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Randall J E. Food habits of reef fishes of the West Indies.
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[Hawaii Inst. Marine Biology, Univ. Hawaii, and Bernice P. Bishop Museum, Honolulu, HI]

The stomach contents of 5,526 specimens of 212 species of reef and shore fishes from the West Indies representing 60 families were analyzed. The food organisms were identified to the lowest possible level of classification. The principal plant and animal groups eaten by the fishes are listed by the percentage volume of the stomach contents for each species of fish. [The *SCI*® indicates that this paper, the most cited for this journal, has been cited in over 185 publications since 1967.]

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This study was made possible by a grant from the National Science Foundation and by the opportunity I had to spend three years at St. John, US Virgin Islands, for a marine biological survey of the Virgin Islands National Park, followed by four years of residence in Puerto Rico.

Food-habit studies should be carried on for at least a full year to determine any possible seasonal variation in feeding, hence the value of having adequate time for this research. Most of the specimens from which stomach-content material was analyzed were taken by spearing. This is superior to use of ichthyocides for predaceous species because larger fishes often feed on animals killed by the poison before they, in turn, succumb. It is also superior to the taking of specimens by hook and line because one is apt to catch the hungrier fishes first (hence with empty stomachs) or, more important, the fishes may regurgitate their stomach contents as they are being pulled to the surface.

The identification of stomach-content material from fishes can be difficult, particularly if in an advanced state of digestion. Also, some fishes such as wrasses crush hard-shelled prey into fragments. Though the fragments might be recognizable as mollusk, crustacean, or echinoderm, the identification to lower levels of classification is not always possible. Or it may be possible only with the aid of systematists who specialize in the different invertebrate groups. The following marine invertebrate biologists assisted me in the identification of food organisms of West Indian fishes: J. Laurens Barnard, Frederick M. Bayer, Thomas E. Bowman, Charles E. and Bertha M. Cutress, Peter W. Glynn, J. Gerardo Gonzalez, Ivan M. Goodbody, Willard D. Hartman, Raymond B. Manning, William A. Newman, Marian H. Pettibone, Anthony J. Provenzano, Jr., Joseph Rosewater, A.C. Stephen, Lowell P. Thomas, Gilbert L. Voss, and Germaine L. Warmke. Marine plants from fish stomachs were identified by Luis R. Almodóvar and Harold J. Humm.

I embarked on this research because very little was known at the time about the food and feeding habits of West Indian reef fishes apart from a few studies of individual species. Many of these fishes are valuable for aquariums and oceanariums. Aquarists needed to know the normal diet of these species. Marine ecologists analyzing the coral-reef community needed to know the food habits of the reef fishes, for it is through their feeding that these fishes have the greatest impact on this most complex community of the sea.

This paper per se does not represent any major breakthrough in our knowledge. It has value because so many data are brought together under one cover. It tends to be cited as a first level of information on food habits of individual species by authors who have gone on to undertake major studies of these species.[1] I have recently published a guidebook to Hawaiian reef fishes that includes original food-habit data.[2,3]

1. **Vivien M L.** Contribution à la connaissance de l'éthologie alimentaire de l'ichthyofaune du platier interne des récifs coralliens de Tuléar (Madagascar). *Tethys Suppl.* 5:221-308, 1973.
2. **Randall J E.** *Underwater guide to Hawaiian reef fishes.* Newtown Square, PA: Harrowood Books, 1985. 72 p.
3. ·····. *Hawaiian reef fishes.* Newtown Square, PA: Harrowood Books, 1985. 160 p.