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THE TAXONOMY OF THE HARPACTICOID COPEPODS OF THE NORTHERN GULF OF MEXICO; A TAXON OF POTENTIAL IMPORTANCE TO THE NAVY

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LONG-TERM GOALS

It is recognized that there is a crisis in taxonomy. The workers who could identify species and describe new taxa are literally dying, and their jobs are being eliminated or shifted to other disciplines. If the infrastructure of ecology, in particular, and biology generally is to be maintained, a way has to be found to train new workers in taxonomy while simultaneously making them employable. I believe that this goal can be achieved by training graduate students in oceanography to do the taxonomy of the groups they study, thus passing taxonomic skills to a new generation. One student is being trained in this way in my laboratory.

OBJECTIVES

The Navy has had a long-term presence in harbors and the estuaries in which they are situated. The environmental consequences of this presence is of concern. To determine if impact has occurred (or if recovery of an impacted area is complete) will require comparison of faunas from impacted and control sites, which will depend on an infrastructure of scientific names. Because not all organisms can be studied, target groups are used for such comparisons. Because of their ubiquity and abundance, harpacticoid copepods (Crustacea) are particularly appropriate for this purpose. Therefore, the taxonomic education of the student mentioned above is focused on the harpacticoid copepod fauna of estuaries.

APPROACH

The student and I are studying harpacticoids from subtidal, estuarine sediments from the northern Gulf of Mexico. We extract the animals and identify them as far as possible. For abundant species that are not described in the literature, we assemble the relevant taxonomic references to confirm that the species has not been previously been described. We then dissect, mount, and illustrate specimens to provide the information needed to formally describe the species.

Because this grant is a training grant, the student and I have been reading treatises on modern taxonomic methods and have been consulting with other harpacticoid taxonomists about techniques.

WORK COMPLETED

Work in FY97 has concentrated on the taxonomy of the genus Zausodes in north Florida waters. To properly place the three new species we have discovered, we needed to redescribed two existing species because of ambiguities in the original descriptions. The laboratory work has been completed and most of the manuscript has been written. Taxonomic illustrations traditionally have been inked by hand. This technique is slow and mistakes are hard to correct. Rather than teach the student this traditional approach, I explored the possibility of using computer-aided drawing. This experiment has been a great success. It shortens the time needed to prepare a figure, allows mistakes to be easily fixed, and greatly facilitates the preparation of plates.

RESULTS

The student continues to make good progress in acquiring taxonomic skills.

IMPACT

See OBJECTIVES.

TRANSITIONS

Our discovery that computer-aided drawing can be used for taxonomic illustrations may change the way such illustrations are made. I have discussed our approach with several professional taxonomists, and they are interested in learning our methods.

RELATED PROJECTS

None.