TROPICAL REEF ECOLOGY

Group Contract, Winter 1978

This program was designed to provide students who are familiar with temperate marine ecology with exposure to the complexity and diversity of life on tropical coral reefs. The students worked at various locations, as follows:

Evergreen Campus	- Jan. 5 to Jan. 23; preparatory work
Oahu, Hawaii	- Jan. 23 to Jan. 31; introduction to reefs, research institutes, and personnel.
Maui, Hawaii	- Feb. 1 to March 8; field research, Olowalu reef
Evergreen Campus	- March 9 to March 17; Completion of research reports.

Each student had three substantial responsibilities; 1) identification of organisms of a specified taxonomic group at the reef site, for the benefit of others in the program; 2) participation in research at the study site, on a problem related to reef ecology; and 3) development of a comprehensive and rigorous field journal. Most of the students' time at the Maui site was occupied by these activities. Other program activities provided general information about reef systems. These responsibilities and activities are described below (identified by site; E = Evergreen O = Oahu, M = Maui).

Seminars. Discussions of text material and field observations were held regularly. Topics were: "The ecology of Conus snails in Hawaii" (E; based on article by A. J. Kohn); "Reef formation processes" (M); "Unique features of island biology" (M); "How does the reef system compare with Puget Sound?" (M); and "Should man attempt to control the Crown-of-Thorns starfish?" (M).

Lectures. Most lectures were given by visitors and were followed by extensive discussion with the lecturer. Topics were: Introduction to reef systems (E; Taylor and Milne); History of scientific views of reef formation (E; Wallace); Underwater census techniques (E; Walton); Aspects of coral reef ecology (E; Kohn); Venomous reef organisms (E; Taylor); Hawaiian reef invertebrates (O; Fielding); A controversial theory of reef formation (O; Kinzie); Hawaiian intertidal molluscs (O; Kay); Impact of pollutants on local reefs (O; Laws); Feeding and schooling strategies of butterfly fish (O; Boucher); Knowledge of traditional island fishermen (O; Johannes); Indo-West Pacific fishes (O; Randall); Humpback whales (M; Hudnall) and sampling and census techniques (M; Milne).

Other Academic Events. All class members visited relevant exhibits at the Bishop Museum and the Waikiki Aquarium in Honolulu, and the facilities of the Hawaiian Institute of Marine Biology at Kaneohe Bay. A field exercise in fish identification was conducted at Hanauma Bay, Oahu, in cooperation with students from the University of Hawaii's Marine Options Program. Students were introduced to abstract search and library techniques at Evergreen, and spent several days finding useful literature at the University of Washington. All participants attended, and helped to plan and present, six briefing sessions at Maui on the identification and ecology of local crustaceans, fishes, corals, algae, echinoderms and molluscs. Two or three evening "wrap-up" sessions were held each week, at Maui, to summarize and share interesting observations and ideas.

Research Projects. All students conducted detailed studies of aspects of the ecology of Olowalu reef. Most projects were designed by the students, and involved censusing and identification of reef organisms. Almost all required snorkelling and/or SCUBA work. Typical titles were: Biology and distribution of corals; Behavior of cleaner wrasses and their hosts; Distribution and movements of sea urchins; Observations of schooling in fish, Aerial photo-interpretation of reef structures; Ecology of brittle stars; and, Effects of exclusion of herbivorous fish.

Texts. All participants read and discussed articles from A Natural History of the Hawaiian Islands (Kay, ed.) and The Biology and Geology of Coral Reefs (Endean and Jones, eds.). Participants also read diverse and specialized literature related to their taxonomic identification and research responsibilities. Most students used The Shore Fishes of Hawaii (Jordan and Evermann); Handbook of Hawaiian Fishes (Gosline and Brock), Reef and Shore Fauna of Hawaii (Edmonson); 1946, and another by the same title by Devaney and Eldridge (eds.) Volume I, on corals and sponges); The Many Splendored Fishes of Hawaii (Goodson); and, Hawaiian Reef Animals (Hobson and Chave) regularly.

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Suggested Equivalencies. Tropical Marine Ecology 10; Indo-West Pacific Biogeography 4; Tropical Marine Zoology 2.