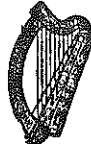


Colm Duggan



# IRISH FISHERIES INVESTIGATIONS

**SERIES B (Marine)**

**No. 10 (1973)**

**AN ROINN TALMHAIOCHTA AGUS IASCAIGH  
(Department of Agriculture and Fisheries)**

**FO-ROINN IASCAIGH (Fisheries Division)**

**DUBLIN:  
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# IRISH FISHERIES INVESTIGATIONS

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**No. 10  
(1973)**

MICHAEL D. GUIRY

**THE MARINE ALGAL FLORA OF BANTRY BAY, CO. CORK**

# The Marine Algal Flora of Bantry Bay, Co. Cork<sup>1</sup>

by

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## Abstract

A documentation of the marine algal flora of Bantry Bay, incorporating distributional, ecological and systematic data, is presented with a view to establishing distribution patterns, and so that an indication of the species diversity of selected shores might be available in the event of major environmental change in the future. Qualitative investigations, chiefly in the littoral zone, were carried out at eleven sites in the inner part of Bantry Bay during 1969-1972. The resulting list contains a total of 166 species, of which 88 are new records for the Bay and 7 are new records for County Cork. The sites at which each species was found are enumerated, together with grid references, brief descriptions of the topography, and notes on the algal communities.

## Introduction

As a consequence of the construction by Gulf Oil Terminals (Ireland) Ltd, of a crude oil storage terminal on Whiddy Island in Bantry Bay, several biological investigations of the inner part of Bantry Bay have been carried out by the Fisheries Division of the Department of Agriculture and Fisheries with a view to documenting the fauna and flora of the intertidal zone. Preliminary qualitative analyses of the flora were carried out by Miss J. McVitty in 1968 and by the present author in 1969. In the work outlined here the algal flora of the rocky shores surrounding the terminal, i.e. the inner bay, was qualitatively investigated at eleven selected sites during 1969-1972. Leading investigators in the fields of marine botany and zoology have constantly stressed the need for work of the kind discussed in this paper, involving the collection of distributional, ecological and systematic data. Guiry (1972) has tentatively proposed that a species diversity index may be used to measure the effects of pollution when such is carefully related to the flora of a particular district. The present survey was therefore carried out with the intention of carefully documenting the flora of the Bantry area so that future workers may use the records in the formulation of distribution patterns, and so that an indication of the diversity of selected shores might be available in the event of major environmental change.

In a check-list of the marine algae of County Cork, Cullinane (1973) incorporates all the literature records from the area and unrecorded specimens in various herbaria. His check-list is based on the bibliographies of Dixon, Irvine and Price (1966), Price (1967) and Price and Titley (1970). All county records cited in the present work are based on this list. Rees (1935) contributed extensively to the knowledge of the algae of the county during an investigation of the Lough Ine area and further information is available in such works as Sloane *et al.* (1961) and Kitching and Ebling (1961). Parke (1968) and Cullinane (1969) have listed the algae of Cape Clear Island and Weiss (1900) those of Valentia, Co. Kerry.

Miss Ellen Hutchins (1785-1815), a native of the Bantry area, worked extensively on the marine algae and most of her records are included in Mackay (1836) and Harvey (1846-51). These records are backed by specimens in the herbaria of the Botanic Gardens, Dublin (DBN), the British Museum (BM) and the Botany Department, Trinity College, Dublin (TCD). Water-colours of algae and letters received from Dawson Turner are in the Kew Gardens' Library. Miss Hutchins lived at Ballylickey House, on the eastern side of Bantry Bay, and most of her collecting was done in the Bantry Bay area. Some sixty-nine algae are recorded under her name in Mackay (1836) together with one by Robert Ball, a noted naturalist from

<sup>1</sup>Part of an M.Sc. thesis submitted by the author to the National University of Ireland, May, 1972.

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Youghal, Co. Cork. Many of these are rare or unusual species and a considerable number of common algae have never been recorded from the Bantry area, although their presence was assumed when such are described as "common on all our shores" (Mackay 1836). The section on algae in Mackay was written in conjunction with W. H. Harvey, the author of *Phychologia Britannica* (1846-51). In this latter work Harvey credits Miss Hutchins with the discovery of several new species, and two algae are named in her honour: *Cladophora hutchinsiae* and *Dasya hutchinsiae* both of which names are, as yet, in use.

Little recent work is available on the algal flora of Bantry Bay. Silva (1955) examined a specimen of *Codium tomentosum* Stackhouse collected at Bantry Bay by Miss Hutchins in 1808 and described by Turner (1811) as *Fucus tomentosus* var. *margnifer*. This specimen is located in Kew (K). Dixon (1962a), on examination of a specimen of *Mesogloia hudsoni* collected by Miss Hutchins, has referred it to *Helminthora divaricata*. Cullinane (1970) records two species of the rare genus *Lophosiphonia* from the south side of Whiddy Island.

The algal flora of the Bantry area is rich and varied and during these investigations some unusual species were found. One of these, *Lomentaria orcadensis* (Harv.) Taylor, is the subject of a separate publication (Guiry, 1971). In the area carboniferous slates predominate (Coe and Selwood 1968). Many different types of shores are formed depending on the dip of the strata, the hardness of rock and other factors. In some areas wide, open pools are formed, in others, long narrow channels and in others platforms of rock. Sand was generally uncommon at most of the shores investigated and 'coral sand' (*Lithothamnion*, *Phymatolithon* and *Lithophyllum* fragments) was not found at any. Some boulder shores are found, particularly between Site 1 and Site 4 (Fig. 1). A few small rivers flow into the bay and an area of reduced salinity, due to the effects of the Mealagh River is found at the eastern end of the Bay.

Bantry Bay faces south-west into the Atlantic and receives the full force of storms. Sheep's Head, a headland at the extremity of the Bay is especially exposed but unfortunately was inaccessible at the time of this survey. Mehal Head, on the northern side of the bay is only slightly less exposed. The sites investigated during this survey are less exposed than these headlands and a gradual reduction in exposure is found as one goes eastwards towards Glengarriff, where very sheltered shores are found. Bantry Bay is a well-known example of a ria. Water of forty metres depth is found to the north of Whiddy and extends most of the length of the island. To the south of the island the water is much shallower (10 m and less). The mean range of spring tides in the bay is 2.9 m (Admiralty Hydrographic Department 1970).

The species list presented in this paper is by no means exhaustive, and the sublittoral algae in particular have not been dealt with apart from some drift material and a small collection by a SCUBA Diver.

## Methods

Ten weeks were spent collecting material in Bantry Bay in the summer of 1969, during which ten sites were investigated. Further visits were made during April 1971 and May 1972. In 1971 another site was added as the original survey did not include a site on the northern shore of the Bay. Sites were chosen in relation to the oil terminal at Whiddy Island (see Fig. 1) and for reasons of accessibility and differences in shore type. At each of these sites an area of coastline was investigated thoroughly at all levels. Two sites were selected on Whiddy Island but the site at the north-eastern end was later augmented by a further site west of it because it was felt, after investigation, that the algae at the original site were not typical of the general area because of a lack of rock pools. Three sites were chosen directly to the south of the terminal and one site to the east. The site to the west of the terminal, Whiddy Point West, produced a series of sub-littoral specimens brought up by a diver working in the area. These specimens were found growing in about 50 ft (17 m) of water. Gerahies, site no. 8, was affected by a small oil spill during 1968 but most of the oil was sprayed at sea (with the detergent B.P. 1002) and very little reached the shore. The site directly to the north of the terminal was investigated during April 1971 but the area is very exposed and the list of species was very short. Material was examined fresh, where possible, and herbarium specimens of the material recorded are in the author's possession.

Identifications were made according to several standard works (Harvey 1846-51, Newton 1931, Jones 1962) and reference made to modern works in which revisions have been made (Silva 1955, Irvine 1956, Dixon 1960a, 1960b, Powell 1962, Roberts 1967, South and Burrows 1967, Schotter 1968, Newroth 1972, Wilkinson and Burrows 1972). Species of doubtful determination have been omitted. The nomenclature is according to Parke and Dixon (1968) except where otherwise stated.

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### Results

The eleven sites investigated showed features of zonation which have already been documented by Crapp (1973). In the present work, only the more interesting features of each site will be discussed briefly from a qualitative viewpoint.

The grid references (which may easily be located on Ordnance Survey Sheet 24,  $\frac{1}{2}$ " to 1 mile) are given for each site. Their positions are indicated in Fig. 1.

**SITE NO. 1. SOUTH RELANE (V 955 468).** This site, investigated during June, 1969, and subsequently in May, 1972, is a rocky shore with a sandstone substratum, and few pools of any size are present. Exposure is mostly 3 on the Lewis (1964) scale. In a single large pool some small plants of *Cordylecladia erecta* were found and some specimens of *Lomentaria orcadensis* growing in sponges. A belt of *Saccorhiza polyschides* was found on an off-shore reef which formed a small lagoon at mean low water spring tides. In this lagoon, the bottom of which was lined with cobble, large numbers of *Paracentrotus lividus* Lam. and *Anemonia sulcata* (Pennant) were found but few algae were present besides *Cystoclonium purpureum* and *Cystoseira baccata*.

**SITE NO. 2. REENAVANNY (V 973 512).** This site, investigated during the month of July, 1969, is on the north-eastern side of Whiddy Island. As the north side of the island is at the hinge of the slate syncline (Coe and Selwood, 1968) the rock formation is such that it forms platforms of gently sloping slate. Exposure of this shore is probably 3 on the Lewis scale (1964). On these platforms algal growth was good and dwarf *Rhodymenia palmata* was found. Over large areas at about MLWS (mean low water of spring tides) small circular sponge-like organisms were found growing on *Ralfsia clavata*. These were *Cylindrocarpus berkelyei* and were common in the area.

**SITE NO. 3. CARRIGACLOASH (V 954 498).** This site, investigated during the month of July, 1969, is only a few hundred yards from the oil terminal on Whiddy Island, and is a very broken shore with long narrow channels running parallel to the shoreline. Exposure is 3 on the Lewis scale (1964).

**SITE NO. 4. NORTH RELANE (V 957 470).** This site is that part of Relane Point east of the boulder beach and was investigated during the month of July 1969 and also during May 1972. Large beds of *Cladostephus verticillatus* were found here. These occurred on a rock platform which is slightly ridged and extends with little incline from MTL (mean tide level) to below MLWS. On either side of this, long high promontories of rock extend seaward. On the platform *Alaria esculenta* extended along the western side but it was taken over on the eastern side by the *C. verticillatus*. The latter had large amounts of *Jania rubens* epiphytic on its fronds. In very turbulent areas *J. rubens* was found growing on the rock surface. Beyond the *Alaria esculenta* and *Cladostephus* beds large meadows of *Cystoseira baccata* were found which occasionally gave way to an undergrowth of *Polyides rotundus* and *Furcellaria fastigiata*. On the vertical wall of the promontory on the east a specimen of *Calliblepharis ciliata* was found, the only *in situ* specimen found during the survey. Also in the more exposed areas large amounts of *Corallina mediterranea* were found on these walls.

**SITE NO. 5. DROMCLOC (V 957 473).** This site, which extends eastwards from site no. 4, has the same platform formation and was investigated during all visits to Bantry. Although the shore formation is the same as site no. 4, the shore is very flat and uniform and is not, therefore, exposed to concentrated wave action. Because of this, anomalous populations of algae occur. *Himanthalia elongata*, which is typical of moderately exposed shores was found in quantity in the lower shore and *Ascophyllum nodosum*, typical of sheltered shores, was found in quantity in the mid-shore. The reason for this appears to be that wave action, although severe in the lower shore, is considerably reduced in the mid-shore region due to dissipation of wave force over the length of the gently inclined shore. Towards the western end of this site a small area of sand is found and some plants of *Gymnogongrus griffithsiae* were present with *Ahnfeltia plicata*. Several plants of *Sphaerococcus coronopifolius* were found in the drift during May, 1972, with some specimens of *Kallymenia reniformis*. Large, deep pools are present in some parts of the shore, usually lying perpendicular to the shoreline. These usually had a rich flora including *Cystoseira nodicaulis*, *C. baccata*, *Haldrydrys siliquosa*, *Colpomenia peregrina*, *Dilsea carnosa*, *Pterocladia capillaceae*, *Furcellaria fastigiata* and *Polyides rotundus*.

**SITE NO. 6. WHIDDY POINT WEST (V 930 483).** This site was reached by diving. Large quantities of *Dictyopteris membranacea* were found growing in about 50 ft (17 m) of water with specimens of *Bonne-maisonia asparagoides*, *Cryptopleura ramosa*, *Nitophyllum* sp., *Dilsea carnosa* and *Ceramium* sp.

**SITE NO. 7. REENYDONEGAN (V 998 523).** This site, on the eastern side of the Bay, was investigated during the month of August, 1969. It is one of the most sheltered sites investigated.

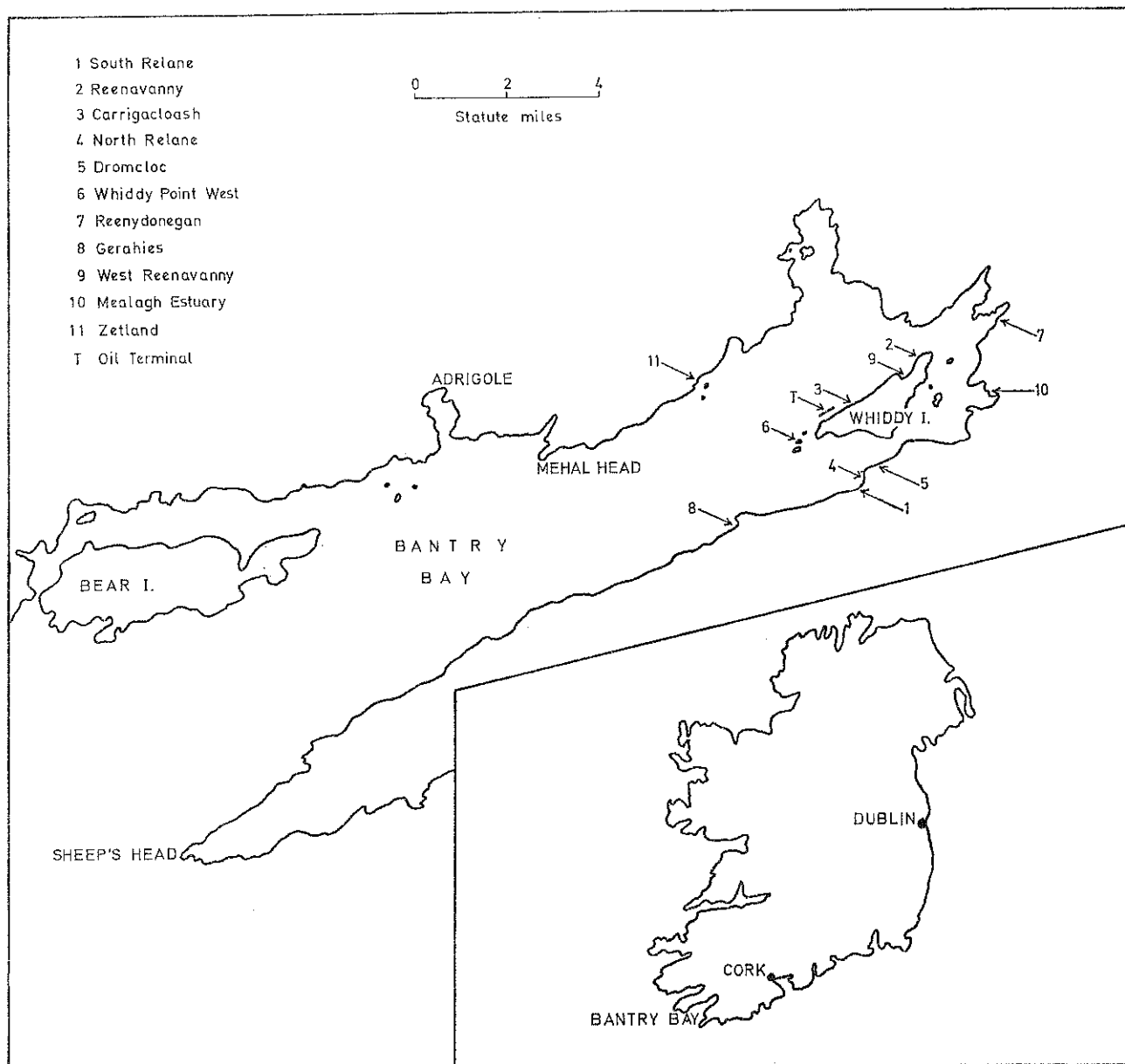


Fig. 1. Map of Bantry Bay showing the location of the survey sites. (Based on the Ordnance Survey by permission of the Government, Permit no. 1833.)

**SITE NO. 8. GERAHIES (V 910 452).** This site, situated inside League Point, was investigated during the months of August 1969, April 1971 and May 1972. The greatest variety or diversity in the algal flora in the Bay was found at this site. Large open pools, particularly at MTL provide great habitat diversity. In these large pools large growths of *Colpomenia peregrina* were found with *Punctaria latifolia* and *Scytosiphon lomentarius*. *Gloiosiphonia capillaris* and *Schizymenia dubyi* were occasional in May 1972, and four species of *Cystoseira* were found: *C. foeniculacea*, *C. baccata*, *C. nodicaulis* and *C. tamariscifolia* (Cf. Lewis 1964). A commonly occurring species in the lower shore rock pools was *Bifurcaria bifurcata*. This alga is sparse along the south coast, specimens from Lough Ine (Rees 1935) and Cork Harbour (Cullinane 1971) being the present known records. An extensive account of its distribution north of the Shannon estuary may be found in de Valera (1962). This alga was found in large open pools and was not found outside these although de

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Valera (1962) has found it growing on open rock on the Aran Islands. With *Ulva lactuca*, it was the dominant alga in many of the *Paracentrotus lividus* pools. *Lomentaria orcadensis* was found in considerable quantity on the three occasions on which this site was investigated.

**SITE NO. 9. MEALAGH RIVER ESTUARY (V 999 495).** This site produced very little variety of algal flora. The reduced salinity favoured growths of *Fucus ceranoides* which was found as far as the Donemark Falls.

**SITE NO. 10. WEST REENAVANNY (V 970 510).** This site, not far from site no. 2, was investigated during August, 1969, because it was felt that the latter site area was not typical and that the flora was therefore incompletely listed.

**SITE NO. 11. DEREENACARRIN (V 895 501).** This site, investigated during April, 1971, was surveyed because a northern site had not been selected during the 1969 survey. It is an open rocky shore and has few pools. The exposure grade is 2 on the Lewis (1964) scale.

### Algal flora list

The author citations used in this list are those of Parke and Dixon (1968), except where otherwise stated, and the abbreviated version is used as recommended (p.784). The zonation terminology is that of Lewis (1964, p. 49). An asterisk (\*) denotes that the species in question has been previously recorded from the Bay (Cullinane 1973 *pers. comm.*) and a dagger (†) denotes that the species is a new county record for Cork. The sites at which each species was found are enumerated and suitable comments are appended.

## PHAEOPHYCEAE

### ECTOCARPALES

#### Ectocarpaceae

*Ectocarpus siliculosus* (Dillw.) Lyngb.  
5, 7;  
Eulittoral.

*E. fasciculatus* Harv.  
8;  
Eulittoral. Epiphytic.

*Pilayella littoralis* (L.) Kjellm.  
8;  
Eulittoral.

\**Spongonema tomentosum* (Huds.) Kütz.  
4, 7, 8, 11;  
Eulittoral. On *Fucus vesiculosus* and *F. serratus*.

#### Ralfsiaceae

*Ralfsia clavata* (Harv.) Crouan, frat.  
5, 8;  
Eulittoral. Now appears to be a stage in the life-history of *Petalonia fascia*. See Fletcher (1970)

*R. verrucosa* (Aresch.) J. Ag.  
1, 2, 3, 4, 8;  
Eulittoral and littoral. In pools.

#### Myrionemataceae

*Myrionema strangulans* Grev.  
1, 2, 3, 4, 5, 7, 8;  
Eulittoral. On *Ulva lactuca* and *Enteromorpha spp.* In pools.

Elachistaceae

*Elachista flaccida* (Dillw.) Aresch.  
4, 5, 8;  
Eulittoral. On *Cystoseira nodicaulis* and *C. baccata*. In pools.

*E. fucicola* (Vell.) Aresch.  
1, 2, 3, 4, 5, 7, 8;  
Eulittoral. On *Fucus vesiculosus* and *F. serratus*.

*E. scutulata* (Sm.) Aresch.  
1, 3, 4, 5, 7, 8;  
Eulittoral. On *Himenthalia elongata*.

Corynophlaeaceae

*Cylindrocarpus berkeleyi* (Grev.) Crouan. frat.  
2, 3, 4, 8;  
Eulittoral. On *Ralfsia* on exposed rock.

*Leathesia difformis* (L.) Aresch.  
1, 2, 3, 4, 5, 7, 8, 10;  
Eulittoral. Epiphytic on *Corallina officinalis*. At edges of pools.

\**Myriactula rivulariae* (Suhr) J. Feldm.  
8;  
Eulittoral. On the fruiting branches of *Cystoseira nodicaulis*.

Spermatochneaceae

\**Stilophora rhizodes* (Turn.) J. Ag.  
8;  
Eulittoral. On *Cystoseira spp.*

Chordariaceae

*Chordaria flagelliformis* (O. F. Müll.) C. Ag.  
1, 2, 3, 4, 5, 7, 8, 10;  
Eulittoral.

\**Eudesme virescens* J. Ag.  
8;  
Eulittoral.

*Mesogloia vermiculata* (Sm.) S. F. Gray  
4, 8;  
Eulittoral.

\**Sauvageaugloia griffithsiana* (Harv.) Kylin  
4, 5;  
Sublittoral.

DICTYOSIPHONALES

Myriotrichiaceae

\**Myriotrichia clavaeformis* Harv.  
4;  
Eulittoral and sublittoral. On *Scytosiphon lomentarius* and *Sauvageaugloia griffithsiana*.

*M. filiformis* Harv.  
4;  
Eulittoral. On *Scytosiphon lomentarius*. (Probably conspecific with the former species, Russell pers. comm.)

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Punctariaceae

\**Asperococcus fistulosus* (Huds.) Hook.  
1, 2, 3, 4, 5, 7, 8, 11;  
Eulittoral in pools.

\**A. turneri* (Sm.) Hook.  
8;  
Eulittoral. Epiphytic in pools.

*Lithosiphon laminariae* (Lyngb.) Harv.  
1, 2, 4;  
Eulittoral. Epiphytic on *Alaria esculenta*.

*L. pusillus* (Hook.) Harv.  
8;  
Sublittoral. On *Chorda filum*.

*Punctaria latifolia* Grev.  
8;  
Eulittoral.

*P. plantaginea* (Roth.) Grev.  
8;  
Eulittoral.

SCYTOSIPHONALES

Scytosiphonaceae

*Colpomenia peregrina* Sauv.  
4, 5, 8;  
Eulittoral.

*Petalonia fascia* (O. F. Müll) Kuntze  
11;  
Eulittoral in pools. viz. *Ralfsia clavata*.

*Scytosiphon lomentarius* (Lyngb.) Link  
1, 3, 4, 5, 8, 11;  
Eulittoral in pools and rock surfaces.

DESMARESTIALES

Desmarestiaceae

*Desmarestia aculeata* (L.) Lamour.  
1, 2, 3, 4, 5, 7, 8, 11;  
Eulittoral and in the drift.

\**D. ligulata* (Lightf.) Lamour.  
1, 2, 3, 4, 5, 8, 11;  
Sublittoral, eulittoral and drift.

\**D. viridis* (O. F. Müll.) Lamour  
5;  
Drift.

LAMINARIALES

Chordaceae

*Chorda filum* (L.) Stackh.  
1, 2, 4, 8, 10;  
Eulittoral and sublittoral.

Laminariaceae

\**Laminaria digitata* (Huds.) Lamour.  
1, 2, 3, 4, 5, 7, 8;  
Sublittoral.

\**L. saccharina* (L.) Lamour.  
1, 2, 3, 4, 5, 7, 8, 10, 11;  
Eulittoral, sublittoral and drift.

*L. hyperborea* (Gunn.) Fosl.  
1, 2, 3, 4, 5, 7, 8, 10, 11;  
Sublittoral.

\**Saccorhiza polyschides* (Lightf.) Batt.  
1, 4, 8.  
Sublittoral. Eulittoral at 8; in pools.

Alariaceae

*Alaria esculenta* (L.) Grev.  
1, 2, 3, 4, 5, 8, 10, 11;  
Sublittoral and littoral in pools.

SPHACELARIALES

Sphacelariaceae

*Sphacelaria cirrosa* (Roth.) C. Ag.  
1, 3, 4, 5, 8;  
Eulittoral. Epiphytic.

\**S. fusca* (Huds.) C. Ag.  
8;  
Eulittoral in pools. On *Scytosiphon lomentarius*.

Stypocaulaceae

\**Halopteris scoparia* (L.) Sauv.  
8;  
Eulittoral in pools.

Cladostephaceae

*Cladostephus spongiosus* (Huds.) C. Ag.  
8;  
Eulittoral.

*C. verticillatus* (Lightf.) C. Ag.  
1, 2, 3, 4;  
Eulittoral and sublittoral in a large bed at 2.

DICTYOTALES

Dictyotaceae

*Dictyopteris membranacea* (Stackh.) Batt.  
6;  
Sublittoral

\**Dictyota dichotoma* (Huds.) Lamour.  
1, 2, 3, 4, 5, 6, 7, 8, 10, 11;  
Eulittoral in pools in several forms and sublittoral.

FUCALES

Fucaceae

\**Ascophyllum nodosum* (L.) Le Jol.  
1, 2, 3, 4, 5, 7, 8, 9;  
Eulittoral.

*Fucus ceranoides* L.  
9;  
Eulittoral. In areas of reduced salinity.

\**F. serratus* L.  
1, 2, 3, 4, 5, 7, 8, 9, 10, 11;  
Eulittoral.

*F. spiralis* L.  
1, 2, 3, 4, 5, 7, 8, 9, 10, 11;  
Eulittoral.

\**F. vesiculosus* L.  
1, 2, 3, 4, 5, 7, 8, 9, 10, 11;  
Eulittoral.

\**Pelvetia canaliculata* (L.) Dcne. et Thur.  
1, 2, 3, 4, 5, 7, 8, 10, 11;  
Littoral fringe and eulittoral.

Himenthaliaceae

*Himanthalia elongata* (L.) S. F. Gray.  
1, 2, 3, 4, 5, 7, 8, 10, 11;  
Eulittoral and sublittoral.

Cystoseiraceae

\**Bifurcaria bifurcata* (Velley) Ross  
8;  
Eulittoral in pools.

\**Cystoseira baccata* (Gmel.) Silva  
1, 3, 4, 5, 8;  
Eulittoral and sublittoral.

\**C. nodicaulis* (With.) Roberts  
4, 8;  
Eulittoral in pools.

\**C. tamariscifolia* (Huds.) Papenf.  
8;  
Eulittoral in pools.

\**C. foeniculacea* (L.) Grev.  
8;  
Eulittoral in pools.

*Halidrys siliquosa* (L.) Lyngb.  
1, 4, 5, 8;  
Eulittoral in pools and sublittoral.



**RHODOPHYCEAE**  
**BANGIOPHYCIDAE**  
**BANGIALES**

Bangiaceae

\**Bangia fuscopurpurea* (Dillw.) Lyngb.  
8;  
Epiphytic.

\**Porphyra umbilicalis* (L.) J. Ag.  
1, 2, 3, 4, 5, 7, 8, 10, 11;  
Eulittoral on rock surfaces.

†*P. leucosticta* Thur.  
8;  
Eulittoral. Epiphytic.

*P. linearis* Grev.  
11;  
Eulittoral on rock surfaces. April.

**FLORIDEOPHYCIDAE**  
**NEMALIALES**

Acrochaetiaceae

\**Acrochaetium daviesii* (Dillw.) Näg.  
11;  
Eulittoral. On *Rhodomenia palmata*.

*Rhodochorton floridulum* (Dillw.) Näg.  
3, 4, 5, 7, 8;  
Eulittoral. Binding sand or shell debris.

*R. purpureum* (Lightf.) Rosenv.  
5;  
Littoral. In cave.

Gelidiaceae

*Gelidium crinale/pusillum*.  
1, 2, 3, 4, 5, 7, 8;  
Eulittoral. In many forms.

*G. latifolium* (Grev.) Born. et Thur.  
8;  
Eulittoral in lower shaded pools.

*G. pulchellum* (Turn.) Kütz.  
1, 2, 3, 4, 5, 7, 8, 11;  
Eulittoral in pools.

*Pterocladia capillacea* (Gmel.) Born. et Thur.  
6, 8;  
Eulittoral in pools.

Helminthocladiaceae

\**Helminthora divaricata* (C. Ag.) J. Ag.  
5, 8;  
Eulittoral. On *Patella vulgata*. A few plants. (See Dixon, 1962a)

\**Nemalion helminthoides* (Vell. in With.) Batt.  
1, 2, 3, 4, 5, 7, 8;  
Eulittoral. On *Patella vulgata* and *Chthamalus stellatus*.

Bonnemaisoniaceae

\**Bonnemaisonia asparagoides* (Woodw.) C. Ag.  
6;  
Sublittoral.

*Falkenbergia rufolanosa* stage of *Asparagopsis armata* Harv.  
5;  
Eulittoral. On *Polysiphonia urceolata*.  
This phase has only been recorded from Lough Ine on the south coast:  
Sloane *et al.* (1961) and Kitching and Ebling (1961). Sterile.

GIGARTINIALES

Crouiaceae

*Petrocelis cruenta* J. Ag.  
5, 8;  
Eulittoral on rock surfaces.  
†*P. hennedyi* (Harv.) Batt.  
5;  
Drift. On stipes of *Laminaria hyperborea*. Sterile.

Nemastomataceae

*Schizymenia dubyi* (Duby) J. Ag.  
8;  
Eulittoral in large pools. Sterile: May.

Only previous record is from Lough Ine (Rees, 1935) where the present author has also found cystocarpic specimens in the rapids (February 1972).

Furcellariaceae

*Furcellaria fastigiata* (L.) Lamour.  
1, 3, 4, 5, 8, 11;  
Eulittoral in pools, Sublittoral.

Rhaobdoniaceae

\**Catenella repens* (Lightf.) Batt.  
8;  
Eulittoral in crevices.

Rhodophyllidaceae

\**Calliblepharis ciliata* (Huds.) Kütz.  
4, 5, 8;  
Sublittoral. Drift.

\**C. jubata* (Good.) Kütz.  
5, 8;  
Eulittoral in pools.

*Cystoclonium purpureum* (Huds.) Batt.  
1, 4, 5, 8, 11;  
Eulittoral and sublittoral.

Plocamiaceae

*Plocamium cartilagineum* (L.) Dixon  
1, 2, 3, 4, 5, 8;  
Eulittoral and sublittoral. Dwarf at 2 and 4.

- Sphaerococcaceae**  
\**Sphaerococcus coronopifolius* Stackh.  
5;  
Drift.
- Phylloporaceae**  
*Ahnfeltia plicata* (Huds.) Fries  
1, 3, 4, 5, 8, 10;  
Eulittoral in pools and sublittoral.
- \**Phyllophora crispa* (Huds.) Dixon  
1, 4, 5, 8, 11;  
Eulittoral in pools.
- \**P. pseudoceranoides* (Gmelin.) Newroth et A. R. A. Taylor  
5, 8, 11;  
Eulittoral in pools.
- \**Gymnogongrus griffithsiae* (Turn.) Mart.  
5;  
Eulittoral in sandy area. Sterile, May.  
This is the only area in Cork from which this species is recorded in the literature. The present author has found specimens in Camden, near Crosshaven, Co. Cork (Nov. 1971, June, 1972).
- \**G. norvegicus* (Gunn.) J. Ag.  
8;  
Eulittoral. Sterile, April.
- Gigartiniaceae**  
\**Chondrus crispus* Stackh.  
1, 2, 3, 4, 5, 7, 8, 10, 11;  
Eulittoral in pools and sublittoral.
- \**Gigartina stellata* (Stackh.) Batt.  
1, 2, 3, 4, 5, 7, 8, 9, 10, 11;  
Eulittoral in pools.
- CRYPTONEMIALES**  
**Hildenbrandiaceae**  
†*Hildenbrandia crouanii* J. Ag.  
8;  
Eulittoral. On stones with *H. prototypus*.
- H. prototypus* Nardo  
5, 8, 11;  
Eulittoral on stones and in pools, also littoral fringe.
- Squamariaceae**  
†*Porphyrodiscus simulans* Batt.  
5;  
Eulittoral. May be implicated in the life cycle of *Ahnfeltia plicata* (det. and unpublished obs., W. F. Farnham and R. L. Fletcher).
- Corallinaceae**  
\**Corallina officinalis* L.  
1, 2, 3, 4, 5, 7, 8, 9, 10, 11;  
Eulittoral in pools.

- C. mediterranea* Aresch.  
3, 4, 8;  
On rock surfaces in exposed conditions, also at edges of pools. Confusion exists between this entity and *H. squamatus* Ellis and records must be carefully checked (Irvine pers. comm).
- †*Haliptylon squamatus* Ellis  
8;  
Entangled in *Calliblepharis jubata* in large pools. First correct record for southern counties.
- Jania rubens* (L.) Lamour.  
4, 5, 8;  
Eulittoral. Epiphytic on *Cladostephus verticillatus*, also in pools. Also sublittoral.
- Lithophyllum pustulatum* (Lamour.) Fosl.  
11;  
Eulittoral. On *Chondrus crispus*.
- Phymatolithon polymorphum* (L.) Fosl.  
*Lithothamnion polymorphum* in Parke and Dixon, 1968.  
5, 8;  
Eulittoral. Pools.
- Mesophyllum lichenoides* (Ellis) Lemoine  
8, 11;  
Eulittoral. Epiphytic on *Corallina officinalis* in pools.
- Dumontiaceae**  
*Dilsea carnosus* (Schmidel) Kuntze  
1, 2, 3, 4, 5, 6, 8, 11;  
Eulittoral in rock pools, sublittoral.
- Dumontia incrassata* (O. F. Müll.) Lamour  
1, 2, 3, 4, 5, 7, 8, 9, 11;  
Eulittoral in rock pools.
- Polyideaceae**  
*Polyides rotundus* (Huds.) Grev.  
5, 8;  
Eulittoral in pools and sublittoral.
- Cryptonemiaceae**  
*Grateloupia filicina* (Lamour.) C. Ag.  
8;  
Small plants in eulittoral pools. May.
- Gloiosiphoniaceae**  
\**Gloiosiphonia capillaris* (Huds.) Berk.  
8;  
Eulittoral. Large pools. May. Only Cork record besides Lough Ine (Rees 1935).
- Kallymeniaceae**  
†*Callocolax neglectus* Batt.  
5;  
Drift, on *Callophyllis laciniata*.
- \**Callophyllis laciniata* Crouan. frat.  
5, 8, 11;  
Eulittoral and drift.
- \**Kallymenia reniformis* (Turn.) J. Ag.  
5;  
Drift. Sterile.

RHODYMENIALES

Rhodymeniaceae

*Cordylecladia erecta* (Grev.) J. Ag.  
1;  
Eulittoral. Small plants in a deep pool.

*Rhodymenia palmata* (L.) Grev.  
1, 2, 3, 4, 5, 7, 8, 11;  
Eulittoral. Dwarf forms at 2. Epiphytic on various algae.  
In pools and on rock surfaces. Sublittoral on *Laminaria hyperborea* stipes.

Champiaceae

\**Chylocladia verticillata* (Lightf.) Bliding  
3, 5, 8;  
Eulittoral in pools.

\**Gastroclonium ovatum* (Huds.) Papenf.  
3, 5, 8, 11;  
Eulittoral in pools and sublittoral.

\**Lomentaria articulata* (Huds.) Lyngyb.  
1, 2, 3, 4, 5, 7, 8, 9, 10, 11;  
Eulittoral and sublittoral. Epiphytic on various algae.  
On rock surfaces and in pools.

\**L. clavellosa* (Turn.) Gaill.  
1, 3, 4, 5, 7, 8, 10, 11;  
Eulittoral. In deep pools and exposed conditions.

*L. orcadensis* (Harv.) Taylor.  
1, 8, 11;  
In deep pools, rock ledges and crevices; particularly in sponges. (See Guiry 1971).

CERAMIALES

Ceramiaceae

\**Antithamnion plumula* (Ellis) Thur.  
5;  
Eulittoral.

*Callithamnion granulatum* (Ducluz.) C. Ag.  
5;  
Eulittoral.

*C. hookeri* (Dillw.) S. F. Gray  
8;  
Eulittoral.

\**C. tetragonum* (With.) S. F. Gray  
8;  
Eulittoral. Epiphytic, rock pools.

*C. tetricum* (Dillw.) S. F. Gray  
1, 2, 3, 4, 5, 7, 8;  
Eulittoral. Shaded rock faces and in pools.

\**Ceramium ciliatum* (Ellis) Ducluz.  
4, 5, 7, 8;  
Eulittoral.

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*C. diaphanum* (Lightf.) Roth.  
2, 8;  
Eulittoral. Rock pools.

*C. echionotum* J. Ag.  
1, 3, 4, 5, 7, 8;  
Epiphytic in eulittoral pools.

\**C. shuttleworthianum* (Kütz.) Silva  
1, 2, 3, 4, 5, 7, 8, 9, 10, 11;  
Eulittoral. On *Mytilus* spp. on rock faces.

\**C. rubrum* (Huds.) C. Ag.  
1, 2, 3, 4, 5, 6, 8, 9, 10, 11;  
Eulittoral and sublittoral. Includes many forms.

\**Corynospora pedicellata* (Sm.) J. Ag.  
8;  
Eulittoral. In large pools.

*Griffithsia flosculosa* (Ellis) Batt.  
1, 8;  
Eulittoral pools and sublittoral lagoon.

*Plumaria elegans* (Bonnem.) Schm.  
1, 4, 5, 7, 11;  
Eulittoral. Attached to damp shaded rocks and at the sides of pools.

\**Sphondylothamnion multifidum* (Huds.) Näg.  
8;  
Sublittoral. Only known Cork locality for this species.

Delesseriaceae

\**Apoglossum rusCIFolium* (Turn.) J. Ag.  
1, 3, 5;  
Eulittoral. In deep shaded gullies and pools.

*Cryptopleura ramosa* (Huds.) Newton  
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11;  
Eulittoral and sublittoral. Epiphytic, in pools.

*Delesseria sanguinea* (Huds.) Lamour.  
1, 2, 3, 4, 5, 7, 8, 11;  
Eulittoral in pools.

*Hypoglossum woodwardii* Kütz.  
1, 3, 5, 7, 8;  
Eulittoral and sublittoral. Rock pools and gullies.

*Membranoptera alata* (Huds.) Stackh.  
1, 3, 4, 5, 7, 8, 11;  
Eulittoral and sublittoral. Rock pools and rock surfaces.  
Epiphytic on stipes of drift *Laminaria hyperborea*.

*Phycodrys rubens* (L.) Batt.  
2, 5, 8, 11;  
Eulittoral. Rock pools. Also on stipes of drift *Laminaria hyperborea*.

Dasyaceae

- \**Heterosiphonia plumosa* (Ellis) Batt.  
3, 4, 5, 8;  
Eulittoral. Rock pools.
- \**Dasya hutchinsiae* Harv.  
3, 5;  
Eulittoral. Epiphytic and in a pool.  
Only other record for county Cork is Lough Ine: Rees (1935).

Rhodomelaceae

- \**Brongniartella byssoides* (Good. et Woodw.) Schm.  
5, 8;  
Eulittoral. Rock pools. Usually sublittoral.
- \**Chondria dasyphylla* (Woodw.) C. Ag.  
1, 4;  
Eulittoral. Pools.
- \**Laurencia hybrida* (DC) Duby  
1, 2, 3, 4, 5, 7, 8, 10, 11;  
Eulittoral. In pools mostly on *Patella aspera*.
- \**L. pinnatifida* (Huds.) Lamour.  
1, 2, 3, 4, 5, 7, 10, 11;  
Eulittoral in pools and rock surfaces. Sublittoral.
- \**Polysiphonia brodiaei* (Dillw.) Spreng.  
1, 2, 3, 4, 5, 7, 8;  
Eulittoral. In pools in turbulent conditions.
- P. elongata* (Huds.) Grev. ex Harv. in Hook.  
5, 8;  
Eulittoral and sublittoral. Pools.
- \**P. fruticulosa* (Wulf.) Spreng.  
8;  
Eulittoral.
- \**P. lanosa* (L.) Tandy  
5, 7, 8, 9;  
Eulittoral. Epiphytic on *Ascophyllum nodosum*.
- P. nigrescens* (Huds.) Grev.  
2, 4, 5, 7, 8, 11;  
Eulittoral. Pools.
- \**P. spiralis* Batten  
2, 8;  
Eulittoral. Pools. See Irvine *et alia* (1972) concerning this species.
- \**P. urceolata* Grev.  
1, 2, 3, 4, 5, 7, 8;  
Eulittoral. Pools.
- \**Pterosiphonia parasitica* (Huds.) Falkenb.  
8;  
Eulittoral in pools.
- \**P. thuyoides* (Harv.) Schm.  
8;  
Eulittoral in pools.

CHLOROPHYCEAE

CHLOROCOCCALES

Endosphaeraceae

- Gomontia polyrhiza* (Langerh.) Born. et Flah.  
8;  
Eulittoral. In dead *Patella* shells in *Paracentrotus lividus* pools.  
See Wilkinson and Burrows (1972)

ULOTRICHALES

Ulvaceae

- \**Enteromorpha compressa* (L.) Grev.  
1, 2, 3, 4, 5, 7, 8;  
Eulittoral on various surfaces.
- E. intestinalis* (L.) Link  
1, 2, 3, 4, 5, 7, 8;  
Littoral fringe and eulittoral. In areas of reduced salinity.
- \**E. ramulosa* (Sm.) Hook.  
2, 8;  
Eulittoral. Pools.

Monostromataceae

- †*Monostroma grevillei* (Thur.) Wittr.  
8;  
Eulittoral in pools in spring. See Wilkinson and Burrows (1972)

CLADOPHORALES

Cladophoraceae

- \**Chaetomorpha capillaris* (Kütz.) Borg.  
1, 4, 5, 11;  
Eulittoral in pools.
- C. melagonium* (Web. et Mohr) Kütz.  
8, 11;  
Eulittoral in deep pools.
- C. linum* (O. F. Müll.) Kütz.  
8;  
Eulittoral pools.
- \**Cladophora hutchinsiae* (Dillw.) Kütz.  
2, 8;  
Eulittoral in pools. Type locality for this species.
- \**C. rupestris* (L.) Kütz.  
1, 2, 3, 4, 5, 7, 8, 9, 10, 11;  
Eulittoral in wet places and in pools.
- \**C. pellucida* (Huds.) Kütz.  
2, 7, 8, 11;  
Eulittoral in deep pools.
- \**C. sericea* (Huds.) Kütz.  
11;  
Eulittoral. In exposed places.

## CAULERPALES

### Bryopsidaceae

*Bryopsis hypnoides* Lamour.  
1, 2, 3, 4, 5, 7, 8;  
Eulittoral in pools.

*B. plumosa* (Huds.) C. Ag.  
1, 2, 3, 4, 5, 7, 8, 11;  
Eulittoral in pools.

### Codiaceae

*Codium fragile* (Sur.) Hariot. subsp. *tomentosoides* (Goor) Silva  
1, 2, 3, 4, 5, 7, 8, 11;  
Eulittoral in pools. Very common locally. See Crapp (1973).

\**C. tomentosum* Stackh.  
8;  
Eulittoral. In exposed areas. (See Silva 1955).

## Discussion

A total of 166 species are recorded in the foregoing list; 88 of these are new records for the Bay and 7 are new records for County Cork. Thirty species of red algae recorded from the Bay (Cullinane 1972, pers. comm.) have not been found but these include many suspect species from such genera as *Ceramium*, *Callithamnion* and *Polysiphonia*. Notable records from Bantry not found during this work include *Dudresnaya verticillata* (With.) Le Jol., *Halarachnion ligulatum* (Woodw.) Kütz., *Naccaria wiggii* (Turn.) Endl., *Ptilothamnion pluma* (Dill.) Turn. (See Dixon 1962b), *Pterosiphonia complanata* (Clem.) Falkenb. (see Norton and Parkes 1972) and *Sciania furcellata* (Turn.) Biv.

Amongst the 9 species of brown algae recorded from the Bay but not found during the present work are *Asperococcus compressus* Griff. ex Hook., *Cutleria multifida* (Sm.) Grev., *Sporochneus pedunculatus* (Huds.) C. Ag. and *Tilopteris mertensii* (Turn.) Kütz. The latter species has been found in Camden at the mouth of Cork Harbour by the author but no material could be found in Bantry.

Although the littoral marine algal flora has been catalogued as completely as possible within the framework of the present state of knowledge, it is hoped to continue investigations and to extend into the sublittoral in the future.

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