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PRELIMINARY OBSERVATIONS ON THE ALGAE, CORALS, AND FISHES INHABITING THE SUNKEN FERRY "FUJIKAWA MARU" IN TRUK LAGOON

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PRELIMINARY OBSERVATIONS ON THE ALGAE, CORALS, AND FISHES INHABITING THE SUNKEN FERRY "FUJIKAWA MARU" IN TRUK LAGOON [1]

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Introduction

Of all the sunken ships in the Truk Lagoon, the armed Japanese aircraft ferry "Fujikawa Maru" is by far the center of attraction to SCUBA divers. The ferry, sunk on Feb. 17, 1944 during World War II, is located about 1 km off the southwestern tip of Eten Island and can easily be located since the masts rise above the surface of the water and are clearly visible. The ferry is 439 ft. long and 58 ft. wide with a tonnage of 6,938 (Ronald D. Strong, personal communication). It lies upright on the barren silty bottom in 90 ft. (28.3 m) of water; the main deck is 50 ft. (15.7 m) below the surface of the water.

The "Fujikawa Maru," as well as the other sunken ships in the lagoon, are in essence artificial reefs whose organismal components represent a climax community that has become dominant after a 30 year period. The only (1972) who included the algal species collected from the ferry (Station 13) on June 14, 1970.

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The checklist of the algae, corals, and fishes reported below represent observations made on two dives on March 30, 1975. Although the number of dives is few, it should be pointed out that the sole purpose of the dives was to record the species present. Each of the three authors was responsible for a certain group of organisms - Tsuda (algae), Amesbury (fishes), and Moras (corals). The soft corals which represent a dominant component of the ferry are not included since none of us is familiar with their taxonomy.

Checklist

The algae (21 spp.) are listed under their respective divisions; the corals (26 spp.) and the fishes (34 spp.) are listed under their respective families. The five species of algae collected on June 14, 1970 and not seen in 1975 are also included and are preceded by asterisks.

Algae

Cyanophyta
Microcoleus lyngbyaceus (Kützing) Crouan

Chlorophyta
Caulerpa ambigua Okamura
Caulerpa brachypus Harvey
Caulerpa filicoides Yamada
**Caulerpa lentillifera* J. Ag.
Caulerpa racemosa (Forskal) J. Ag.
**Dictyosphaeria cavernosa* (Forskal) Boerg.
Halimeda copiosa Goreau & Graham
Halimedo discoidea Decaisne
**Halimeda gigas* Taylor
Halimeda incrassata (Ellis) Lamx.
Halimeda macrophysa Askenasy
Halimeda opuntia (L.) Lamx.
Tydemania expeditionis Weber van Bosse
Udotea geppii Yamada

Phaeophyta
**Dictyopteris repens* (Okamura) Boerg.
Dictyota bartayresii Lamx.
Lobophora variegata (Lamx.) Womersley
Padina jonesii Tsuda
Turbinaria ornata (Turn.) J. Ag.

Rhodophyta
**Champia compressa* Harv.

Corals

Antipathia
Cirrhipathes anguina Dana

Scleractinia

Acroporidae
- *Acropora delicatula* (Brooks)
- *Astreopora* sp.
- *Montipora erythrae* Marenzeller
- *Montipora verrucosa* (Lamarck)

Agariciidae
- *Pachyseris speciosa* (Dana)

Caryophylliidae
- *Plerogyra* sp.

Dendrophylliidae
- *Tubastraea aurea* (Quoy & Gaimard)

Faviidae
- *Favia favus* (Forskål)
- *Favia speciosa* Dana
- *Favites abdita* (Ellis & Solander)
- *Favites favosa* (Ellis & Solander)
- *Leptastrea immersa* Klunzinger
- *Leptastrea purpurea* (Dana)
- *Platygyra lamellina* (Ehrenberg)

Fungiidae
- *Fungia fungites* (Linnaeus)

Mussidae
- *Lobophyllia corymbosa* (Forskål)
- *Lobophyllia costata* (Dana)
- *Symphyllia nobilis* (Dana)
- *Symphyllia* sp.

Pectiniidae
- *Pectinia laciniata* (Milne-Edwards & Haime)

Pocilloporidae
- *Pocillopora damicornis* (Linnaeus)
- *Pocillopora eydouxi* Milne-Edwards & Haime
- *Seriatopora angulata* Klunzinger

Poritidae
- *Porites lutea* Milne-Edwards & Haime
- *Porites* sp.

Fishes

Acanthuridae
- *Acanthurus nigrofuscus* Forskål
- *Acanthurus nigroris* Cuvier & Valenciennes
- *Ctenochaetus striatus* (Quoy & Gaimard)
- *Naso unicronis* (Forskål)
- *Zebrasoma scopas* (Cuvier)
- *Zebrasoma veliferum* (Bloch)

Balistidae
- *Balistapus undulatus* (Mungo Park)

Blenniidae
- *Meiacanthus atrodorsalis* (Gunther)

Chaetodontidae
- *Centropyge bicolor* (Bloch)
- *Chaetodon auriga* Forskål
- *Chaetodon kleinii* Bloch
- *Heniochus acuminatus* (Linnaeus)

Cirrhitidae
- *Cirrhitus pinnulatus* (Bloch & Schneider)
- *Paracirrhites forsteri* (Bloch & Schneider)

Gobiidae
- *Amblygobius albimaculatus* (Ruppell)

Labridae
- *Cheilinus fasciatus* (Bloch)
- *Epibulus insidiator* (Pallas)
- *Gomphosus varius* Lacepede
- *Halichoeres hoeveni* (Bleeker)
- *Thalassoma lutescens* (Lay & Bennett)

Lutjanidae
- *Caesio caerulaureus* Lacepede
- *Pterocaesio* sp.
- *Scolopsis cancellatus* (Cuvier & Valenciennes)

Mullidae
- *Parupeneus pleurostigma* (Bennett)

Pomacentridae
- *Abudefduf glaucus* (Cuvier & Valenciennes)
- *Chromis caeruleus* (Cuvier & Valenciennes)
- *Chromis dimidiatus* (Klunzinger)
- *Dascyllus aruanus* (Linnaeus)
- *Dascyllus reticulatus* (Richardson)

Dascyllus trimaculatus (Ruppell)
Pomacentrus pavo (Bloch)

Scaridae
Scarus sordidus Forskål

Siganidae
Siganus argenteus (Quoy & Gaimard)

Zanclidae
Zanclus cornutus (Linnaeus)

Discussion

A vertical zonation pattern is evident on the masts which rise above the surface. The shallow water *Pocillopora eydouxi* (coral) and *Turbinaria ornata* (brown alga) were only found on the masts at the surface. Clouds of *Pomacentrus pavo* and *Chromis caeruleus* were also observed around the masts.

The substratum on the deck is composed of fine and coarse fragments of *Halimeda* which have accumulated over the past 30 years. Although corals cannot settle here, this substratum provides an ideal habitat for the massive holdfasts of the green algae *Udotea geppii* and *Halimeda incrassata*.

The bulkhead provides an ideal habitat for mats of the flabellate form of *Tydemania expeditionis*, *Caulerpa filicoides*, and the straggly *Halimeda copiosa*. *Lobophora variegata* encrusts the bulkhead of the upper deck. *Lobophyllia costata* and *Symphyllia* sp. were the dominant corals on the various superstructures of the ferry with some colonies reaching 40 cm in diameter. The pomacentrids were the most numerous of the resident fish species. Besides those pomacentrids observed around the masts, schools of *Dascyllus* species were seen around the coral growths of the ferry. Acanthurids were quite common though never in large schools.

Except for the epiphytic *Champia compressa* on *Halimeda*, members of the red algae were conspicuously absent. Likewise, populations of chaetodontids were sparse. Few piscivorous fishes were observed on the ferry. Considerably more were seen on another ship, a sunken destroyer off Dublon, which was resting on a coral substrate which supported a large fish fauna of its own. Schools of roving fishes (*Caesio caerulaureus* and *Pterocaesio* sp., and the rabbitfish *Siganus argenteus*) were also very abundant, but this is probably quite variable over time.

The more than sixty sunken ships (Stewart, 1972) in the Truk lagoon present a unique opportunity for the study of reef community structure. The time available for colonization of the artificial

reefs is known for each of the ships. The variation in size of the ships and their position with respect to water depth, substrate type, distance from one another, and distance from natural reef areas provide a series of natural experiments on the effect of a variety of environmental factors on reef community development. It is hoped that this checklist will serve as a start for further studies in this unique natural laboratory which is protected by local law.

Literature Cited

Stewart, W. H. 1972. Historical and geographic tourist map of the ghost fleet in the Truk Lagoon, Eastern Caroline Islands, Pacific Ocean, with notes on the ocean and World War II. Trust Territory of the Pacific Islands, Publications and Printing Division.

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