

Support of biological studies

B. J. LANDRUM

Smithsonian Oceanographic Sorting Center
Smithsonian Institution
Washington, D.C. 20560

The Smithsonian Oceanographic Sorting Center (SOSC) is continuing in its role as a centralized source of polar biological specimens and data on the collections. The Sorting Center became involved with the U.S. Antarctic Research Program (USARP) in 1963. Its primary services to USARP have been: (1) the processing of bulk collections of marine invertebrates and algae so that collections are accessible for study by many specialists in various groups; and (2) the compilation, storage, and dissemination of data on specimen-related activities in Antarctica by U.S. investigators. About 190 scientists have been sent specimens from antarctic collections processed at SOSC. Some studies are current while others now are completed. The resultant analyses and publications are adding significant new information to our former knowledge of antarctic and subantarctic biota.

In more recent years, our efforts toward dissemination of specimens and data have centered on special groups of organisms. These groups require more definitive sorting than do the standard bulk collections in order for reasonable numbers of specialists to study them in a timely fashion. We began more specialized sorting with polychaet worms from the benthic fauna and copepods from the zooplankton collections. This year we have added the crabs and shrimps. These groups, which both comprise a substantial part of the unstudied collections, are being classified into families and sometimes genera. We plan to add the Tanaidacea as a special project this year. Classification of these groups has added considerable impetus to their study by specialists. Of the benthic fauna, over the last year we sorted 104,000 specimens—including 7,000 polychaets—into about 100 taxa. About 77,000 specimens in 17 major taxa and specimens representing 16 polychaet families were shipped to 22 specialists. Zooplankton projects included sorting of about 11,000 copepods to genera and very recently over 800 shrimps to families. About 100,000 copepods were sent to six specialists; four other major taxa numbering over 50,000 specimens were sent to four specialists. Additionally the euphausiids and decapod crustaceans are being taken from unsorted portions of zooplankton and midwater samples from the USNS *Eltanin* collections. These extant samples are being prepared for future analyses. Now over 9,000 speci-

mens of marine algae have been mounted, usually identified to genera, and shipped to 19 specialists for study. The published results from the specialists who are sent materials should prove of significant value to our knowledge of the polar seas and to assessment of potential resources to man.

As part of the plan to expedite study of the USARP biological collections, we cooperate with the Division of Polar Programs by contracting with specialists to analyze and report on some unstudied taxa that might not otherwise be treated for many years. A number of these results have appeared in the past year in the *Antarctic Research Series* and other scientific journals or are in press. Some of the studies that should be completed this year are: the copepods *Scaphocalanus*, *Heterorhabdiadae*, and *Euchaetidae*; two studies on marine algae; various amphipods, scyphozoans, echinoids, and several families of polychaet worms. Early in 1981 major works on the biogeography of chaetognaths and on actinians are expected. Various other reports are scheduled for completion later in the year.

All of the antarctic samples which have been processed at SOSC are recorded in a computer data base. These data contain the basic sampling information on location, depths, date of collection, etc., the taxonomic classification of specimens established during sorting, the counts or estimated numbers of each taxa, and various other identifying data. This file, besides being a comprehensive inventory of about 6,000 biological (mostly marine) samples taken in the antarctic region, has become a valuable tool in designing research projects. We provide investigators with listings of available specimens; with specific selections of samples obtained in prescribed geographic areas or within depth boundaries; and with geographic plots of the distributions of taxa of interest. The plots are prepared on a Cal-Comp plotter directly from data on magnetic tape, avoiding errors in transcription and reducing costs over manual plotting. Our staff encourages investigators to discuss data needs and services to obtain maximum usage of the data system's capabilities.

The SOSC has professional staff members responsible for processing marine algae, benthic invertebrates, fishes, zooplankton, and the center's records and data. Collections are available from both polar regions as well as from numerous tropical and temperate regions. Investigators in the polar programs, or other scientists, are invited to discuss the services we provide, the availability of desired specimens, and data processing services.

The processing of polar collections and maintenance of a centralized data base is supported by National Science Foundation contract DPP 74-13988. The cooperative systematic studies are supported under National Science Foundation grant DPP 76-23979.