FIELD GUIDE TO COMMON MARINE ALGAE OF SAN SALVADOR ISLAND, BAHAMAS

by
Joseph P. Richardson and Ginger Mitchell

Illustrated by
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BAHAMIAN FIELD STATION

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INTRODUCTION

This guide is designed primarily for the snorkel diver and beachcomber exploring and studying the variety of beautiful near shore habitats around San Salvador Island, Bahamas. It includes most of the commonly encountered and frequently noticed marine algal taxa, but it is not to be considered a complete listing of all species and varieties present around the island. We hope, however, that it is inclusive enough to be helpful to visiting scientists, marine science students, and folks who like to know names of things they encounter in nature. Since this guide does not attempt to include every species likely to be found on the island, and because distinguishing many species requires microscopic techniques, we did not attempt to construct a dichotomous key for identifications. Besides, we know from our own experience that the most commonly used method of employing an identification guide is to flip pages til you find a picture that looks like your specimen.

The guide is organized into three taxonomic groups: Chlorophyta (green algae), Phaeophyta (brown algae), and Rhodophyta (red algae). We warn you however, that some red algae are more tan or straw colored; some brown algae are more green than brown and many turn green when pressed or dried. Many of these tropical seaweeds have lime or calcium carbonate deposits within them, and thus often lose some of their color and become whiter upon drying. Some green algae even turn brown when dried. We have tried to mention these characteristics in species descriptions because sometimes they help in identification.

Taxonomy, naming and classifying, among algae is constantly being reworked. Family names end in "...acea," and order names end in "...ales." Recent classification changes have been noted (for those who care). We have included family and order names used by Taylor (1960) and more recently by Littler et al. (1989). In some cases, genus and species names have changed recently, and we included both the previous

and currently proposed names. Page references are also given to the descriptions and illustrations from two of the most common and complete Caribbean marine algal books:

Taylor, W.R. 1960. *Marine Algae of the Eastern Tropical and Subtropical Coasts of the Americas.* Univ. Michigan Press, Ann Arbor, Michigan. 870 pp.

Littler, D.S., M.M. Littler, K.E. Bucher, & J.N. Norris. 1989. *Marine Plants of the Caribbean: A Field Guide from Florida to Brazil.* Smithsonian Institution Press. Washington, DC. 272pp.

Taylor's book is a classic, and although technical, it is extremely useful for detailed descriptions, identification keys, illustrations, and species distributions. Littler et al.'s field guide is extremely user-friendly with excellent color photographs and descriptions. It is becoming a classic. For the serious marine phycologist, we recommend both.

We hope you will find this guide useful. More than that, however, we hope it will encourage you to look a little closer at the seaweeds you are likely to encounter around the fore-reefs, back reefs, seagrass beds, sandy and rocky shorelines of San Salvador Island. Algae grow into every conceivable and imaginable growth form. It seems that our Creator really let his imagination go wild when coming up with seaweed varieties. If you can imagine any design or pattern of growth, chances are that there is some sort of seaweed that has it.

We certainly want to acknowledge the help and assistance of a number of people. We are indebted to the Bahamian Field Station and its staff on San Salvador Island, Bahamas, for logistical support of this research. This guide is directly the result of encouragement and assistance from Dr. Donald and Kathy Gerace. We, like many other marine scientists and students, owe a great deal of thanks to the Geraces for not

only operating the Bahamian Field Station, but for managing it in a manner that truly encourages learning, research and scholarship. We also wish to thank many enthusiastic teachers from Georgia who during recent years have been a part of extremely enjoyable graduate courses studying marine ecology at San Salvador Island. We also thank our home institutions, Savannah State College, and Oatland Island Environmental Education Center, Savannah, Georgia, for their encouragement and assistance. And we thank our families: Jackie, Brandi and John, for their patience and understanding. Finally, we both personally thank a unique, creative, encouraging educator and administrator, Dr. Harris Lentini, for her foresight, drive and action.

Joseph P. Richardson and Ginger Mitchell, 1993

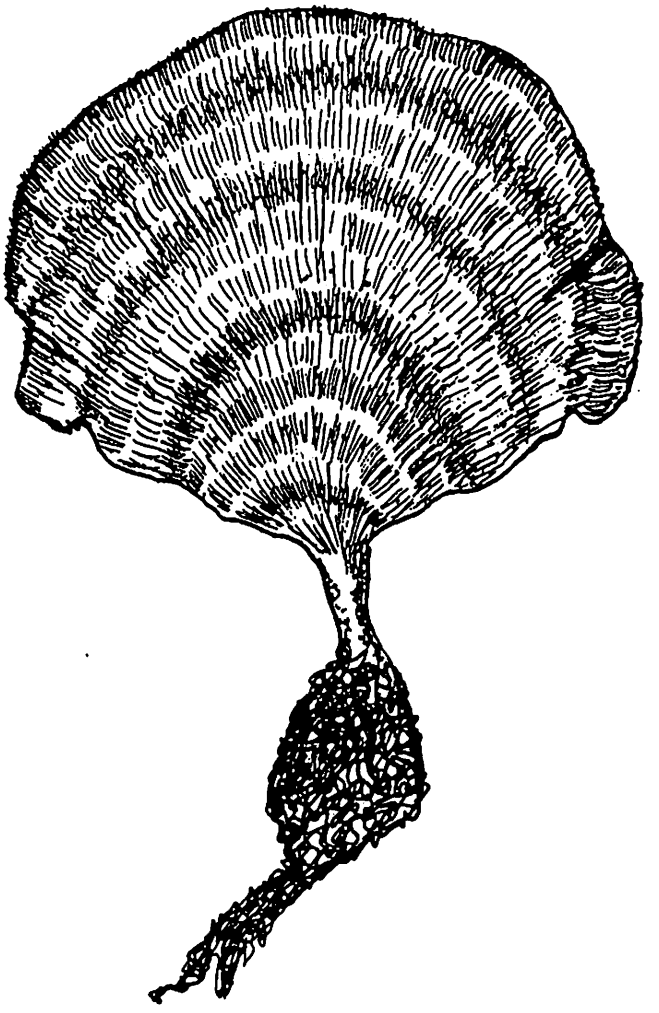
CHLOROPHYTA

Udotea flabellum (Ellis & Solander) Lamouroux

"Mermaid's fan" is an appropriate common name for this stiff but flexible, calcified grayish-green alga. It is fan shaped, generally flattened but often rippled or crenulate, and arises from an extensive mass of basal rhizoids and sediment. Individuals are reported to reach 20 cm tall with most of that height due to the fan rather than the short stalk. The blades might be proliferous or branched, and/or the blades might be deeply cleft or split. This is a common member of the soft bottom, sea grass community with *Halimeda* and *Penicillus*.

Taylor - p. 168, pl. 20,25	Siphonales, Codiaceae
Littler et al. - p. 74	Caulerpales, Halimedaceae

For a recent detailed treatment and identification key of *Udotea*, see: Littler, D.S. and M.M. Littler, 1990, Systematics of *Udotea* species (Bryopsidales, Chlorophyta) in the tropical western Atlantic, Phycologia 29:206-252.

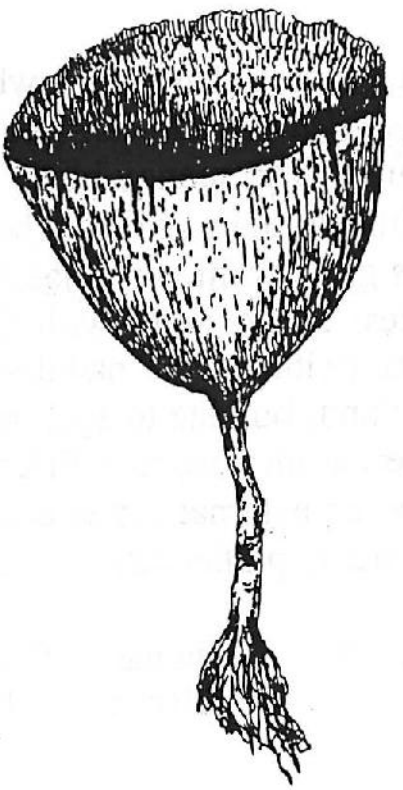


Udotea flabellum

Udotea cyathiformis Decaisne

These green, calcified, funnel-shaped plants really look like wine goblets. From a base of tangled rhizoids which penetrate into soft sediment, erect individual stalks (1-2 cm long) grow upward and support a funnel-shaped blade. This cup-like blade is formed by thin, branched, calcified filaments which are closely packed to produce a stiff paper-like texture. Sometimes, the cup-shaped top will be split, but the funnel shape is still evident. This distinct species can be found on soft bottom areas among *Penicillus, Halimeda* and sea grasses, such as in front of the Bahamian Field Station.

Taylor - p. 166, pl. 22 — Siphonales, Codiaceae
Littler et al. - p. 74 — Caulerpales, Halimedaceae



Udotea cyathiformis

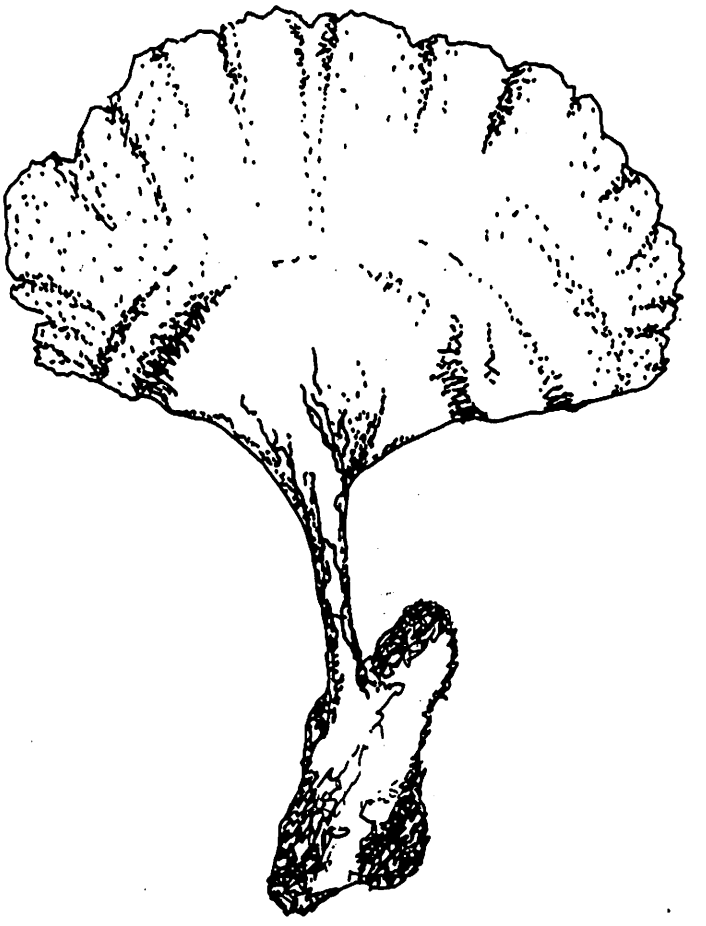
CHLOROPHYTA

Avrainvillea spp.

Avrainvillea species have a general shape somewhat similar to *Udotea flabellum*, however in *Avrainvillea* the flat, fan-like blade is soft, spongy, thicker, and felt-like in texture. The spongy blade is also generally dark green, thicker near the attachment to the stalk and becomes thinner toward the outer edges. Individuals grow from very massive masses of rhizoids and sediment. Three species: *A. rawsonii* with finger-like blades), *A. nigricans* and *A. longicaulis* (with fan or paddle-like blades) probably grow around San Salvador Island, but due to age, condition, environmental conditions, and slight internal microscopic differences, species appear to blend into each other based on external appearance alone. *Avrainvillea* are common in soft bottom areas, particularly in sea grass beds.

Taylor - pp. 158-162, pl. 19,25	Siphonales, Codiaceae
Littler et al. - pp. 68-72	Caulerpales, Halimedaceae

For a recent detailed treatment and identification key of *Avrainvillea*, see: Littler, D.S. and M.M. Littler, 1992, Systematics of *Avrainvillea* (Bryopsidales, Chlorophyta) in the tropical western Atlantic, Phycologia 31:375-418.



bougainvillea

Halimeda incrassata (Ellis) Lamouroux

Like other species of *Halimeda*, this plant is characterized by flattened, calcified, rigid segments giving the plant a stiff, bushy, jointed appearance. In this species, the segments are fairly heavily calcified, and although the segment shape varies a great deal, the segments tend toward being tri-lobed. In addition to the general tri-lobed outline, segments are often longitudinally ribbed such that the surface of a segment is less flat and more rippled (usually 3 diverging ridges). As with most other *Halimeda* species, the upright portions emerge from an extensive mass of rhizoids and sediment which anchors the plant in sandy, soft-bottom areas. Typically the lowest (basal) 2-3 segments are fused together and somewhat cylindrical in shape, and from them 2-3 major forks give rise to continued forking branches. Most specimens around San Salvador Island reach 10-15 cm in height. Seagrass and other sandy soft bottom areas, such as in front of the Bahamian Field Station, are the typical habitats.

Taylor - p. 181, pl. 23 — Siphonales, Codiaceae
Littler et al. - p. 92 — Caulerpales, Halimedaceae