

## MARINE BENTHIC ALGAE COLLECTED FROM KURE ATOLL, MARO REEF AND NECKER BANK, NORTHWESTERN HAWAIIAN ISLANDS

by George H. Balazs

An important component of the life history study of the Hawaiian green turtle (*Chelonia mydas*) currently underway involves the determination of food sources utilized by this marine herbivore at various locations throughout the 2600 kilometer Archipelago. This is being accomplished through the noninjurious sampling of stomach and mouth contents of turtles captured alive from shallow-water feeding pastures, and by the dissection of salvaged dead specimens. Results of this research to date indicate that sub-adult turtles less than 70 cm in carapace length residing at select sites in the main Hawaiian Islands feed regularly on the red algae *Pterocladia capillacea* and *Amansia glomerata*, and green algae of the genera *Codium* and *Ulva*. In the Northwestern Hawaiian Islands, samplings have suggested that green algae of the genera *Codium* and *Caulerpa* are heavily utilized.

Concomitant with the need to know the specific kinds of algae used by Hawaiian *Chelonia* is the necessity of determining the marine flora present at locations identified or suspected of hosting aggregations of foraging turtles. For the Northwestern Hawaiian Islands, Laysan is the only location where thorough algal collections have thus far been made (Tsuda, 1965). While some collections have been carried out at Nihoa, Necker, French Frigate Shoals, Lisianski, Pearl and Hermes Reef, Midway and Kure (Howe 1934, Buggeln 1965, Tsuda 1966), Tsuda (1966) has emphasized the need for additional work at these locations. No information has been presented on the types of algae found at Maro Reef, Gardner Pinnacles or the numerous named and unnamed shallow banks located throughout the northwestern portion of the Archipelago.

During the course of research activities, I have had the opportunity to make algal collections at Kure (28°25'N, 178°20'W), Maro Reef (25°25'N, 170°35'W) and the bank surrounding Necker Island (23°35'N, 164°42'W). In January of 1977, with the assistance of Dr. Mark Yunker, I collected algae within the lagoon at Kure in depths ranging from a few centimeters to 14 meters. Collections were made at Maro Reef and Necker Bank in August of 1977 in depths ranging from 18 - 36 meters with the assistance of Captain Gary L.

Naftel of the R/V *Easy Rider*. The identification of specimens as they appear in the following lists was kindly carried out by Dr. Maxwell S. Doty and Dr. Isabella A. Abbott of the University of Hawaii Botany Department, and Dr. Dennis J. Russell of the Miller Science Learning Center, Seattle Pacific University. Voucher specimens are present in Dr. Doty's herbarium and in my own collection at the Hawaii Institute of Marine Biology. Those species already reported by earlier investigators are preceded with an asterisk. All others represent new records.

### KURE ATOLL

#### Chlorophyta (green algae)

\**Microdictyon setchellianum* Howe  
*Codium reediae* Silva

#### Phaeophyta (brown algae)

\**Turbinaria ornata* (Turner) J. Agardh  
\**Dictyota acutiloba* J. Agardh  
*Dictyota* sp.  
*Sargassum hawaiiensis* Doty et Newhouse

#### Rhodophyta (red algae)

*Dasya villosa* Harvey  
*Ceramium hamatispinum* Dawson  
*Amphiroa* sp.  
*Spyridia filamentosa* (Wulf.) Harvey  
\**Laurencia* sp.  
*Gelidiopsis intricata* (C. Ag.) Vickers  
*Asparagopsis taxiformis* (Del.) Coll. et Herv.

### MARO REEF

#### Chlorophyta

*Microdictyon setchellianum* Howe  
*Halimeda discoidea* Descaisne  
*Cladophora socialis* var. *hawaiiiana* Brand

#### Phaeophyta

*Padina crassa* Yamada  
*Hydroclathrus clathratus* (Bory) Howe  
*Dictyota acutiloba* J. Agardh  
*Sargassum* sp.  
*Dictyopteris australis* (Sonder) Askenasy

#### Rhodophyta

*Laurencia majuscula* (Harvey) Lucas

NECKER BANK

Chlorophyta

- Codium edule* Silva
- Codium mamillosum* Harvey
- Halimeda discoidea* Decaisne
- \**Microdictyon setchellianum* Howe

Phaeophyta

- Sargassum polyphyllum* J. Agardh
- Padina crassa* Yamada

Rhodophyta

- Polysiphonia scopulorum* Harvey
- Polysiphonia* sp.
- \**Laurencia* sp.

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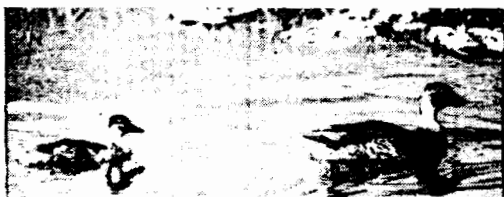
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