. The samples were studied using a light microscope (Nikon SE, Tokyo, Japan), and photographs were taken by digital camera (Nikon P5100, Nikon SE, Tokyo, Japan). Voucher specimens were deposited in the personal herbarium of Ergün Taşkın (ET) in the Department of Biology of the Manisa Celal Bayar University (Manisa, Turkey). Taxonomy and nomenclature followed Guiry and Guiry (2018).

Results

The Marmara Sea (especially Gemlik Bay, İzmit Bay) is known as a polluted area due to anthropogenic disturbance, industrial complexes, wastewater, agriculture, oil pollution, *etc*. (Aydınol *et al*. 2012), and where the opportunistic marine macroalgal species are dominant (e.g. *Ulva* spp., *Cladophora* spp., *Ceramium* spp., *Gracilaria gracilis*, *etc*.) (Taşkın 2016). However, the western part is known to be less polluted, and where several sensitive taxa are common (e.g. *Cystoseira* spp., *Posidonia oceanica*, *Cymodocea nodosa*) (Taşkın 2016).

In the present study, a total of 320 marine algal taxa [97 brown algae (Phaeophyceae) (30%), 159 red algae (Rhodophyta) (49%), 64 green algae (Chlorophyta) (20%)] and four seagrasses taxa at specific and infraspecific levels are reported (Appendix 1). The genera with the highest number of species (and/or infraspecific taxa) were: *Ulva* (17 taxa), *Cladophora* (15 taxa), *Ceramium* (13 taxa), *Polysiphonia* (11 taxa), *Ectocarpus* (10 taxa), *Cystoseira* (9 taxa), and *Acrochaetium* (7 taxa) (Appendix 1).

Seven taxa are reported for the first time from Turkey: the brown algae *Ectocarpus fasciculatus* var. *refractus*, *Ectocarpus siliculosus* var. *pygmaeus*, *Herponema* sp., the red alga *Erythrotrichia bertholdii*, the green algae *Ulva* cf. *australis*, *Ulva flexuosa* subsp. *paradoxa*, and *Ulva rotundata* - *Ulva* cf. *australis* being an introduced species in the Mediterranean Sea.

New records for the Turkish marine algal flora

***Ectocarpus fasciculatus* var. *refractus* (Kützing) Ardissone:** Thallus filamentous, branched, recurved branches are usually found in the upper part of the thallus, uniseriate, the cells of erect filaments containing ribbon-shaped chloroplasts, phaeophycean hairs absent, to 2 cm high; plurilocular sporangia common, terminal or lateral, 80-150 µm long, 25-35 µm broad (Figure 2a). Unilocular sporangia are absent in the Turkish material. This taxon was collected from Gelibolu, in May 2015. Plurilocular sporangia reported by Cormaci *et al*. (2012) are also different in size (30-100 x 15-30 µm), and they also reported unilocular sporangia in this taxon. In the Danish material, plurilocular sporangia are reported (30-125 x 14-37 µm) by Rosenvinge and

Lund (1941). Müller (1972) reported that the life history of *Ectocarpus fasciculatus* var. *refractus* and *Ectocarpus draparnaldioides* P.L. & H.M. Crouan ex Kjellman belong to the same taxon.

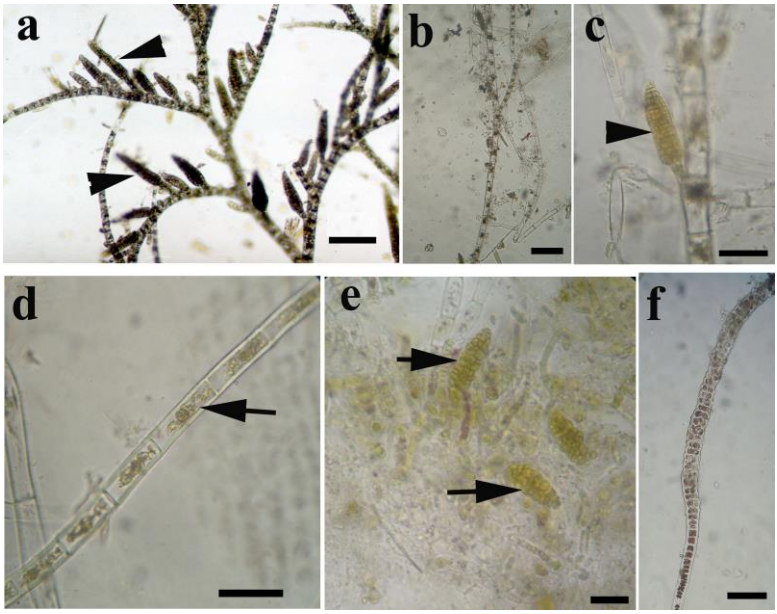

Figure 2. New records for Turkish marine algal flora. *Ectocarpus fasciculatus* var. *refractus*, branching and plurilocular sporangia (arrowheads) **(a)** (Scale bar: 100 µm). *Ectocarpus siliculosus* var. *pygmaeus*, main filament **(b)** (Scale bar: 100 µm), plurilocular sporangia (arrowhead) **(c)** (Scale bar: 50 µm), the cells of the main filament and ribbon-shape chloroplasts (arrow) **(d)** (Scale bar: 50 µm). *Herponema* sp., habit and plurilocular sporangia (arrows) **(e)** (Scale bar: 25 µm). *Erythrotrichia bertholdii*, basal part of habit **(f)** (Scale bar: 50 µm).

***Ectocarpus siliculosus* var. *pygmaeus* (Areschoug) Gallardo:** Thallus filamentous, unbranched, uniseriate, the cells of erect filaments 35-50 µm long, 15-20 µm broad, and each cell contains ribbon-shaped chloroplasts, phaeophycean hairs absent, to 1 cm high; epiphytic on *Cystoseira amentacea* var. *stricta*, plurilocular sporangia terminal or lateral, 70-90 µm long, 15-25 µm broad (Figure 2b-d). Unilocular sporangia are absent in the Turkish material. This taxon was collected from Gelibolu, in May 2015. In Cormaci *et al*. (2012), plurilocular sporangia are also reported different in size (45-190 x 15-34 µm), and they also reported unilocular sporangia in this taxon. The Turkish material is similar to the Danish material, plurilocular sporangia are also reported a few different in size (27-66 x 11-16.5 µm) (Rosenvinge and Lund 1941).

***Herponema* sp. (Bornet *ex* Sauvageau) Hamel:** Thallus filamentous, endophytic, the cells of the endophytic filaments 7.5-10 µm long; plurilocular

sporangia 35-45 μm long, 20 μm broad (Figure 2e). Unilocular sporangia are absent in the Turkish material. This species was collected from Lapseki, in May 2015. Plurilocular sporangia are also reported different in size (50-72 x 30-35 μm) by Cormaci *et al.* (2012).

***Erythrotrichia bertholdii* Batters:** Thallus erect, purple-red color, filamentous, filaments uniseriate below, 10-15 μm in diameter and multiseriate above, 25-30 μm in diameter, found rarely, epiphytic on *Cystoseira* spp. (Figure 2f). This species was collected from Çanakkale, Gelibolu and Paşalimanı Island, in May 2015.

***Ulva* cf. *australis* Areschoug:** Thallus erect, to 20-25 cm long, flattened, epilithic, parenchymatous; whole margin without spines, the cells in surface view isodiametric to elongate (15-20 x 15-25 μm), the cells contain 1-2 pyrenoids, and blades two cells thick in transverse section (Figure 3a-c). This species was collected from Princes Islands, in May 2015. This alien and invasive species was introduced to the Mediterranean Sea via mollusc farming (Cormaci *et al*. 2014). *Ulva australis* Areschoug was given synonym of *Ulva rigida* C.Agardh by Sfriso (2010), while it was given current name by Cormaci *et al*. (2014). *Ulva australis* differs from *Ulva rigida* by pyrenoid numbers [(1-) 2-3 (-4) in *U. rigida*], and from *U. laetevirens* by pyrenoids shown in the cells (pyrenoids shown only in some cells in *U. laetevirens*, Cormaci *et al*. 2014). Hanyuda and Kawai (2018) confirming that *Ulva pertusa* Kjellman is a synonym of *Ulva australis*, and they suggested that *U. australis* was introduced to Australia.

***Ulva flexuosa* subsp. *paradoxa* (C.Agardh) M.J.Wynne:** Thallus filamentous, main axes are multiseriate, 0.2-0.5 mm broad, branches are uniseriate (Figure 3d-e); the cells contain 4-5 pyrenoids. This taxon was abundantly found on the marine phanerogam *Cymodocea nodosa*, collected from Erdek, in November 2015. This taxon has a different number of pyrenoids by several authors (i.e. 10-20 pyrenoids were reported by Sfriso 2010). *Ulva flexuosa* subsp. *paradoxa* differs from *Ulva flexuosa* subsp. *flexuosa* by numerous uniseriate branchlets (Cormaci *et al*. 2014).

***Ulva rotundata* Bliding:** Thallus erect, to 1-2 cm long, flattened, parenchymatous, epiphytic on the red alga *Gymnogongrus griffithsiae*, cells containing a parietal chloroplast with 1-3 pyrenoids (Figure 3f-g). This species was collected from Yalova, in March 2016. This species was given as a new name (*Ulva pseudorotundata* Cormaci, G.Furnari & Alongi) in Cormaci *et al.* (2014). The Turkish material was found in small size than Cormaci *et al.*'s (2014) description, and it is similar to Sfriso (2010) by thallus size.

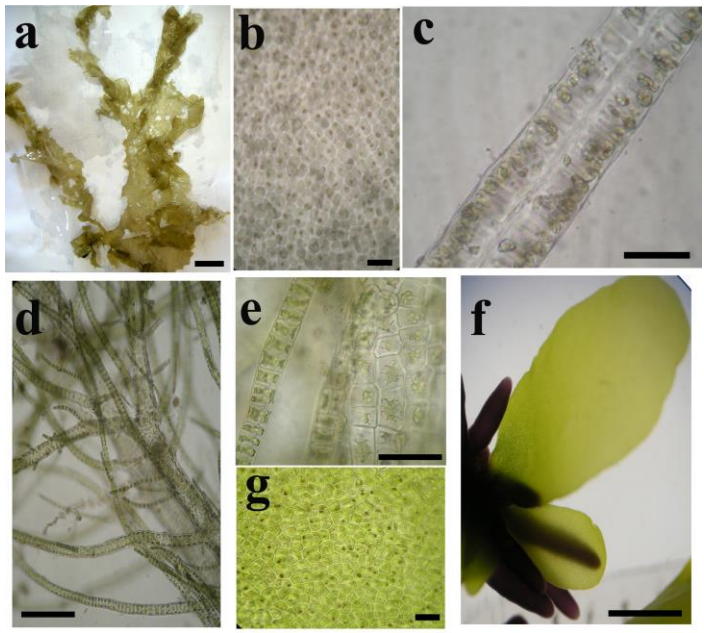

Figure 3. New records for Turkish marine algal flora. *Ulva australis*, habit **(a)** (Scale bar: 2 cm), the cells in surface view **(b)** (Scale bar: 50 µm), and transverse section of the thallus **(c)** (Scale bar: 50 µm). *Ulva flexuosa* subsp. *paradoxa*, branching **(d)** (Scale bar: 100 µm), and part of the thallus in surface view showing the cells **(e)** (Scale bar: 25 µm). *Ulva rotundata*, habit **(f)** (Scale bar: 2 mm), the cells in surface view **(g)** (Scale bar: 50 µm).

The diversity of the marine flora in the west part of the Marmara Sea is richer than that of the east part, and the highest number of taxa was found in: İntepe (181 taxa), followed by Şarköy (170 taxa), Paşalimanı Island (173 taxa), Gelibolu (166 taxa), Lapseki (161 taxa), Princes Islands (156 taxa), and Eceabat (153 taxa), respectively (Figure 4). The lowest number of taxa was found in: Gemlik and Susurluk-Boğaz (28 taxa), followed by Kocaeli (35 taxa), Büyükçekmece, Haliç and Hereke (42 taxa), Küçükçekmece (49 taxa), Üsküdar (54 taxa), and Yalova (58 taxa), respectively (Figure 4).

Discussion and Conclusions

The marine algae of the Mediterranean Sea have been investigated by several researchers. In total, 877 taxa at specific and infraspecific level [271 Ceramiales (Rhodophyta), 122 Rhodophyta (excluding Rhodymeniophycida), 270 Phaeophyceae and 214 Chlorophyta) are reported in the Mediterranean Sea (Ribera *et al*. 1992; Gallardo *et al*. 1993; Gómez Garreta *et al.* 2001; Cormaci *et al*. 2012, 2014, 2017). In the list, by Furnari *et al.* (2010), 898 taxa (534 Rhodophyta, 214 Ochrophyta, and 150 Chlorophyta) were reported from Italy, and by Tsiamis *et al*. (2013, 2014, 2016), 323 taxa (120 Ceramiales

(Rhodophyta), 107 Phaeophyceae, 96 Chlorophyta) were reported from Greece. Recently, 1117 taxa at specific and infraspecific level of the marine benthic macroalgae (270 Phaeophyceae, 657 Rhodophyta, and 190 Chlorophyta) were known in the Mediterranean Sea (Coll *et al*. 2010).

The Turkish seaweeds have a greater representation by diversity in the Aegean coasts of Turkey (430 taxa at specific and infraspecific level; 111 brown algae, 238 red algae, and 81 green algae) and Sea of Marmara (400 taxa; 105 brown algae, 225 red algae, and 70 green algae) than the Mediterranean coasts (382 taxa; 80 brown algae, 220 red algae, and 82 green algae), and Black Sea coasts (244 taxa; 58 brown algae, 136 red algae, and 50 green algae), respectively (Taşkın *et al*. 2008; Taşkın 2016). The Black Sea coasts have been studied less than other coasts of Turkey, thus it should be studied more in detail.

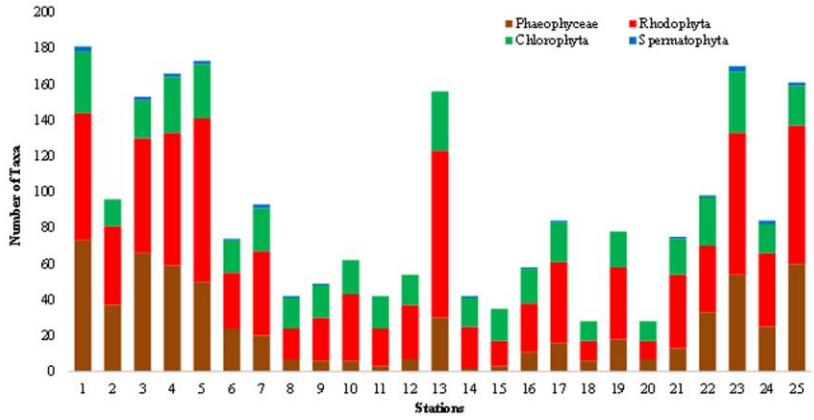

Figure 4. Number of taxa (at specific and infraspecific) at different sampling sites in the Marmara Sea.
1-İntepe; 2-Çanakkale; 3-Eceabat; 4-Gelibolu; 5-Şarköy; 6-Tekirdağ; 7-M.Ereğlisi; 8-Silivri; 9-Büyükçekmece; 10-Küçükçekmece; 11-Haliç; 12-Üsküdar; 13-Princes Islands; 14-Hereke; 15-Kocaeli; 16-Yalova; 17-Armutlu; 18-Gemlik; 19-Mudanya; 20-Susurluk-Boğaz; 21-Bandirma; 22-Erdek; 23-Paşalimanı Island; 24-Karabiga; 25-Lapseki

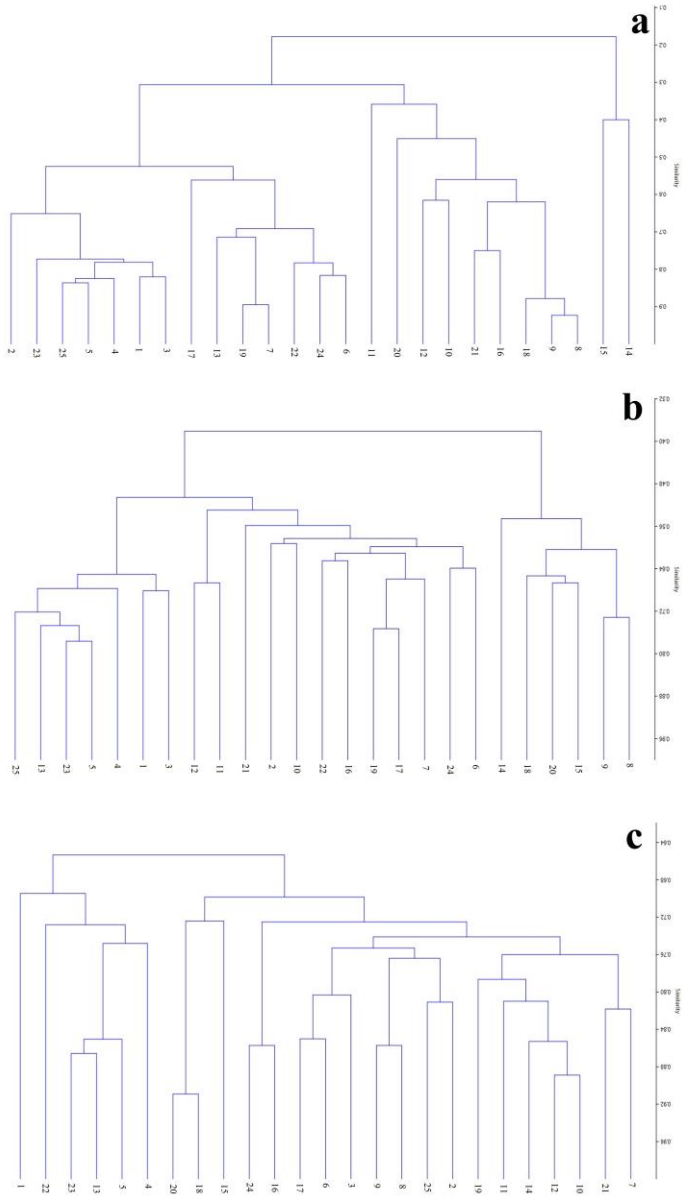

Figure 5. Bray-Curtis cluster analysis of brown algal **(a)**, red algal **(b)**, and green algal **(c)** taxa between stations. 1-İntepe; 2-Çanakkale; 3-Eceabat; 4-Gelibolu; 5-Şarköy; 6-Tekirdağ; 7-M.Ereğlisi; 8-Silivri; 9-Büyükçekmece; 10-Küçükçekmece; 11-Haliç; 12-Üsküdar; 13-Princes Islands; 14-Hereke; 15-Kocaeli; 16-Yalova; 17-Armutlu; 18-Gemlik; 19-Mudanya; 20-Susurluk-Boğaz; 21-Bandirma; 22-Erdek; 23-Paşalimanı Island; 24-Karabiga; 25-Lapseki.

A Bray-Curtis cluster analysis of macroalgal communities between the stations was made (Figure 5). Few brown algae were found in Hereke and Kocaeli while they were abundant in İntepe, Çanakkale, Eceabat, Gelibolu, Lapseki, Şarköy and Paşalimanı Island (Figure 5a). Silivri, Büyükçekmece, Gemlik, Susurluk-Boğaz, Hereke and Kocaeli were representative by a poorer red algal number (Figure 5b). As with brown algae, red algal taxa were found in greatest number in the stations İntepe, Eceabat, Gelibolu, Lapseki, Şarköy, Princes Islands and Paşalimanı Island (Figure 5b). Similarly, green algae were most abundant in İntepe, Gelibolu, Şarköy, Princes Islands, Erdek and Paşalimanı Island (Figure 5c).

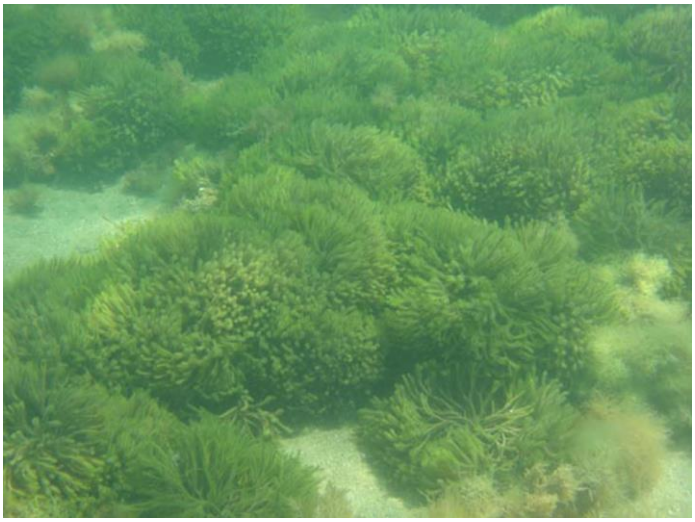

Figure 6. The invasive green alga *Codium fragile* subsp. *fragile* in the Marmara Sea (Karabiga, 5 m depth)

In total, 34 alien/invasive marine plants taxa have been reported on the coast of Turkey (Taşkın *et al.* 2011; Taşkın and Öztürk 2013), 20 of which are known from the Marmara Sea. The alien/invasive taxa have been apparently introduced to the Marmara Sea by aquaculture (seven taxa), fouling (six taxa), ship ballast tanks (four taxa), and corridors (two taxa through the Gibralter Strait and one taxon through the Suez Canal). In the present study, in total 17 taxa (9 brown algae, 5 red algae and 3 green algae) are reported as alien in the Marmara Sea (Appendix 1), and three taxa (the brown alga *Colpomenia peregrina*, the green alga *Codium fragile* subsp. *fragile*, and the red alga *Polysiphonia morrowii*) showed an invasive behaviour in this area (Figure 6).

Four seagrasses (*Cymodocea nodosa*, *Posidonia oceanica*, *Zostera marina*, and *Zostera noltei*) were found at the different localities in the Marmara Sea. *P. oceanica* widely distributed in the Mediterranean Sea and the Aegean Sea, in the Marmara Sea it was found only from Dardanelles and Paşalimanı Island.

Finally, it should be noted that the deep living brown alga *Laminaria rodriguezii* Bornet [a species with a conservation status "endangered" (Zuljevik *et al*. 2016)], reported from Princes Islands (İstanbul) by Taşkın *et al*. (2008), and it is deposited in the personal herbarium of ET, notwithstanding many dives done, was not found in the present study from the Marmara Sea.

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Marmara Denizi'nin (Türkiye) Denizel Bentik Florası

Öz

Bu çalışma, Marmara Denizi'nin (Türkiye) denizel bentik florası üzerine yeni çalışmanın sonuçlarını içermektedir. Örnekleme, Marmara Denizi'nin (Türkiye) 25 farklı istasyonundan 2015-2017 yılları arasında gerçekleştirilmiştir. Materyal toplama şnorkel ve SCUBA ile yapılmış olup örnekler % 2-5 formaldehit ve deniz suyu içerisinde muhafaza edilmiştir. Tür ve tür altı seviyede toplam 320 deniz algi ve dört deniz çayırı bulunmuş olup bunların yedisi Türkiye için yeni kayıt ve 17 tanesi de Marmara Denizi'nde yabancı tür olarak rapor edilmiştir.

Anahtar kelimeler: Algler, denizel flora, Marmara Denizi, Türkiye, yabancı tür

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Appendix 1. List of benthic marine flora of the Marmara Sea (Turkey)

1-İntepe; 2-Çanakkale; 3-Eceabat; 4-Gelibolu; 5-Şarköy; 6-Tekirdağ; 7-M.Ereğlisi; 8-Silivri; 9-Büyükçekmece; 10-Küçükçekmece; 11-Haliç; 12-Üsküdar; 13-Princes Islands; 14-Hereke; 15-Kocaeli; 16-Yalova; 17-Armutlu; 18-Gemlik; 19-Mudanya; 20-Susurluk-Boğaz; 21-Bandirma; 22-Erdek; 23-Paşalimanı Island; 24-Karabiga; 25-Lapseki. (+:presence, -: absent)

Taxa	**Station**																								
PHAEOPHYCEAE (BROWN ALGAE)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acinetospora crinita (Carmichael) Sauvageau	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+
Arthrocladia villosa (Hudson) Duby	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asperococcus bullosus J.V.Lamouroux	+	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	+
Asperococcus ensiformis (Delle Chiaje) M.J.Wynne	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Asperococcus fistulosus (Hudson) W.J.Hooker	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-
Botrytella micromora Bory de Saint-Vincent	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Botrytella parva (Takamatsu) H.S.Kim*	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cladosiphon contortus (Thuret) Kylin	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Cladosiphon lubricus (Sauvageau) Kylin	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cladosiphon mediterraneus Kützing	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-
Cladosiphon zosterae (J. Agardh) Kylin*	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Cladostephus spongiosum (Hudson) C.Agardh	+	-	+	+	+	+	+	-	-	-	-	-	+	-	-	-	-	-	+	-	-	+	+	+	+
Colpomenia peregrina Sauvageau*	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Colpomenia sinuosa (Mertens *ex* Roth) Derbès & Solier	+	+	+	+	+	+	+	-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	+	+	+
Corynophlaea umbellata (C.Agardh) Kützing	+	+	+	+	+	+	+	-	-	-	-	-	+	-	-	-	+	-	+	-	-	+	+	+	+
Cutleria chilosa (Falkenberg) P.C.Silva	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
Cystoseira amentacea var. *stricta* Montagne	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Cystoseira barbata (Stackhouse) C.Agardh	+	-	+	+	+	+	+	+	+	-	-	-	+	-	-	+	+	+	+	+	+	+	+	+	+
Cystoseira bosphorica Sauvageau	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cystoseira compressa (Esper) Gerloff & Nizamuddin	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+

Appendix 1. Continued

Cystoseira compressa f. *plana* (Ercegovič) Cormaci, G.Furnari, Giaccone, Scammanca & D.Serio	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Cystoseira crinita Duby	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Cystoseira foeniculacea (L.) Greville f. *foeniculacea*	-	-	+	-	-	-	-	+	+	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	+	+
Cystoseira foeniculacea f. *tenuiramosa* (Ercegovič) A.Gómez Garreta, M.C.Barceló, M.A.Ribera & J.Rull Lluch	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Cystoseira montagnei var. *compressa* (Ercegović) M. Verlaque, A. Blanfuné, C.F. Boudouresque, T. Thibaut & L.N. Sellam	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Dictyota dichotoma (Hudson) J.V.Lamouroux var. *dichotoma*	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Dictyota dichotoma var. *intricata* (C.Agardh) Greville	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dictyota fasciola (Roth) J.V.Lamouroux var. *fasciola*	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Dictyota linearis (C.Agardh) Greville	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dictyota spiralis Montagne	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ectocarpus sp.	-	-	+	+	+	-	+	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	+	-	
Ectocarpus crouaniorum Thuret	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ectocarpus fasciculatus Harvey	+	+	+	+	+	+	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	+	+	+
Ectocarpus fasciculatus var. *refractus* (Kützing) Ardissone**	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ectocarpus siliculosus var. *arctus* (Kützing) Gallardo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Ectocarpus siliculosus var. *dasycarpus* (Kuckuck) Gallardo	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Ectocarpus siliculosus var. *hiemalis* (P.L. *et* H.M. Crouan *ex* Kjellman) Gallardo*	+	+	+	+	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+
Ectocarpus siliculosus var. *penicillatus* C. Agardh	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+
Ectocarpus siliculosus var. *pygmaeus* (Areschoug) Gallardo**	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ectocarpus siliculosus (Dillwyn) Lyngbye var. *siliculosus*	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	-	+	+	+	+	+	+
Elachista stellaris Areschoug	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Eudesme virescens (Carmichael *ex* Berkeley) J. Agardh	+	+	+	+	+	+	+	-	-	-	-	-	+	-	-	-	-	-	+	-	+	+	+	+	+	
Feldmannia globifera (Kützing) G.Hamel	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	
Feldmannia irregularis (Kützing) G.Hamel	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Appendix 1. Continued

Feldmannia lebelii (P.L. & H.M. Crouan) G.Hamel	+	+	+	+	+	+	+	-	-	-	-	-	+	-	+	+	-	-	+	+	+	+	+	+	+
Feldmannia mitchelliae (Harvey) H.-S.Kim	+	+	+	+	+	+	+	+	-	+	-	+	+	-	+	+	+	+	+	-	+	+	+	+	+
Feldmannia padinae (Buffham) G.Hamel	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-
Feldmannia paradoxa var. *caespitula* (J. Agardh) Cormaci & G.Furnari	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Feldmannia paradoxa (Montagne) G.Hamel var. *paradoxa*	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Giraudia sphacelarioides Derbès & Solier	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+
Halopteris filicina (Grateloup) Kützing	+	-	+	+	+	-	+	-	-	-	-	-	+	-	-	-	+	-	+	-	-	+	+	-	+
Halopteris scoparia (L.) Sauvageau	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+
Halothrix lumbricalis (Kützing) Reinke*	+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+
Herponema sp. (Bornet ex Sauvageau) Hamel**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Hincksia fuscata (Zanardini) P.C.Silva	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hincksia granulosa (J.E.Smith) P.C.Silva	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hincksia sandriana (Zanardini) P.C. Silva	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Hydroclathrus clathratus (C.Agardh) M.Howe	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kuckuckia spinosa (Kützing) Kornmann	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Kuetzingiella battersii (Bornet ex Sauvageau) Kornmann	+	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	+
Mesogloia lanosa P.L. *et* H.M. Crouan	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mesogloia leveillei (J. Agardh) Meneghini	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Mesogloia vermiculata (J.E.Smith) S.F. Gray	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Microcoryne ocellata Strömfelt	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Microspongium globosum Reinke*	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mikrosyphar polysiphoniae Kuckuck	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+
Myriactula arabica (Kützing) Feldmann	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+
Myriactula rivulariae (Suhr) Feldmann	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+
Myrionema orbiculare J.Agardh	+	+	+	+	+	+	+	-	-	-	-	-	+	-	-	+	+	-	+	-	+	+	+	-	+
Myrionema strangulans Greville	+	+	+	+	+	+	+	-	-	-	-	-	+	-	-	+	+	-	+	-	-	+	+	+	+

Appendix 1. Continued

Myriotrichia claviformis Harvey	+	+	+	+	+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	-	+
Nemacystus flexuosus (C. Agardh) Kylin var. *giraudyi* (J. Agardh) de Jong	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Padina pavonica (L.) Thivy	+	-	+	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	-	+
Petalonia fascia (O.F.Müller) Kuntze	+	+	+	+	+	+	+	+	+	-	-	+	+	-	-	+	-	+	+	-	+	+	+	+	+
Petalonia zosterifolia (Reinke) Kuntze	+	+	+	+	+	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	+
Protectocarpus speciosus (Børgesen) Kornmann	+	+	+	+	+	+	+	-	-	-	-	-	+	-	-	-	-	-	+	-	-	+	+	+	+
Pseudolithoderma adriaticum (Hauck) Verlaque	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Punctaria latifolia Greville	+	+	+	+	+	+	-	-	-	-	-	-	+	-	-	-	-	-	+	-	+	+	+	+	+
Punctaria plantaginea (Roth) Greville	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
Punctaria tenuissima (C. Agardh) Greville*	+	-	+	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+
Ralfsia verrucosa (Areschoug) Areschoug	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sargassum vulgare C.Agardh	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sauvageaugloia divaricata (Clemente) Cremades	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Scytosiphon dotyi M.J. Wynne*	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scytosiphon lomentaria (Lyngbye) Link	+	+	+	+	+	+	+	-	-	+	-	+	+	-	-	+	+	-	+	+	+	+	+	+	+
Spermatochnus paradoxus (Roth) Kützing	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Sphacelaria cirrosa (Roth) C.Agardh	+	-	+	+	+	-	+	-	-	-	-	-	+	-	-	+	+	-	+	-	-	+	+	+	+
Sphacelaria rigidula Kützing	+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	+
Sphacelaria tribuloides Meneghini	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Spongonema tomentosum (Hudson) Kützing	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stictyosiphon adriaticus Kützing	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Stictyosiphon soriferus (Reinke) Rosenvinge	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stilophora nodulosa (C.Agardh) P.C.Silva	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Stilophora tenella (Esper) P.C.Silva	+	+	+	+	+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	+	+
Streblonema parasiticum (Sauvageau) De Toni	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Striaria attenuata (Greville) Greville	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-

Appendix 1. Continued

Ulonema rhizophorum Foslie*	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RHODOPHYTA (RED ALGAE)																										
Acrochaetium crassipes (Børgesen) Børgesen	+	-	-	+	+	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-	+
Acrochaetium mahumetanum Hamel	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acrochaetium microscopicum (Nägeli *ex* Kützing) Nägeli	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Acrochaetium parvulum (Kylin) Hoyt	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+
Acrochaetium secundatum (Lyngbye) Nägeli	+	-	+	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	+
Acrochaetium virgatulum (Harvey) Batters	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+
Acrodiscus vidovichii (Meneghini) Zanardini	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
Acrosorium ciliolatum (Harvey) Kylin	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
Aglaothamnion sp.	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Aglaothamnion tenuissimum (Bonnemaison) Feldmann-Mazoyer	-	+	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	+	-	-	+	-	-	+
Aglaothamnion tripinnatum (C.Agardh) Feldmann-Mazoyer	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
Alsidium corallinum C.Agardh	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
Amphiroa rigida J.V.Lamouroux	+	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-	+	-	+	-	-	+	+	-	+
Amphiroa cryptarthrodia Zanardini	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anotrichium furcellatum (J.Agardh) Baldock	-	+	+	+	+	+	+	-	-	-	-	+	+	-	-	-	+	-	+	-	+	-	-	+	+
Anotrichium tenue (C.Agardh) Nägeli	+	+	+	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	+
Antithamnion cruciatum (C.Agardh) Nägeli	+	+	+	-	+	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	+	+	-	-
Antithamnion hubbsii E.Y.Dawson*	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antithamnion sp.	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Antithamnionella sp.	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asparagopsis armata Harvey [tetrasporophyte]*	+	-	+	-	+	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	+
Bangia atropurpurea (Mertens *ex* Roth) C.Agardh	-	-	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Bonnemaisonia hamifera Hariot [tetrasporophyte]*	+	-	+	-	+	+	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	+
Callithamnion corymbosum (J.E.Smith) Lyngbye	+	+	+	+	+	-	+	-	-	+	+	+	+	-	-	+	+	-	+	-	-	+	+	-	+

Appendix 1. Continued

Ceramium ciliatum (J.Ellis) Ducluzeau var. *ciliatum*	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ceramium ciliatum var. *robustum* (J.Agardh) Feldmann-Mazoyer	+	+	-	-	+	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	+	-	+
Ceramium circinatum (Kützing) J.Agardh	-	-	+	+	-	-	-	-	+	+	-	+	+	-	-	-	+	-	-	-	+	-	+	-	+
Ceramium deslongchampsii Chauvin ex Duby	-	+	+	+	-	-	+	-	-	-	+	+	+	-	-	-	-	-	-	-	+	-	+	-	+
Ceramium diaphanum (Lightfoot) Roth	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	-	+	+	+	+	+
Ceramium diaphanum var. *elegans* (Roth) Roth	+	-	+	+	+	-	+	-	+	+	+	-	+	-	+	+	+	-	-	-	-	+	+	-	+
Ceramium giacconei Cormaci & G.Furnari	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ceramium secundatum Lyngbye	-	-	+	+	+	-	+	-	-	+	-	+	+	-	-	+	+	-	+	-	+	-	+	+	+
Ceramium siliquosum f. *minusculum* (G.Mazoyer) Garreta *et al.*	-	-	-	+	+	-	+	-	-	+	+	-	-	+	-	-	-	-	-	-	+	-	+	-	+
Ceramium siliquosum var. *lophophorum* (Feldman-Mazoyer) Serio	+	-	+	+	+	+	+	-	-	+	+	+	+	-	-	-	+	-	+	-	-	-	+	-	+
Ceramium sp.	-	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-	+	-	+	-	-	-	-	+	-
Ceramium virgatum Roth	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ceramium virgatum var. *implexo-contortum* (Solier) G.Furnari	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Champia parvula (C.Agardh) Harvey	-	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	+
Chondracanthus acicularis (Roth) Fredericq	-	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	+	+	+
Chondria capillaris (Hudson) M.J.Wynne	+	-	-	+	+	-	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-	+	+	-	+
Chondria dasyphylla (Woodward) C.Agardh	-	-	-	-	+	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	+
Chondria mairei G.Feldmann	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-
Chroodactylon ornatum (C.Agardh) Basson	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Chylocladia verticillata (Lightfoot) Bliding	+	-	+	+	+	-	-	-	-	-	-	-	+	-	-	-	+	-	+	-	-	+	+	+	+
Colaconema codicola (Børgesen) H.Stegenga, J.J.Bolton, & R.J.Anderson *	+	-	-	+	+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	+
Colaconema daviesii (Dillwyn) Stegenga	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Colaconema savianum (Meneghini) R.Nielsen	+	+	+	-	+	+	-	-	-	+	+	+	+	-	-	-	+	-	-	-	-	+	+	+	+
Compsothamnion thuyoides (J.E.Smith) Nägeli	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Corallina officinalis L.	+	+	+	+	+	+	+	-	-	-	-	+	+	-	-	+	+	-	+	-	+	+	+	+	+
Corallina sp.	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 1. Continued

Cryptonemia lomation (Bertoloni) J.Agardh	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dasya baillouviana (S.G.Gmelin) Montagne	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	-	-	-	-	
Dasya corymbifera J.Agardh	+	-	-	-	+	-	+	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	+	-	-	
Dasya hutchinsiae Harvey	-	+	+	-	+	-	+	+	+	+	-	-	+	-	-	-	+	-	+	-	+	-	+	+	+	
Dasya rigidula (Kützing) Ardissone	+	+	+	-	+	-	+	-	-	-	-	-	+	-	-	-	+	-	+	-	-	-	+	-	+	
Dasya sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	
Dermocorynus dichotomus (J.Agardh) Gargiulo, M.Morabito & Manghisi	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	
Ellisolandia elongata (J.Ellis & Solander) K.R.Hind & G.W.Saunders	+	+	+	+	+	+	+	-	-	+	-	+	+	-	-	+	+	-	+	-	+	+	+	+	+	
Eupogodon planus (C.Agardh) Kützing	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	
Erythrocystis montagnei (Derbès & Solier) P.C.Silva	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	
Erythrotrichia bertholdii Batters**	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	
Erythrotrichia carnea (Dillwyn) J.Agardh	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Erythrotrichia investiens (Zanardini) Bornet	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	
Ganonema farinosum (J.V.Lamouroux) K.C. Fan & Yung C. Wang	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	
Gayliella flaccida (Harvey *ex* Kützing) T.O.Cho & L.J.McIvor	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	+	-	-	-	-	-	-	-	+	-	
Gayliella mazoyerae T.O.Cho, Fredericq & Hommersand	+	+	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	
Gelidiella lubrica (Kützing) Feldmann & Hamel	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gelidiella nigrescens (Feldmann) Feldmann & Hamel	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	
Gelidium crinale (Hare ex Turner) Gaillon	-	-	-	+	+	+	+	-	-	-	-	-	+	+	-	+	+	+	-	-	+	+	+	+	+	
Gelidium pusillum (Stackhouse) Le Jolis	-	-	+	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	+	-	
Gelidium serra (S.G.Gmelin) E.Taşkın & M.J.Wynne	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	
Gelidium spinosum (S.G.Gmelin) P.C.Silva	-	-	+	+	+	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	
Gracilaria bursa-pastoris (S.G.Gmelin) P.C.Silva	-	-	+	+	+	-	+	+	+	+	-	-	+	-	-	-	+	-	-	-	+	-	+	-	+	
Gracilaria dura (C.Agardh) J.Agardh	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gracilaria gracilis (Stackhouse) M.Steentoft, L.M.Irvine & W.F.Farnham	-	-	-	+	+	+	+	+	+	+	-	-	+	+	+	+	+	-	+	+	+	-	-	+	+	

Appendix 1. Continued

Grateloupia filicina (J.V.Lamouroux) C.Agardh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Gymnogongrus griffithsiae (Turner) Martius	-	+	-	+	-	-	-	-	+	-	-	+	+	-	+	+	+	-	+	-	-	-	-	+	-
Halarachnion ligulatum (Woodward) Kützing	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Haliptilon attenuatum (Kützing) Garbary & Johansen	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	+	+	-	+
Halopithys incurva (Hudson) Batters	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	+	-
Halurus flosculosus (J. Ellis) Maggs & Hommersand	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Halymenia latifolia P.Crouan & H.Crouan *ex* Kützing	-	-	-	-	+	-	-	-	-	+	-	-	-	+	-	-	+	-	-	-	+	-	+	-	-
Herposiphonia secunda (C. Agardh) Ambronn f. *secunda*	+	+	+	-	+	+	+	-	-	-	-	-	+	-	-	-	+	-	+	-	+	+	+	+	+
Herposiphonia secunda f. *tenella* (C.Agardh) M.J. Wynne	+	+	+	+	+	+	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+	+
Heterosiphonia crispella (C.Agardh) M.J.Wynne	+	+	+	-	-	-	-	-	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+
Hydrolithon boreale (Foslie) Y.M.Chamberlain	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrolithon farinosum var. *chalicodictyum* (W.R.Taylor) Serio	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrolithon farinosum (J.V.Lamour.) D. Penrose & Y.M. Chamberlain	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	-	+	-	+	+	+	+	+
Hypnea musciformis (Wulfen) J.V.Lamouroux	+	-	+	+	+	-	+	-	+	+	-	-	+	-	-	-	+	-	+	-	+	-	+	+	+
Hypoglossum hypoglossoides (Stackhouse) F.Collins & Hervey	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+
Jania adhaerens J.V.Lamouroux	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jania rubens (L.) J.V.Lamouroux	+	+	+	+	+	+	+	-	+	+	-	+	+	+	+	+	+	-	+	-	+	+	+	+	+
Kallymenia requienii (J.Agardh) J.Agardh	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
Laurencia glandulifera (Kützing) Kützing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Laurencia obtusa (Hudson) J.V.Lamouroux	+	+	+	+	+	-	+	-	-	-	-	-	+	-	-	+	+	-	+	-	-	+	+	+	+
Laurencia pyramidalis Bory *ex* Kützing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Laurencia uvifera (Forsskål) Børgesen	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Lithophyllum corallinae (P.L. & H.M.Crouan) Heydrich	-	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Lithophyllum cystoseirae (Hauck) Heydrich	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Lomentaria clavellosa (Lightfoot *ex* Turner) Gaillon	+	-	+	+	+	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	+	-	+
Lomentaria clavellosa f. *urvillei* (J.V.Lamouroux) E.Taşkın	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 1. Continued

Lomentaria ercegovicii Verlaque, Boudouresque, Meinesz, Giraud & Marcot Coqueugniot	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lophosiphonia cristata Falkenberg	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lophosiphonia obscura (C.Agardh) Falkenberg	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Melobesia membranacea (Esper) J.V.Lamouroux	+	-	-	+	+	+	+	-	-	+	-	-	+	-	-	+	-	-	+	-	-	+	+	+	+
Meredithia microphylla (J.Agardh) J.Agardh	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	+	-	-
Mesophyllum lichenoides (J.Ellis) Me.Lemoine	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nemalion elminthoides (Velley) Batters	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Neosiphonia elongella (Harvey) M.S.Kim & I.K.Lee	-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-	+	-	-	-	-	-	+	-	+
Neosiphonia sertularioides (Grateloup) K.W.Nam & P.J.Kang	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Nitophyllum punctatum (Stackhouse) Greville	-	-	-	-	+	-	-	-	+	+	-	-	+	+	-	-	-	-	-	-	-	-	+	-	-
Osmundea pelagiensis G.Furnari	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Osmundea pinnatifida (Hudson) Stackhouse	+	-	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-
Osmundea spectabilis (Postels & Ruprecht) K.W.Nam	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Palisada patentiramea (Montagne) Cassano, Senties, Gil-Rodríguez & M.T.Fujii	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Palisada perforata (Bory) K.W.Nam	+	-	+	+	+	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	+
Peyssonnelia dubyi P.Crouan & H.Crouan	+	+	+	+	+	-	+	-	-	-	-	-	+	-	-	+	+	-	+	-	-	+	+	-	+
Peyssonnelia rubra (Greville) J.Agardh	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Peyssonnelia squamaria (S.G.Gmelin) Decaisne	+	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Phyllophora crispa (Hudson) P.S.Dixon	+	-	-	-	+	-	+	+	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-
Phyllophora sicula (Kützing) Guiry & L.M.Irvine	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Phymatolithon calcareum (Pallas) W.H.Adey & D.L.McKibbin *ex* Woelkerling & L.M.Irvine	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
Phymatolithon lenormandii (Areschoug) W.H.Adey	+	+	+	+	+	+	+	-	-	+	-	+	+	-	-	+	+	-	+	-	+	-	+	-	+
Plocamium cartilagineum (L.) P.S.Dixon	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Pneophyllum confervicola (Kützing) Y.M.Chamberlain	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Pneophyllum fragile Kützing	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+

Appendix 1. Continued

Polysiphonia atra Zanardini	-	-	+	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+	-	-
Polysiphonia denudata (Dillwyn) Greville *ex* Harvey	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Polysiphonia deusta (Roth) Sprengel	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Polysiphonia elongata (Hudson) Sprengel	+	+	+	-	+	-	-	-	-	+	-	-	+	+	-	-	+	-	+	-	+	+	+	-	+
Polysiphonia kampsaxii Børgesen	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Polysiphonia morrowii Harvey*	-	+	+	-	+	+	+	+	+	+	-	-	+	-	-	-	+	-	+	+	+	+	+	+	-
Polysiphonia opaca (C.Agardh) Moris & De Notaris	+	+	+	+	+	+	+	-	-	+	+	+	+	-	-	-	-	-	+	-	-	+	+	+	+
Polysiphonia stricta (Dillwyn) Greville	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polysiphonia tenerrima Kützing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Pyropia leucosticta (Thuret) Neefus & J.Brodie	+	+	+	+	+	+	+	-	-	-	+	+	-	+	-	+	+	-	-	-	+	+	+	-	-
Porphyra sp.	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Porphyra umbilicalis Kützing	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	-	+	-	-	+	-	-	+	-
Pterocladiella capillacea (S.G.Gmelin) Santelices & Hommersand	+	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Pterosiphonia pennata (C.Agardh) Sauvageau	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pterothamnion crispum (Ducluzeau) Nägeli	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Pterothamnion plumula (J.Ellis) Nägeli	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Pterothamnion sp.	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhodochorton purpureum (Lightfoot) Rosenvinge	+	+	+	+	+	-	-	-	-	-	-	+	+	-	+	-	-	-	+	-	+	-	+	+	-
Rhodophyllis divaricata (Stackhous) Papenfuss	-	-	-	-	+	-	-	-	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-
Rhodymenia ardissonei (Kuntze) Feldmann	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	-	-	-	-
Rytiphlaea tinctoria (Clemente) C.Agardh	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sahlingia subintegra (Rosenvinge) Kornmann	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Spermothamnion repens (Dillwyn) Rosenvinge	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sphaerococcus coronopifolius Stackhouse	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Spyridia filamentosa (Wulfen) Harvey	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Stylonema alsidii (Zanardini) K.M.Drew	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Appendix 1. Continued

Stylonema cornu-cervi Reinsch	+	+	+	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
Vertebrata fucoides (Hudson) Kuntze	-	+	+	+	+	+	-	-	-	+	-	-	+	+	-	-	+	-	+	-	-	+	+	-	+
Vertebrata fruticulosa (Wulfen) Kuntze	+	-	+	+	+	-	-	-	-	-	-	-	+	+	-	-	+	-	-	-	-	-	+	+	+
Vertebrata subulifera (C.Agardh) Kuntze	+	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	+	-	+
Vertebrata thuyoides (Harvey) Kuntze	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Vertebrata tripinnata (Harvey) Kuntze	+	-	+	+	+	-	+	-	+	-	-	-	-	-	-	-	+	+	+	-	-	-	+	-	+
Wrangelia penicillata (C.Agardh) C.Agardh	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
CHLOROPHYTA (GREEN ALGAE)																										
Acetabularia acetabulum (L.) P.C.Silva	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blidingia marginata (J.Agardh) P. Dangeard *ex* Bliding	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bryopsis corymbosa J.Agardh	+	-	+	+	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-
Bryopsis hypnoides J.V.Lamouroux	+	+	-	+	+	+	+	-	-	-	-	-	+	-	-	+	-	-	-	-	+	-	+	-	+
Bryopsis plumosa (Hudson) C.Agardh	+	-	-	+	+	+	+	-	+	+	-	+	+	+	-	-	+	-	+	-	+	-	+	-	+
Caulerpa cylindracea Sonder*	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chaetomorpha aerea (Dillwyn) Kützing	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	+	+	+	+	+
Chaetomorpha ligustica (Kützing) Kützing	+	-	-	+	+	-	+	-	-	+	+	+	+	+	-	+	+	-	-	-	+	+	+	+	+	+
Chaetomorpha linum (O.F.Müller) Kützing	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cladophora albida (Nees) Kützing	+	-	-	+	+	-	+	-	-	+	+	+	+	-	-	+	-	-	+	+	-	+	+	-	+	+
Cladophora coelothrix Kützing	-	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
Cladophora dalmatica Kützing	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cladophora flexuosa (O.F.Müller) Kützing	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	+	-	-	-	-
Cladophora glomerata (L.) Kützing	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+	-	-	-	-	-	-	+	+	-	-	-
Cladophora hutchinsiae (Dillwyn) Kützing	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	-	-	-
Cladophora laetevirens (Dillwyn) Kützing	+	-	-	+	+	+	-	+	+	+	-	-	+	-	-	-	+	-	-	-	-	+	+	-	+	+
Cladophora lehmanniana (Lindenberg) Kützing	-	-	+	-	+	+	-	+	-	-	+	-	+	-	-	-	+	-	-	-	-	+	+	-	-	-
Cladophora nigrescens Zanardini ex Frauenfeld	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Appendix 1. Continued

Cladophora prolifera (Roth) Kützing	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cladophora rupestris (L.) Kützing	+	-	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	
Cladophora sericea (Hudson) Kützing	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cladophora sp.	+	-	+	-	+	+	+	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	
Cladophora vagabunda (L.) Hoek	-	-	+	-	+	-	-	-	-	+	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	
Codium bursa (Olivi) C.Agardh	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Codium fragile (Suringar) Hariot subsp. *fragile* *	+	+	+	+	+	+	+	-	+	-	-	-	+	-	-	+	+	-	+	-	+	+	+	+	+	
Codium sp.	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
Codium tomentosum Stackhouse	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Codium vermilara (Olivi) Delle Chiaje	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dasycladus vermicularis (Scopoli) Krasser	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	
Entocladia sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	
Epicladia flustrae Reinke	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Gayralia oxysperma (Kützing) K.L.Vinogradova *ex* Scagel *et al.*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	
Lychaete pellucida (Hudson) M.J.Wynne	-	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	+	-	+	
Neostromatella monostromatica M.J.Wynne, G.Furnari & R.Nielsen	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	
Pedobesia simplex (Meneghini *ex* Kützing) M.J.Wynne & F.Leliaert	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	
Percursaria percursa (C.Agardh) Rosenvinge	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phaeophila dendroides (P.L. & H.M. Crouan) Batters	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pseudochlorodesmis furcellata (Zanardini) Børgesen	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Rhizoclonium riparium (Roth) Harvey	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ulothrix implexa (Kützing) Kützing	+	+	+	+	+	-	+	+	+	+	+	-	+	+	+	-	-	-	+	-	-	+	+	-	+	
Ulva cf. *australis* Areschoug*, **	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	
Ulva compressa L.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulva clathrata (Roth) C.Agardh	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulva curvata (Kützing) De Toni	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	

Appendix 1. Continued

Ulva flexuosa Wulfen	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	+	-	-
Ulva flexuosa subsp. *paradoxa* (C.Agardh) M.J.Wynne**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Ulva intestinalis L.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ulva kylinii (Bliding) H.S.Hayden *et al.*	+	-	+	+	+	+	+	-	-	+	+	+	+	-	-	+	+	-	+	-	+	-	+	+	-	
Ulva lactuca L.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Ulva laetevirens Areschoug	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	+	-	-	-	
Ulva linza L.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ulva polyclada Kraft	-	-	-	-	+	-	-	-	+	-	-	-	+	-	+	+	-	-	-	-	-	+	+	+	-	
Ulva prolifera F.Müller	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	-	+	
Ulva pseudolinza (R.P.T.Koeman & Hoek) H.S.Hayden *et al.*	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ulva rotundata Bliding**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Ulva rigida C.Agardh	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ulva taeniata (Setchell) Setchell & N.L.Gardner	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Ulvella lens P.L.Crouan et H.M.Crouan	+	+	+	+	+	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	+	+	-	+	
Ulvella leptochaete (Huber) R.Nielsen, C.J.O'Kelly & B.Wysor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	
Ulvella scutata (Reinke) R.Nielsen	+	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	
Ulvella sp.	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ulvella viridis (Reinke) R.Nielsen, C.J.O'Kelly & B.Wysor	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	
Umbraulva dangeardii Wynne & G.Furnari	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	
Valonia utriculosa (Roth) C.Agarh	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
SPERMATOPHYTA																										
Cymodocea nodosa (Ucria) Ascherson	+	-	+	+	+	+	+	+	+	-	-	-	-	+	-	+	+	-	-	-	+	+	+	+	+	
Posidonia oceanica (L.) Delile	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	
Zostera marina L.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	
Zostera noltei Hornemann	+	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	

*: Alien species; **: New record for Turkish marine algal flora.