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THE INSHORE FISH FAUNA OF THE FLORIDA KEYS

by C. Richard Robins
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to

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INTRODUCTION

Since the present report covers only the period from June 15, 1957, when the grant was initiated to the end of the calendar year, it is of necessity brief.

The original proposal submitted in November, 1956 requested a grant-in-aid of $13,572.36 for the first year and $11,939.36 for the second, or a total of $25,511.72, The grant received totals $10,000 for the two-year period. While the problem remains the same it is obvious that changes in approach had to be made to conform with the budget.

The project was fortunate in obtaining the services of Walter R. Courtenay, a graduate student. Courtenay, an excellent photographer, was employed full time during the summer and part time during the school year. Cameras and lenses have been supplied by project personnel and a special camera stand with photofloods and back lighting was constructed. Suitable specimens are photographed shortly after collecting and common species have been brought in alive or frozen and then pinned out in a tray in order to obtain high quality pictures. To date more then 125 species have been photography, and the negatives filed for later use. Thus photography has had to replace the proposed drawings in order to keep costs down.

The fish collection is being stored in isopropanol in place of ethanol which has resulted in a considerable saving. All field work is carried out in personal vehicles and sorting and identification of collections is generally done at night. The salary of the principal investigator was not charged until October and currently has 20 per cent of his time charged to the project.

FIELD WORK

To date some fifty collections have been made using an emulsified rotenone product. Each station involves at least four hours effort, not including travel. The material collected includes many species, undescribed or previously known from a few specimens and a great number of range extensions. With the finding, of many tropical species in the vicinity of Miami, Florida, the study area as originally depicted has been extended north to Key Biscayne, near Miami. Similarly, an unusual opportunity to collect on the shrimp grounds of the Dry Tortugas without any cost to the project has allowed a southwestward extension. Cays away from, the Key West highway necessitate expensive boat rentals and have therefore been eliminated from the first year's work. A regular survey of the fishing bridges in the Keys has been similarly curtailed. Night lighting, however, not mentioned in the original proposal, has proved a most successful collection method in certain habitats and has yielded many new distributional records.

RESEARCH

The need for adequate descriptions, illustrations and keys for identification was strongly emphasized in the original proposal. Discovery of many additional species has increased this need. Fortunately, the growth of the collection has reached a point where a start can be made on this problem. One of the major identification problems involves the juveniles of the grunts (Haemulidae), an important group of sport and food fishes. Walter R. Courtenay has chosen this as a thesis problem.

Raymond B. Manning, another student of the principal investigator, in studying the anatomy of a goby *Coryphopterus glaucofrenum* and one of its allies. Lowell P. Thomas is scheduled to begin work in February on the behavior of the Jawfishes (Opisthomathidae).

The principal investigator and Raymond B. Manning have nearly completed a study of the Florida fishes of the family Microdesmidae. A visiting investigator, Dr. Vladimir Walters of the American Museum of Natural History, and C. Richard Robins have nearly, completed a paper tentatively entitled "A new Bahamian toadfish (Batrachoididae) with a discussion of glacial relicts in the West Indies." Another paper nearing, completion involves the gobies of the subgenus *Tigrigobius* of *Garmannia*.

A great number of problems have already unfolded and will be studied as time permits.

It is indeed fortunate that the study of the fishes of the Florida Keys coincide with similar work in the Bahamas by Dr. James E. Bölke of the Academy of Natural Sciences of Philadelphia. A close liaison between Bölke and Robins has been maintained. In September, 1957, Robins visited, without expense to the project, the Philadelphia Academy and a similar trip is planned in early January, 1958. Bölke was at The Marine Laboratory in November. It was anticipated that our two studies would demonstrate a Bahamian fauna similar to that of the Florida Keys, but with fewer species. However, more and more evidence of divergence has resulted and the species composition of the fish fauna in the two areas would now appear to be quite distinctive. This problem has been introduced by Walters and Robins in their project mentioned earlier.

Since each collection reveals not one but many species unrecorded from the region, it must be said that the survey is still in initial phases. As the opportunity arises, or in groups that are better known, studies will be started on habits, habitat end reproduction, etc, but the great number of systematic problems are already in evidence in other groups and their solution is of course essential to other research.

SUMMARY

The survey of the fish fauna of the Florida Keys (from Miami to the Dry Tortugas) was initiated in June. Evidence so far points to a divergence of the Bahamian and Keys fish faunas.

The number of new species and records in each collection suggests that the survey is in its initial phase. A great many systematic problems must be solved before life history information can be validly assessed.

A brief discussion of projects currently underway is given.