of filamentous algae on rocks and sand, provides food for many reef species. At Eniwetok and in the Marshall Islands, corals and associated algae apparently contributed substantially to the food available to fishes (Odum and Odum, 1955; Hiatt and Strasburg, 1960). But in the West Indies, corals are apparently not utilized to any great extent for food by most fishes (Randall, 1967).

Randall found three families of West Indian fishes to be almost entirely dependent on benthic algae as primary food (Kyphosidae, the sea chubs; Scaridae, the parrotfishes; Acanthuridae, the surgeonfishes), and many species in other families to rely wholly or partially on attached plants for sustenance.

It is significant that fishes of the second trophic layer, the herbivores, are commonly the most abundant fishes in a reef community. Odum and Odum (1955) found a striking predominance (on a weight basis) at Eniwetok of herbivorous parrotfishes, surgeonfishes, damselfishes, and butterflyfishes in comparison to wrasses, groupers, and other carnivores. Hiatt and Strasburg (1960) found herbivores to dominate reefs in the Marshall Islands, and Bardach (1959) found that omnivores (said to be mostly herbivorous) far outnumbered carnivores on a large Bermuda reef (but not on a smaller, isolated reef).

Randall (1963) surveyed the fishes of two natural reef areas at St. John, one a 600 m² part of a fringing reef in Lameshur Bay, averaging 3 m depth, the other 297 m² of fringing reef in about the same depth at Ram Head Bay. The two sites yielded (by weight) 24.3 % herbivores (Scaridae, Acanthuridae, and Blennidae), 15.8 % omnivores (Pomacentridae, Chaetodontidae, and Monocanthidae) and 59.9 % carnivores (the remaining families). Randall emphasized that many fishes that live on coral reefs depend on food that does not come from the reef proper. He cited certain grunts, snappers, and certain plankton feeders, but in Lameshur Bay, this would certainly apply as well to many species that graze throughout the day on the adjacent algal plain, notably parrotfishes and surgeonfishes.

Parrotfishes were found to be the largest family by weight at both reef sites studied by Randall and dominance of this family throughout the West Indies was suggested.

It has been established that plant-eating fishes influence the kind and number of marine plants on and near coral reefs. But some significant questions presently are unanswered. To what extent do carnivores influence the kind and number of plant-eating fishes; i.e., what influence do carnivores have on plant distribution? Bardach (1959) concluded that, in Bermuda: "carnivorous fish rarely feed upon omnivorous ones: no angelfish or surgeonfish were found in the stomachs of carnivores, and young parrotfish were only partially ingested." Carnivorous fishes that he examined fed mostly on invertebrates, and he attributed most herbivorous activity to invertebrates.

Randall's evidence (1963, 1967), also from the West Indies, partially contradicts Bardach's conclusions, as parrotfishes and surgeonfishes were found to comprise a significant percentage of the food of carnivores. Parrotfishes are regarded by Randall (1963) as perhaps the principal prey family of West Indian reef fishes except on isolated patch reefs.

What happens when large predators—the snappers, groupers, barracudas, and sharks—are selectively removed from a reef? Is a chain of events set in motion that can be likened to certain food chains on land? For example, when hawks and owls are selectively killed in a farm area, a notable increase in small rodents frequently results, and certain plants, especially grain crops, may be markedly reduced. Where cougars and coyotes are eliminated, deer and rabbits may become so common that vegetation is overgrazed, to the ultimate detriment of the deer, rabbits, and an entire ecosystem (Leopold, 1943; Clarke, 1954). What happens on a reef where large predators are reduced in numbers? It is certain that change occurs, but documentation of what happens remains to be done.

ANNOTATED LIST OF MARINE PLANTS OF LAMESHUR BAY, ST. JOHN, AND VICINITY

The marine plants of the Virgin Islands were studied in detail by the Danish botanist, F. Børgesen, who visited the islands in 1892, 1895-96, and 1905-06, and published numerous papers based on his collections. Most significant is "The Marine Algae of the Danish West Indies," issued in parts from 1913 to 1920, in which 327 species of algae (90 Chlorophyta, 45 Phaeophyta, and 192 Rhodophyta) were described including many new species. Dr. Harold Humm, University of South Florida, is continuing systematic studies on the marine plants of this area.

During the present study, 154 species of plants were obtained (54 Chlorophyta, 26 Phaeophyta, 70 Rhodophyta, one Cyanophyta, and three Spermatophyta) including 26 species that are new records for the Virgin Islands.

The following list summarizes known depth distribution, consumers, and habitat notes. Species marked with an asterisk (*) are new records for the Virgin Islands.

CHLOROPHYTA. Green algae.

**Acetabularia pusilla* (Howe) Collins. Found twice on *Strombus gigas* shells on the algal plain in 20 m. Known from Florida, the Bahamas and Jamaica, but reported for the first time for the Virgin Islands.

Acicularia schenckii (Möbius) Solms-Laubach. Locally common on the algal plain in 15 to 31 m, but most conspicuous in open areas of fine shell attached to shell fragments or small rocks. Reported from Florida by Taylor (1928) to 73 m.

Anadyomene stellata (Wulfen) C. Agardh. Common on the algal plain, occasional on the reef and in seagrass beds, often epiphytic, particularly on *Avrainvillea* and *Digenia*, but also attached to rock or forming loose, unattached masses. Found in three to 25 m. During feeding trials, no fishes were seen eating *Anadyomene*, but samples usually disappeared, apparently eaten, within 48 hrs.

Avrainvillea asarifolia Børgesen. An uncommon plant of the algal plain in 20 to 22 m. Known only from Florida, Jamaica and the Virgin Islands; reported from Florida by Taylor (1928) in 4.6 to 91.5 m.

Avrainvillea geppi Børgesen. Found twice on the algal plain in 20 and 23 m. Previously known from Børgesen's original collection at St. John, from 16 m.

**Avrainvillea levis* Howe. Three plants were obtained from a bed of *Syringodium* in 13 m, 325 m N. of the Habitat. Known from many places in the Caribbean, but reported here for the first time from the Virgin Islands.

Avrainvillea longicaulis (Kützing) Murray and Boodle. Obtained from several places on the algal plain in 20 to 22 m where it occurred with *A. nigricans*, which it closely resembles. Reported from the Caribbean by Taylor (1960) to 30 m.

Avrainvillea nigricans Decaisne. The most common and conspicuous member of the genus, occurring in seagrass beds and on the algal plain from 10 to 31 m. Recorded by Taylor (1960) to 30 m. When other plants are available, *A. nigricans* is often ignored by grazing fishes, but on the plain the following fishes were observed eating this species: *Canthigaster rostrata, Pomacanthus arcuatus, Scarus croicensis*. During feeding trials, *S. croicensis* and *Sparisoma aurofrenatum* sampled this species, and Randall (1967) found it in the stomach contents of *Pomacentrus fuscus*.

Bryopsis pennata Lamouroux. Occasional on the reef and on hard surfaces on the plain to 20 m. Randall (1967) reported the following consumers: *Abudefduf saxatilis, Pomacentrus fuscus, Acanthurus bahianus,* and *Cantherhines pullus.*

Caulerpa ashmeadii Harvey. Occasional plants were found on the algal plain from 50 to 180 m from the reef in 15 to 24 m. During feeding trials, *C. ashmeadii* was eaten by *Pomacanthus arcuatus* and *Sparisoma aurofrenatum*. Reported from Florida to 110 m by Taylor (1928).

Caulerpa cupressoides (West) C. Agardh. Occasional on the algal plain to 22 m. Forms of this species have been reported from Florida from the intertidal to 110 m (Taylor, 1928). During feeding trials. *Acanthurus coeruleus* ate this species, and Randall (1967) recorded *Pomacanthus arcuatus* and *P. paru* as consumers.

Caulerpa mexicana (Sonder) J. Agardh. Locally common on the algal plain in 10 to 21 m. Reported by Taylor (1928) from Florida in depths to possibly 110 m. During feeding trials, *Pomacanthus arcuatus* ate this species, and Randall (1967) recorded *P. arcuatus* as a consumer.

Caulerpa microphysa (Weber-van Bosse) J. Feldman. Common in open sand areas, frequently in association with *Acicularia schenckii* in 10 to 23 m. Reported by Taylor (1960) from 9 to 110 m.

Caulerpa prolifera (Forsskål) Lamouroux. Occasional on the algal plain in 15 to 22 m. Reported by Taylor (1928) from Florida in shallow water to 110 m. During feeding trials, *Pomacanthus arcuatus* ate this species, and Randall (1967) recorded *P. arcuatus* as a consumer.

Caulerpa sertularioides (Gmelin) Howe. Occasional in seagrass beds, but not found eleswhere. Reported by Taylor (1928) from three to 110 m in Florida. Randall (1967) recorded the following consumers: *Abudefduf taurus, Alutera scripta, Pomacentrus fuscus* and *Pomacanthus paru*. The queen conch, *Strombus gigas*, also feeds on this species (Randall, 1964).

Chaetomorpha crassa (C. Agardh) Kützing. Found once mixed with *Hypnea* on the algal plain in 23 m. An uncommon species, previously reported from shallow water.

Cladocephalus luteofuscus (Crouan) Børgesen. Common on the algal plain with *Avrainvillea* and *Udotea* in 12 to 23 m. Previously reported in 14 to 72 m from Florida (Taylor, 1928).

Cladophora sp. A small plant, epiphytic on *Udotea*, was obtained from 20 m on the algal plain. Randall (1967) recorded several fishes that eat species of *Cladophora*: *Acanthurus coeruleus, Pomacentrus fuscus,* and *Scarus* spp., and reported several species in the stomach contents of the queen conch, *Strombus gigas* (Randall, 1964).

Cladophora sp. A small plant, attached to a shell, was obtained from 20 m on the algal plain.

Cladophoropsis membranacea (C. Agardh) Børgesen. Occasionally found mixed with other algae in a bed of seagrass 350 m N. of the habitat in 14 m. Elsewhere usually intertidal.

Codium intertextum Collins and Hervey. Found on several large coral heads in five m at Virgin Gorda, but not located within Lameshur Bay. Reported by Taylor (1960) from 20 m.

Codium isthmocladum Vickers. Never found within 40 m of the reef, this species was occasional but conspicuous on the algal plain where it often formed bushy masses up to 30 cm high in depths from 14 to 31 m. It is a common species with many forms, occurring in the Caribbean in depths to 73 m (Taylor, 1960). During feeding trials, the following fishes ate *C. isthmocladum*: *Acanthurus bahianus, Hallchoeres poeyi* and *Pomacanthus arcuatus*. Randall (1967) recorded *Pomacanthus paru* as a consumer.

Dictyosphaeria cavernosa (Forsskål) Børgesen. Common on the algal plain and in seagrass

beds usually attached to hard substrate but sometimes epiphytic in depths from ten to 21 m. Reported by Taylor (1960) from the intertidal to at least 55 m. Randall (1967) recorded *Acanthurus coeruleus* and *Alutera scripta* as consumers.

**Diplochaete solitaria* Collins. A common minute epiphyte on various algae (*Ceramium, Spermothamnion, Cladophora, Laurencia, Chaetomorpha*, etc.) on the reef, algal plain and in seagrass beds from 3 to 21 m. Previously known from Jamaica and Bermuda in shallow water but a new record for the Virgin Islands.

Entocladia vagans (Børgesen) Taylor. Found endophytic and epiphytic in and on *Griffithsia globulifera* in 16 and 21 m on the algal plain. This is apparently the second report of this plant, described by Børgesen (1920) from St. Croix, Virgin Islands.

Entocladia viridis Reinke. Common on various algae (*Acanthophora, Padina, Anadyomene, Laurencia*) on the reef and the algal plain in 10 to 21 m.

Ernodesmis verticellata (Kützing) Børgesen. Found occasionally on rocks and once on a small shell in 16 to 20 m on the algal plain. Reported by Taylor (1960) from various places in the Caribbean in shallow, very quiet, shaded pools, to a depth of 9 m. Randall (1964) found this species in the stomach contents of the queen conch, *Strombus gigas*.

**Halicystis osterhoutii* L. R. and A. H. Blinks. Collected twice on calcareous rubble on the algal plain in 16 to 18 m. A new record for the Virgin Islands.

Halimeda discoidea Decaisne. Occasional low plants were found on the algal plain 40 to 150 m from the reef in 16 to 20 m depth. Reported to 50 m by Taylor (1960).

Halimeda incrassata (Ellis) Lamouroux. A common, conspicuous plant of the algal plain, dominant over wide areas, often in association with *Lobophora variegata, Anadyomene stellata*, species of *Avrainvillea*, and numerous epiphytes. Found in 5 to 31 m, most abundant 50 m or more from the reef (to more than 200 m distant), but in places within 20 m. Also common mixed with *Syringodium* in grass beds, and forming stands in open areas within the beds. Reported from shallow water to 40 m by Taylor (1960). On the algal plain, the following fishes were observed eating *H. incrassata: Lactophrys quadricornis, Balistes vetula*, and *Pomacanthus arcuatus*. During feeding trials, it was eaten by *Acanthurus bahianus, A. coeruleus, A. chirurgus, Halichoeres poeyi, Pomacanthus arcuatus, Scarus croicensis, S. coeruleus, Sparisoma aurofrenatum*, and *S. rubripinne*. Randall (1967) reported only *Balistes vetula* as a consumer of *H. incrassata*, but found "*Halimeda* sp." in the stomach contents of the following fishes: *Alutera schoepfi, Pomacentrus fuscus, Lactophrys trigonus, L. triqueter*, and *Sparisoma rubripinne*. Fragments of *Halimeda*, probably including *H. incrassata*, were found in the stomach contents of *Strombus gigas* (Randall, 1964).

Halimeda monile (Ellis and Solander) Lamouroux. Common in grass beds at Salt Pond, St. John, and along the shore of Cooper Island mixed with *Thalassia*, in depths from two to nine m, but not seen in Lameshur Bay. Randall (1967) recorded *Alutera scripta* and *Lactophrys trigonus* as consumers.

**Halimeda scabra* Howe. Found twice on the algal plain on calcareous substrate in association with *Avrainvillea* spp. and *H. incrassata* in 22 m. Reported by Taylor (1960) from Florida and the Caribbean in shallow water to 20 m. Recorded here for the first time from the Virgin Islands.

Halimeda simulans Howe. Common on the algal plain with *H. incrassata* and *Avrainvillea* sp. and in beds of *Syringodium* in 12 to 20 m. Reported from Florida by Taylor (1928) to 73 m. During feeding trials, the following fishes ate *H. simulans: Acanthurus bahianus, A. chirurgus, Scarus croicensis, S. coeruleus*, and *Sparisoma aurofrenatum*.

Halimeda tuna (Ellis and Solander) Lamouroux. Occasional in grass beds and on the algal plain in ten to 21 m. Reported by Taylor (1960) from Florida, Bermuda and the Caribbean in depths to 80 m.

Neomeris annulata Dickie. Occasional on the reef and algal plain in open areas on rocks, shell, and dead coral in three to 31 m. Reported from Bermuda, Florida and the Caribbean by Taylor (1960) to 50 m.

Penicillus capitatus Lamarck. Common in grass beds and throughout the algal plain in three to 31 m. Reported by Taylor (1960) from shallow water to 40 m. During feeding trials, *Sparisoma aurofrenatum* sampled this species.

Penicillus dumetosus (Lamouroux) Blainville. Common in grass beds and locally abundant on the algal plain in four to 23 m. Reported by Taylor (1960) to 30 m. During feeding trials, this species was sampled by *Sparisoma aurofrenatum*.

Penicillus lamourouxii Decaisne. Occasional in grass beds and on the algal plain in ten to 23 m. Reported by Taylor (1928) from Florida in shallow water to 73 m.

Penicillus pyriformis A. and E. S. Gepp. Common in grass beds and occasional on the algal plain in 18 to 20 m. Primarily a plant of shallow water, but Taylor (1960) reported a deep water form from 40 m. Randall (1967) recorded *Pomacanthus arcuatus* as a consumer, but no fishes were observed eating *P. pyriformis* on the algal plain or in feeding trials during this study.

Phaeophila dendroides (Crouan) Batters. Found epiphytic on many algae (*Laurencia, Avrainvillea, Ceramium, Dictyota, Sargassum*) from various places on the algal plain in 18 to 23 m.

**Pseudotetraspora antillarum* Howe. Common on the surface of the Habitat, on blades of *Syringodium* in grass beds, but most conspicuous on blades of *Udotea conglutinata* and *U. flabellum* from grass beds and the algal plain in ten to 22 m. Previously reported only from shallow water in the Bahamas and Florida; a new record for the Virgin Islands.

Rhipilia tomentosa Kützing. Collected twice on the

algal plain in 20 and 22 m growing with species of *Avrainvillea* and *Udotea*. Reported from the Caribbean by Taylor (1960) to 30 m.

Siphonocladus rigidus Howe. Occasional on the reef in 5 to 20 m. Typically a shallow water plant, recorded from Florida in .9 m by Taylor (1928).

Struvea anastomosans (Harvey) Piccone. Collected twice on the reef in ten and 12 m, and once on the algal plain on an isolated coral head in 20 m.

Udotea conglutinata (Ellis and Solander) Lamouroux. Abundant throughout the algal plain, common in grass beds, and occasional in open areas on reefs in six to 31 m. Reported by Taylor (1960) to 57 m. On the algal plain, the following fishes were observed eating *U. conglutinata: Acanthurus bahianus, A. coeruleus, A. chirurgus, Scarus coeruleus, Sparisoma aurofrenatum, S. rubripinne,* and *Pomacanthus arcuatus*. During feeding trials, it was taken by *Pomacanthus arcuatus, Scarus coeruleus,* and *Sparisoma aurofrenatum*.

Udotea cyathiformis Decaisne. Occasional in grass beds and common on the algal plain in ten to 31 m. Reported from Florida by Taylor (1928) to 91 m. During feeding trials, *U. cyathiformis* was eaten by *Sparisoma aurofrenatum*.

Udotea flabellum (Ellis and Solander) Lamouroux. Occasional throughout the algal plain and common in seagrass beds in five to 23 m. Reported from Florida by Taylor (1928) to 73 m. Randall (1967) recorded *Diplodus caudimacula* and *Balistes vetula* as consumers of *U. flabellum*.

Udotea spinulosa Howe. Occasional among other *Udotea* species on the algal plain and in grass beds in ten to 31 m. Reported from Florida by Taylor (1928) to 90 m.

Udotea verticillosa A. and E. S. Gepp. The most common and conspicuous species of *Udotea* in Lameshur Bay, occurring in extensive beds, sometimes in nearly pure stands, but usually mixed with other algae including other species of *Udotea*, in six to 31 m. Reported only from the Virgin Islands, based on Børgesen's original collections. On the algal plain, the following fishes were observed eating *U. verticillosa: Acanthurus bahianus, A. coeruleus, A. chirurgus, Balistes vetula, Canthigaster rostrata, Holacanthus tricolor, Pomacanthus arcuatus, Scarus coeruleus,* and *Sparisoma rubripinne*. During feeding trials, it was taken by *Scarus coeruleus, Sparisoma aurofrenatum,* and *Pomacanthus arcuatus*.

**Udotea wilsoni* Gepp and Howe. Collected once in a grass bed in 15 m and obtained from several places on the algal plain in 18 to 23 m mixed with *U. spinulosa, U. verticillosa,* and *U. conglutinata*. Reported from several places in the Caribbean in shallow water, but this is the first record for the Virgin Islands.

Ulvella lens Crouan. Epiphytic on *Halimeda tuna, Caulerpa mexicana,* and *Acanthophora spicifera* on the algal plain in 18 to 22 m. Found by Randall (1964) in the stomach contents of the queen conch, *Strombus gigas*.

Valonia aegagropila C. Agardh. Occasional, lightly attached to calcareous substrates on the algal plain, in 15 to 23 m. Previously recorded to seven m in Florida (Taylor, 1928).

**Valonia utricularis* C. Agardh. Occasional in areas on the algal plain where plant cover is dense, 18 to 22 m depth. Reported by Taylor to two m. Common in the Caribbean but newly recorded here for the Virgin Islands. Randall (1967) found *V. utricularis* in the stomach contents of the batfish, *Ogcocephalus nasutus*.

Valonia ventricosa J. Agardh. Conspicuous on reefs growing in crevices in coral heads and rocks, but also common on the algal plain, often rolling free among other algae, and occasional in grass beds. Found in two to 23 m. Reported by Taylor (1960) to 30 m. Randall (1967) found *V. ventricosa* in the stomach contents of *Alutera scripta*.

PHAEOPHYTA. Brown algae.

**Acinetospora pusilla* (Griffiths) Bornet. Found only on the exterior of the Habitat, but probably present on other hard surfaces. A new record for the Virgin Islands.

Ascocyclus hypneae Børgesen. Endophytic in *Laurencia* collected on algal plain in 23 m. Previously known only from Børgesen's original material obtained in Lime Tree Bay, St. Croix, growing in *Hypnea musciformis*.

Dictyopteris justii Lamouroux. Found once in 21 m on the algal plain 30 m from the face of the reef, growing on limestone. Reported by Taylor from shallow water to 40 m. Randall (1967) reported *Kyphosus sectatrix* as a consumer of this species, and *Holacanthus tricolor* as a consumer of *Dictyopteris* sp. Other species of *Dictyopteris* were found in the stomach contents of *Abudefduf saxatilis, A. taurus, Balistes vetula, Cantherhines pullus, Kyphosus incisor, K. sectatrix, Melichthys niger, Pomacanthus arcuatus, P. paru,* and *Scarus coelestinus*.

Dictyota bartayresii Lamouroux. Typically found on dead coral and at the base of living coral heads, but also present throughout the algal plain to 23 m. Recorded by Taylor to 33 m. Randall (1967) recorded this species in the stomach contents of *Kyphosus sectatrix, Pomacanthus arcuatus* and *P. paru,* and *Dictyota* sp. in *Acanthurus coeruleus, A. chirurgus, Blennius cristatus, Cantherhines pullus, Pomacentrus fuscus, Lactophrys trigonus, Pomacanthus arcuatus, Sparisoma radicans,* and *S. rubripinne*.

Dictyota dichotoma (Hudson) Lamouroux. Occasional among other algae on the algal plain in 15 to 23 m. Reported by Taylor (1960) from shallow water to 55 m. During feeding trials, this species was eaten by *Pomacanthus arcuatus* and *Sparisoma aurofrenatum*.

Dictyota divaricata Lamouroux. Common in grass beds and on the algal plain in three to 23 m. Reported to 55 m by Taylor (1960). On the algal plain, *Acanthurus bahianus, A. coeruleus, A. chirurgus, Pomacentrus partitus, Canthigaster rostrata, Pomacanthus arcuatus, Sparisoma aurofrenatum,* and *S. viride* were seen eating this species. Randall (1964) found *D. divaricata* in the stomach contents of the queen conch, *Strombus gigas* and the following fishes (Randall, 1967): *Acanthurus bahianus, A. coeruleus,*

Cantherhines macrocerus, and *C. pullus*.

Dictyota indica Sonder *in* Kützing. Common on the algal plain mixed with other algae in 18 to 23 m. Occurs in various parts of the Caribbean, reported by Taylor (1960) to 27 m. Randall (1964) found *D. indica* in stomach contents of the queen conch, *Strombus gigas*.

Dictyota linearis (C. Agardh) Greville. Common mixed with other algae and epiphytic on seagrasses in eight to 22 m, in grass beds and throughout the algal plain. Randall (1967) reported *Kyphosus sectatrix* as a consumer.

Ectocarpus rhodochortonoides Børgesen. Found only on the exterior of the Habitat, but probably present on other hard surfaces. Originally described from the Virgin Islands (Børgesen, 1914) from plants found in exposed places in the littoral region. Randall (1967) reported *Ectocarpus* sp. in the stomach contents of *Diplodus caudimacula* and *Acanthurus coeruleus*, and it is likely that all *Ectocarpus* species are regularly browsed.

Giffordia conifera (Børgesen) Taylor. Growing on the Habitat, and on *Anadyomene stellata* in 12 and 22 m. Originally reported from St. Croix, Virgin Islands (Børgesen, 1914).

Giffordia indica (Sonder) Papenfuss and Chihara *in* Papenfuss. Obtained from the exterior of the Habitat, experimental cages, a dead sea fan, dead coral heads, seagrasses and rocks in five to 20 m. Reported by Taylor (1960) from shallow water to 20 m. Probably grazed by the many species observed eating filamentous algae, and definitely identified from a sea fan where *Scarus croicensis* was actively browsing.

Giffordia mitchelliae (Harvey) Hamel. Obtained from the surface of the Habitat, experimental cages, dead coral heads, rocks, and epiphytic on *Syringodium filiforme* and *Hypoglossum tenuifolium* in five to 23 m. This species was among filamentous plants and diatoms browsed from a sea fan by *Scarus croicensis* and Randall (1967) reported *Chaetodipterus faber* as a consumer. Probably common in the diet of species that feed on filamentous algae.

Giffordia rallsiae (Vickers) Taylor. Obtained from the surface of the Habitat, dead coral, rock and shells, and epiphytic on *Syringodium filiforme* and *Laurencia intricata* in five to 20 m. Reported by Taylor (1960) from shallow water.

Hecatonema sp. Found once on *Udotea conglutinata* from the algal plain in 18 m depth.

**Herponema tortugense* (Taylor) Taylor. A common epiphyte found in ten to 23 m on *Dictyopteris justii, Halimeda incrassata, Laurencia obtusa, Dictyota bartayresii, Udotea conglutinata*, and *U. flabellum*, and on the surface of the Habitat. Previously known only from Taylor's original collection at Dry Tortugas, Florida, where it was epiphytic on *Zonaria* in shallow water and from Puerto Rico (Diaz-Piferrer, 1963) on *Udotea, Gelidiella*, and *Thalassia*. This is a new record for the Virgin Islands.

Lobophora variegata (Lamouroux) Womersley. The decumbent form of this species was found on rock and dead coral on reefs, and the upright form was one of the most common and conspicuous plants of the algal plain, found in three to 31 m. Reported by Taylor (1960) from 55 m. On the algal plain, *Acanthurus chirurgus, A. coeruleus*, and *Balistes vetula* were seen eating this species, and during feeding trials, it was eaten by *Acanthurus bahianus, A. chirurgus, A. coeruleus, Sparisoma aurofrenatum*, and *S. viride*. Randall (1967) listed this species in the stomach contents of *Acanthurus bahianus, Kyphosus incisor, Kyphosus sectatrix, Melichthys niger*, and *Pomacanthus arcuatus*.

Myrionema strangulans Greville. Found once on *Acanthophora spicifera* on the algal plain in 21 m.

Padina sanctae-crucis Børgesen. Found in protected places on the reef and obtained from four sites on the algal plain in 15 to 21 m. Originally described from plants growing in shallow water at St. Croix, Virgin Islands (Børgesen, 1914). Randall (1967) found this species in the stomach contents of *Kyphosus sectatrix* and *Melichthys niger*.

**Padina haitensis* Thivy *in* Taylor. Common on rocks at Virgin Gorda, but not found in Lameshur Bay. Newly reported here for the Virgin Islands.

**Phaeostroma pusillum* Howe and Hoyt. Found once on *Udotea flabellum* in 20 m depth on the algal plain. Newly reported here for the Virgin Islands.

Sargassum filipendula C. Agardh. Found in four places on the algal plain attached to limestone 20 to 100 m from the reef in 18 to 22 m. Most plants were 25 to 30 cm high, but the main axis of one farthest distant on the plain was a meter high. Reported by Taylor (1960) from the intertidal to 33 m. Although not recorded among stomach contents of fishes examined by Randall (1967), it is likely to be eaten by fishes that are known to eat other species of *Sargassum*. These include *Acanthurus bahianus, A. chirurgus, Balistes vetula, Canthidermis sufflamen, Kyphosus incisor, K. sectatrix, Melichthys niger*, and *Pomacanthus paru*.

Sphacelaria furcigera Kützing. Probably common, but collected only twice, once on the surface of the Habitat, once epiphytic on *Hypoglossum tenuifolium* in 22 m, 30 m from the reef. Undoubtedly eaten by fishes that clip the filamentous turf from rocks and coral. Randall (1964) found it in the stomach contents of the queen conch, *Strombus gigas*.

Sphacelaria tribuloides Meneghini. Probably common, but collected only twice, once on dead coral on the reef and once on a shell on the algal plain in 21 m, 40 m from the reef. Randall (1967) recorded *Kyphosus sectatrix* and *Melichthys niger* as consumers, and found *Sphacelaria* sp. in the stomach contents of *Sparisoma rubripinne*.

Sphacelaria sp. Sterile plants of uncertain specific identity were found on *Udotea conglutinata* from a grass bed in ten m depth and on *Galaxura obtusata* from the algal plain in 20 m depth.

Streblonema sp. A minute epiphyte, apparently of this genus, was found on *Laurencia obtusa* in 20 m, 30 m from the reef face.

Turbinaria tricostata Barton. Common on rocks in two to five m depth at Virgin Gorda but not found in Lameshur Bay. Randall (1967) reported *Kyphosus incisor* and *K. sectatrix* as consumers of the closely related *T. turbinata*.

RHODOPHYTA. Red algae.

Acanthophora spicifera (Vahl) Børgesen. Common throughout the algal plain in 15 to 23 m, and found once on the reef at the base of a living coral head. Reported by Taylor (1960) to only three m. During feeding trials, *Acanthurus chirurgus* and *Pomacanthus arcuatus* ate this species, and Randall (1967) found it in the stomach contents of the following fishes: *Alutera scripta, Blennius cristatus, Pomacentrus fuscus, Lactophrys trigonus, Ophioblennius atlanticus, Scarus coelestinus, S. vetula, and Sparisoma radians.* It was also found by Randall (1964) in the stomach contents of the queen conch, *Strombus gigas.*

Acrochaetium spp. Species of *Acrochaetium* of uncertain identity were frequently found as epiphytes on larger algae and seagrasses as well as on the rock on the reef and the algal plain. Randall (1967) recorded *Sparisoma rubripinne* and *Melichthys niger* as consumers of *Acrochaetium* sp.

Acrochaetium sargassi Børgesen. Found once on *Gracilaria cylindrica* in 22 m, 30 m from the face of the reef. Originally described from the Virgin Islands.

Amphiroa fragilissima (Linnaeus) Lamouroux. Occasionally mixed with other algae on the plain in 15 to 20 m. Randall (1964) found this species in the stomach contents of the queen conch, *Strombus gigas,* and (1967) in the following fishes: *Abudefduf taurus, Acanthurus chirurgus, A. coeruleus, Alutera scripta, Balistes vetula, Blennius cristatus, Cantherhines macrocerus, C. pullus, Pomacentrus fuscus, P. variabilis, Melichthys niger, Ophioblennius atlanticus, Scarus coelestinus,* and *S. guacamaia.*

Asterocytis ramosa (Twaites) Gobi. Occasional as an epiphyte on larger algae (*Laurencia, Acanthophora, Lobophora, Sargassum*) on the algal plain in 15 to 23 m, and found once on *Udotea* in a seagrass bed (*Syringodium*) in ten m. Randall (1967) found this species in stomach contents of *Blennius marmoreus* and *Pomacentrus fuscus.*

Callithamnion byssoides Arnott *in* Hooker. Found on *Chrysymenia enteromorpha* and *Gracilaria cylindrica* on the algal plain in 20 m, and once on *Syringodium* in ten m. Randall found *Callithamnion* sp. in the stomach contents of *Ophioblennius atlanticus* (1967), and the queen conch, *Strombus gigas* (1964).

Centroceras clavulatum (C. Agardh) Montagne. Occasional throughout the algal plain as an epiphyte on *Gracilaria cylindrica, Halimeda incrassata, Udotea conglutinata,* and on shell in 15 to 20 m, and found once at the base of a coral head on the reef, once as an epiphyte on *Syringodium* in ten m. Taylor (1960) reported this species from shallow water to at least 20 m. Randall (1964) found *C. clavulatum* in the stomach contents of the queen conch, *Strombus gigas.* In 1967 he reported this species in the diet of the following fishes: *Abudefduf taurus, Acanthurus bahianus, A. chirurgus, A. coeruleus, Cantherhines macrocerus, Pomacentrus fuscus, P. planifrons, Diplodus caudimacula, Microspathodon chrysurus, Pomacanthus paru, Scarus croicensis,* and *S. guacamaia.* He further reported *Centroceras* sp., almost certainly *C. clavulatum,* from *Scarus coelestinus, S. croicensis, S. taeniopterus, S. vetula, Sparisoma aurofrenatum, S. rubripinne,* and *S. viride.*

Ceramium byssoideum Harvey. Found on *Sargassum filipendula* in 16 m on the algal plain N.W. of the Habitat. Randall (1967) recorded the following fishes that had eaten *C. byssoideum: Abudefduf taurus, Acanthurus bahianus, Cantherhines pullus, Blennius cristatus, Pomacentrus planifrons, Lactophrys trigonus, Melichthys niger, Microspathodon chrysurus, Ophioblennius atlanticus, Scarus vetula,* and *Sparisoma rubripinne.* The queen conch, *Strombus gigas,* also eats *C. byssoideum* (Randall, 1964).

**Ceramium codii* (Richards) Feldmann-Mazoyer. Found on *Gracilaria cylindrica* in 20 m, 30 m from the face of the reef. Previously reported as an epiphyte on *Codium*; a new record for the Virgin Islands.

**Ceramium comptum* Børgesen. Found on *Laurencia* in a bed of *Syringodium filiforme,* in 13 m. This is the first report for the Virgin Islands.

**Ceramium diaphanum* (Lightfoot) Roth. Found on *Halimeda incrassata* in 20 m, 30 m from the reef. This is the first report for the Virgin Islands.

Ceramium fastigiatum (Roth) Harvey. Found on *Acanthophora* in 20 m, 50 m from the reef. Reported by Taylor (1960) as a shallow water plant. Randall (1967) found this species in the stomach contents of *Chaetodipterus faber.*

**Ceramium leptozonum* Howe. Found on *Udotea conglutinata* from a grass bed in 13 m, and on *Hypoglossum tenuifolium* from the algal plain in 22 m. This is a new record for the Virgin Islands.

Ceramium spp. *Ceramium* of uncertain identity was found frequently epiphytic in grass beds and throughout the algal plain, as well as on dead coral on the reef. Undetermined species of *Ceramium* have been recorded by Randall (1967) in the stomach contents of the following: *Abudefduf saxatilis, A. taurus, Acanthurus bahianus, A. coeruleus, Alutera scripta, Blennius cristatus, B. marmoreus, Cantherhines pullus, Diplodus caudimacula, Pomacentrus fuscus, P. leucosticta, Kyphosus sectatrix, Lactophrys trigonus, Ophioblennius atlanticus, Sparisoma rubripinne,* and *S. viride.*

Champia parvula (C. Agardh) Harvey. Small plants were found growing on *Halimeda tuna* in 20 m, 30 m from the reef, and on dead coral from the algal plain in 18 m. Reported from a maximum of 37 m (Taylor, 1960). Randall (1967) recorded *Abudefduf saxatilis* and *A. taurus* as consumers of this species, and found it also (1964) in the stomach contents of the queen conch, *Strombus gigas.*

**Chondria collinsiana* Howe. Found on *Halimeda*

incrassata in 20 m, 50 m from the reef on the algal plain. A new record for the Virgin Islands.

Chondria dasyphylla (Woodward) C. Agardh. Attached to shells and *Halimeda incrassata* on the algal plain 30 to 180 m from the reef in 18 to 23 m.

Chondria polyrhiza Collins and Harvey. Attached to *Syringodium filiforme* in 13 m in a seagrass bed. Reported by Taylor (1960) to 18 m.

Chrysymenia enteromorpha Harvey. Obtained from various parts of the algal plain 40 to 160 m from the reef in 18 to 22 m, and once from a grass bed in 13 m, in all collections, attached to limestone. Recorded from 15 to 90 m by Taylor (1960).

Corallina cubensis (Montagne) Kützing. Found on rock and on *Lobophora* on the algal plain in 20 to 22 m. Recorded to 26 m by Taylor (1960). Randall (1967) recorded *Acanthurus chirurgus, Melichthys niger,* and *Scarus coelestinus* as consumers.

Cottoniella arcuata Børgesen. A common epiphyte on the algal plain found on *Acanthophora, Laurencia, Halimeda,* and *Udotea* as well as on experimental cages in 18 to 23 m. Originally described from the Virgin Islands.

Crouania attenuata (Bonnemaison) J. Agardh. Found occasionally as an epiphyte on *Sargassum filipendula, Udotea flabellum,* and *Avrainvillea* in 18 to 23 m on the algal plain and once in 13 m of *Syringodium* in a grass bed. Reported from shallow water to 20 m by Taylor (1960).

Dasya mollis Harvey. Collected once on *Udotea* from the algal plain 120 m from the reef in 20 m. Recorded by Taylor (1960) in 8 to 33 m.

Dasya pedicellata (C. Agardh) C. Agardh. Found occasionally in all parts of the algal plain in 18 to 31 m growing on rocks, shells, and as an epiphyte on *Halimeda*. Reported by Taylor (1960) to 110 m.

**Dasya rigidula* (Kützing) Ardissone. Found once attached to rock 30 m from the reef in 20 m. This is the first record from the Virgin Islands.

Digenia simplex (Wulfen) C. Agardh. Common throughout the algal plain in 16 to 23 m attached to rock, dead coral, *Halimeda, Udotea* and in grass beds on limestone. One small plant was found at the base of a living coral head on the reef in 10 m. Reported by Taylor (1960) to 20 m. Randall (1967) recorded *Kyphosus sectatrix* as a consumer.

Erythrocladia subintegra Rosenvinge. Found on *Acanthophora* and *Chrysymenia* in 20 m on the algal plain. Recorded to 16 m by Taylor (1960).

**Erythrocladia vagabunda* Howe and Hoyt. On *Acanthophora* in 20 m on the algal plain. A new report for the Virgin Islands.

Falkenbergia hillenbrandii (Bornet) Falkenberg. Found on *Gracilaria debilis* in 20 m, 40 m from the reef on the algal plain. Recorded to 14 m by Taylor (1960).

**Fosliella lejolisii* (Rosanoff) Howe. Common on *Syringodium* in 5 to 20 in grass beds and on the algal plain. A new record for the Virgin Islands.

Galaxura flagelliformis Kjellman. Found on the algal plain in 20 m, 50 m from the reef. Reported from shallow water to 18 m (Taylor, 1960). Species of *Galaxura* were found by Randall(1967) in the stomach contents of *Acanthurus bahianus, A. coeruleus,* and *Melichthys niger*. During feeding trials, this species was sampled by *Pomacanthus arcuatus*.

**Galaxura obtusata* (Ellis and Solander) Lamouroux. Found on the algal plain in 18 to 20 m, 50 to 80 m from the reef and mixed with *Syringodium* in a grass bed in 13 m. Recorded from shallow water to about 53 m (Taylor, 1960). Reported for the first time from the Virgin Islands.

Galaxura subverticellata Kjellman. Found on the algal plain in 18 m, 50 m from the reef. Reported from shallow water by Taylor (1960).

Gelidium corneum (Hudson) Lamouroux. Found on rocks and dead coral heads in protected places on the reef, and on isolated rocks and coral on the algal plain in 12 to 17 m. Usually reported from shallow water (Taylor, 1960). Randall (1967) recorded the following consumers of this species: *Abudefduf taurus, Acanthurus chirurgus, Kyphosus sectatrix, Scarus guacamaia, S. vetula,* and *Sparisoma rubripinne.* Undetermined species of *Gelidium* were found in *Scarus croicensis, S. guacamaia, S. taeniopterus, S. vetula, Sparisoma aurofrenatum, S. chrysopterus, S. rubripinne,* and *S. viride.*

**Gloiophlaea caribaea* Taylor. Found attached to *Halymenia floresia* and *Udotea wilsoni* in 20 m, 50 m from the reef. New report for the Virgin Islands.

Goniotrichum alsidii (Zanardini) Howe. A common epiphyte on larger algae (*Halimeda, Laurencia, Acanthophora*) on the algal plain in 15 to 20 m, and mixed with other filamentous species attached to the habitat and on rocks and dead coral on the reef. Previously reported from shallow water (Taylor, 1960).

Gracilaria cylindrica Børgesen. Occasional on the algal plain attached to shell and limestone in 20 to 31 m, 50 to 180 m from the reef. Originally described from the Virgin Islands. During feeding trials this species was eaten by *Pomacanthus arcuatus* and *Sparisoma aurofrenatum.*

Gracilaria debilis (Forsskål) Børgesen. Occasional on the algal plain in 20 to 21 m, 50 to 100 m from the reef. Usually obtained in shallow water (Taylor, 1960). Randall (1967) found this species in the stomach contents of *Cantherhines macrocerus.*

Griffithsia globulifera Harvey. Common on the algal plain on shell, limestone, and epiphytic on *Halimeda* in 18 to 23 m, 60 to 180 m from the reef. Reported from shallow water to 33 m (Taylor, 1960).

Halymenia floresia (Clemente) C. Agardh. Found once on the algal plain attached to limestone in 22 m. Reported to 40 m (Taylor, 1960). Randall recorded this species in the stomach contents of *Pomacanthus paru.*

Herposiphonia pecten-veneris (Harvey) Falkenberg. Occasionally found on other aglae (*Halimeda, Acanthophora, Lobophora*) from the algal plain in 15 to 20 m. Previously reported from shallow water (Taylor, 1969).

Herposiphonia secunda (C. Agardh) Ambronn. A common epiphyte on various larger algae (*Halimeda simulans, Caulerpa prolifera, C. ash-*

meadii, Laurencia, Lobophora) on the algal plain in 18 to 23 m, and on *Laurencia* from a grass bed in 13 m. Usually found in shallow water (Taylor, 1960). Randall (1967) recorded the following consumers of this species: *Abudefduf taurus, Entomacrodus nigricans, Melichthys niger,* and *Microspathodon chrysurus,* and found it in the stomach contents of the queen conch, *Strombus gigas* (Randall, 1964). Undetermined species of *Herposiphonia* were found in the stomach contents of *Acanthurus bahianus, A. chirurgus, Pomacentrus variabilis, Microspathodon chrysurus, Ophioblennius atlanticus, Scarus coelestinus, S. croicensis, S. guacamaia, S. vetula, Sparisoma aurofrenatum, S. chrysopterum, S. rubripinne,* and *S. viride.*

Hypnea musciformis (Wulfen) Lamouroux. Occasional small plants mixed with other algae occurred on the algal plain in 18 to 20 m, 50 to 100 m from the reef. Usually recorded from shallow water (Taylor, 1960). Randall (1967) found this species in the stomach contents of the following: *Abudefduf taurus, Acanthurus bahianus, Blennius cristatus, Kyphosus sectatrix, Melichthys niger,* and *Pomacanthus paru.*

Hypnea sp. A small plant of uncertain identity was obtained from 18 m on the algal plain mixed with larger algae.

**Hypoglossum involvens* (Harvey) J. Agardh. Found twice on the algal plain attached to *Halimeda* in 20 m, 120 m from the reef. Previously known from Florida from specimens collected adrift (Taylor, 1960), and reported by Humm (1964) attached to *Thalassia* leaves.

Hypoglossum tenuifolium (Harvey) J. Agardh. Occasional on the algal plain usually attached to *Halimeda incrassata* in 18 to 23 m, 75 to 18 m from the edge of the reef. Recorded from drift material and dredged from 58 to 90 m (Taylor, 1960). During feeding trials, this species was eaten by *Pomacanthus arcuatus.*

Jania adhaerens Lamouroux. Found on a piece of dead coral on the algal plain in 15 m. Reported by Taylor (1960) from shallow water to 18 m.

Jania capillacea Harvey. Epiphytic on various algae (*Digenia, Sargassum, Halimeda, Laurencia*), on limestone on the algal plain in 15 to 23 m and on hard surfaces in protected places on the reef. Previously recorded from shallow water to 15 m (Taylor, 1960). Randall (1964) found this species in the stomach contents of the queen conch, *Strombus gigas,* and recorded it from the following fishes (1967): *Abudefduf taurus, Acanthurus bahianus, A. chirurgus, Kyphosus sectatrix,* and *Melichthys niger.*

Jania pumila Lamouroux. Found once on *Avrainvillea* in 17 m, 80 m from the edge of the reef. Previously reported from shallow water (Taylor, 1960).

Laurencia chondrioides Børgesen. Found once mixed with *Acanthophora spicifera* in 20 m, 60 m from the edge of the reef. Originally described from the Virgin Islands, and apparently not found elsewhere.

Laurencia intricata Lamouroux. Common on the algal plain attached to other algae (*Halimeda, Sargassum, Digenia*), to limestone and shell in 15 to 23 m and in grass beds epiphytic on *Syringodium* in 10 to 13 m. Reported from shallow water to 36 m. During feeding trials, this species was eaten by *Acanthurus bahianus, A. coeruleus,* and *Sparisoma aurofrenatum.*

**Laurencia nana* Howe. Found attached to *Sargassum filipendula* in 20 m, 60 m from the edge of the reef. A new record for the Virgin Islands.

Laurencia obtusa (Hudson) Lamouroux. Occasional on the algal plain mixed with other algae in 18 to 20 m and in grass beds attached to *Syringodium* in 13 m. During feeding trials, it was eaten by *Sparisoma aurofrenatum.* Randall (1964, 1967) recorded the following consumers: *Alutera scripta, Balistes vetula, Canthigaster rostrata, Lactophrys trigonus,* and the queen conch, *Strombus gigas.*

Laurencia papillosa (Forsskål) Greville. Occasional on algal plain attached to limestone and epiphytic on *Sargassum* and *Digenia* in 18 to 22 m, and in grass beds on limestone in 10 to 13 m. Randall (1967) recorded this species from the stomach contents of the following: *Abudefduf saxatilis, Alutera scripta, Blennius cristatus, Kyphosus sectatrix, Scarus coelestinus,* and *Sparisoma viride.*

Liagora ceranoides Lamouroux. Occasional on the algal plain attached to limestone, once on *Udotea flabellum,* in 18 to 20 m. Reported from shallow water to 20 m (Taylor, 1960). Randall (1967) recorded the following consumers: *Acanthurus bahianus, Cantherhines macrocerus,* and *C. pullus.*

Lithophyllum sp. Probably more than one species, crustose on limestone and dead coral on the reef and algal plain.

**Lomentaria baileyana* (Harvey) Farlow. Attached to *Halimeda* in 21 m, 120 m from the edge of the reef on the algal plain. A new record for the Virgin Islands. Randall (1967) recorded *Sparisoma rubripinne* as a consumer of *L. uncinata* (=*L. baileyana*).

Lophocladia trichoclados (Mertens *in* C. Agardh) Schmitz. On *Sargassum filipendula* and *Acanthophora spicifera* in 20 m, 60 m from the edge of the reef on the algal plain. Recorded to 20 m (Taylor, 1960).

**Lophosiphonia saccorhiza* Collins and Harvey. On *Halimeda* and *Udotea* in 18 to 20 m on the algal plain. Previously recorded from Bermuda and Florida, but a new record for the Virgin Islands.

Melobesia membranacea (Esper) Lamouroux. On *Halimeda incrassata, H. simulans,* and *Syringodium filiforme* on the algal plain and in grass beds in 15 to 21 m. Usually found in shallow water (Taylor, 1960).

Peyssonnellia rubra (Greville) J. Agardh. On limestone on the algal plain in 20 m. Reported to 33 m (Taylor, 1960). Randall (1967) recorded *Melichthys niger* as a consumer of *Peyssonnellia* sp.

Peyssonnellia simulans Weber-van Bosse. On limestone on the algal plain in 18 to 20 m. Originally obtained in the Virgin Islands in 18 to 46 m, and apparently not found elsewhere.

Polysiphonia havanensis Montagne. Attached to *Halimeda incrassata* in 21 m on the algal plain. Previously reported from shallow water (Taylor,

1960). Undetermined species of *Polysiphonia* were recorded by Randall (1967) in the stomach contents of the following fishes: *Abudefduf saxatilis, A. taurus, Acanthurus bahianus, A. coeruleus, Blennius marmoreus, Cantherhines pullus, Entomacrodus nigricans, Pomacentrus fuscus, P. leucostictus, Kyphosus incisor, Melichthys niger, Microspathodon chrysurus, Ophioblennius atlanticus, Scarus coelestinus, S. croicensis, S. guacamaia, S. taeniopterus, S. vetula, Sparisoma aurofrenatum, S. rubripinne,* and *S. viride.*

Polysiphonia sphaerocarpa Børgesen. Found twice growing on *Sargassum* in 15 to 20 m on the algal plain.

Seirospora occidentalis Børgesen. Found on *Sargassum filipendula* and *Chrysymenia enteromorpha* in 15 to 21 m. Previously reported to 27 m (Taylor, 1960).

Spermothamnion investiens (Crouan) Vickers. Occasional on *Halimeda incrassata, Caulerpa prolifera,* and *Gracilaria cylindrica* in 16 to 21 m on the algal plain. Recorded from 27 m (Taylor, 1960).

Spyridia filamentosa (Wulfen) Harvey. Mixed with other algae and epiphytic on *Halimeda* on the algal plain in 15 to 21 m. Reported from shallow water to 20 m (Taylor,1960). Randall (1967) recorded the following consumers: *Abudefduf taurus, Acanthurus bahianus, Kyphosus sectatrix, Lactophrys trigonus, Melichthys niger, Pomacanthus paru,* and *Scarus guacamaia.*

Wrangelia argus Montagne. Occasional on the algal plain in 18 to 21 m, and once found in a grass bed attached to *Halimeda* in 13 m. Randall (1967) recorded *Pomacentrus fuscus* and *Microspathodon chrysurus* as consumers.

Wrangelia bicuspidata Børgesen. Occasional on the algal plain attached to *Halimeda* in 18 to 23 m, 50 to 180 m from the edge of the reef. Reported to 40 m (Taylor, 1960).

Wrightiella tumanowiczi (Gatty) Schmitz. Occasional throughout the algal plain in 18 to 31 m, 60 to 180 m from the edge of the reef attached to *Halimeda,* limestone, and shell, and found once in a *Syringodium* bed in 15 m, attached to *Halimeda.* Reported from 18 to 27 m (Taylor, 1960). During feeding trials, this species was eaten by *Pomacanthus arcuatus* and *Sparisoma aurofrenatum.*

SPERMATOPHYTA. Flowering plants.

Halophila baillonis Ascherson. This species was encountered occasionally on silty, calcareous substrates in 12 to 31 m, but was found in greatest abundance forming pure stands and mixed with *Syringodium* in 15 m bordering a bare area surrounding a reef approximately 300 m south of the Habitat. This site was exceptional not only because of the abundance of this seldom-seen species, but the plants were also flowering, apparently a very rare occurrence. *Halophila baillonis* was found by Randall (1967) in the stomach contents of the following fishes: *Acanthurus bahianus, A. coeruleus, Cantherhines pullus, Canthigaster rostrata, Lactophrys triqueter, Pomacanthus paru,* and *Sphaeroides spengleri.* It is also consumed by the queen conch, *Strombus gigas* (Randall, 1964).

Syringodium filiforme Kützing. (=*Cymodocea manatorum,* "manatee grass") (Fig. 12). This species is the most abundant vascular plant in Lameshur Bay in depths from ten to 23 m, and is common mixed with *Thalassia* in five to ten m. Randall (1963) reported it from a maximum of 72 feet in the Virgin Islands. The general distribution of this and other seagrasses around St. John were mapped by Kumpf and Randall (1961). Epiphytes are often numerous and algal associates include several species of siphonous green algae and *Dictyota.* On the plain, *Canthigaster rostrata, Sparisoma rubripinne,* and *Pomacanthus arcuatus* were seen eating this species, and during feeding trials, the following fishes selected it from among various plants offered: *Acanthurus bahianus, A. chirurgus, A. coeruleus, Pomacanthus arcuatus, Sparisoma aurofrenatum,* and *Scarus coeruleus.* Randall (1967) reported the following fishes as consumers: *Acanthurus bahianus, A. chirurgus, A. coeruleus, Alutera schoepfi, Archosargus rhomboidalis, Chaetodipterus faber, Pomacentrus fuscus, Hemiramphus brasiliensis, Kyphosus sectatrix, Lactophrys bicaudalis, L. trigonus, Melichthys niger, Pomacanthus paru, Scarus guacamaia,* and *Sparisoma aurofrenatum.* The queen conch, *Strombus gigas,* also feeds on *Syringodium* (Randall, 1964).

Thalassia testudinum König. "Turtle grass." This species was found from the intertidal area to about 13 m. Randall (1963) reported its occurrence in the Virgin Islands to a maximum depth of 43 feet. It is frequently mixed with *Syringodium* and an assortment of algae, especially siphonous green algae and species of *Dictyota* and it serves as substrate for numerous algal epiphytes. It is regarded as a significant source of primary food production throughout its range (Humm, 1956, 1964; Moore, 1963). Randall (1967) recorded *Thalassia* in the stomach contents of the following fishes: *Acanthurus bahianus, A. chirurgus, Alutera schoepfi, A. scripta, Archosargus rhomboidalis, Cantherhines pullus, C. rostrata, Pomacentrus planifrons, Hemiramphus brasiliensis, Lactophrys bicaudalis, L. quadricornis, L. trigonus, L. triqueter, Monacanthus ciliatus, Mugil curema, Scarus coelestinus, S. guacamaia, S. taeniopterus, S. vetula, Sparisoma chrysopterus, S. radians, S. rubripinne, S. viride,* and *Sphaeroides spengleri.* The urchin, *Diadema antillarum,* and the queen conch, *Strombus gigas,* also eat *Thalassia* (Randall, 1964; Randall et al., 1964).

CYANOPHYTA. Blue-green algae.

No attempt was made to classify the diverse kinds of blue-green algae that were obtained during mission 6-50, principally because current taxonomy is unsettled and identification is a specialist's task. I did submit a sample of a particularly abundant blue-green to Dr. Francis R. Drouet, The Academy of Natural Sciences, Philadelphia, for naming, however, because it formed a conspicuous ground cover among *Udotea* and *Dictyota* plants in many areas close to the reef face, a region actively grazed by numerous species of herbivorous fishes. I was particularly curious because ciguatera, fish poisoning, often is attributed to blue-greens, and incidence is common in the Virgin Islands

(Randall, 1958a). Dr. Drouet kindly determined the species as *Oscillatoria submembranacea* but said that to his knowledge, it had never been implicated as a cause of ciguatera. It may be worthy of further study, however, for among the blue-greens observed, this was the most abundant and heavily grazed. It occurs in dark, sometimes reddish tufts lightly attached to calcareous sand substrate, and later forms dense mats and rolls that are nosed and worked over daily by flocks of grazing fishes.