ENVIRONMENTAL STUDIES PROGRAM: Ongoing Studies

Region: National

Planning Area(s): All

Title: Continued Archiving of Outer Continental Shelf Invertebrates by the Smithsonian Institution National Museum of Natural History

BOEM Cost: $1,600,000 **Period of Performance:** FY 2014-2019

Conducting Organization: Smithsonian Institution

BOEM Contact: Gregory Boland

BOEM Information Need(s) to be Addressed: Continued archiving and long-term reliable curating of the vast collections of invertebrate specimens acquired through BOEM-sponsored projects are essential elements of biological quality assurance. This effort provides BOEM with the scientific credibility important to stakeholders' acceptance of decision-making in the Offshore Energy and Minerals Program and addresses the intent of Congress through U.S. Code Section 59 calling for all collections by parties for the Government of the United States, when no longer needed for investigations in progress, shall be deposited in the National Museum.

Description:

Background: The Bureau of Ocean Energy Management (BOEM) conducts biological projects in all national Regions including the Gulf of Mexico, Pacific, Atlantic and Alaska, in support of decision-making related to the development of offshore energy and mineral resources. These projects frequently result in large collections of invertebrate biological specimens. Taxonomy is a critical component to the ecological interpretation of biological data. Archiving of the collections provides for taxonomic verification and for the future use of the collections. The Smithsonian Institution's National Museum of Natural History (NMNH) is the Nation's most reliable and respected repository for biological collections. Early in the history of the BOEM Environmental Studies Program (ESP), it was recognized that extensive biological samples collected during BOEM environmental studies were invaluable to the relevant studies, but also to science in general. Since 1979, invertebrate specimens collected through the ESP have been carefully maintained through the NMNH's archiving standards and made available to taxonomists around the world. This long-term archiving project has been described by senior NMNH staff as "a part of the fabric of invertebrate zoology." These ESP collections represent one of the most extensive collections of marine organisms from U.S. continental shelves and slopes in the facility, in terms of geographic coverage and number of groups represented. Over the last 30 years, more than 220,000 specimen lots have been curated by the Smithsonian from a total of more than 350,000 lots received. Specimens from BOEM studies represent more than 20% of the total Smithsonian database, and in some species groups, BOEM samples represent the majority of the

museum's collections. To date, over 400 species new to science have been identified in the BOEM collections. This BOEM-funded sample archiving program was also prominently highlighted during Congressional testimony as an invaluable baseline information resource related to the Deepwater Horizon spill event in the Gulf of Mexico. Recent and upcoming studies in the Pacific, Atlantic and Alaska will be greatly increasing the input of specimens for archival in the near future.

Objectives:

- Provide quality assurance for biological data generated through the BOEM Environmental Studies Program and the credibility of offshore energy and mineral resources decision-making.
- Preservation of Federally-funded biological samples (including tissue genetics) and providing for their availability for scientific study into the future.

Methods: To accomplish the objectives of this project, it is required that contractors communicate with the NMNH to establish the specifications for the handling, storage, and shipping of invertebrate specimens collected through BOEM environmental studies within applicable contracts. These specifications were developed in coordination with the Smithsonian Institution to provide contractors with information required to ensure that the collected specimens are delivered to the NMNH in the best possible condition. The Smithsonian accepts the specimens, checks the condition of the samples and taxonomic identification, and makes them part of the national collections. Archiving of samples includes acquisition, administration, cataloging and curation, sorting and confirmation of identification. The collections are then maintained according to the strict guidelines of the NMNH and are made available to other researchers. Continuing recent initiatives, legacy samples from the Gulf of Mexico dating back to the mid to late 1800s will continue to be cataloged as appropriate. Also, utilization of the new NMNH tissue archival center will continue to be utilized where appropriate for all new biological collections. Continuing focus on backlog of previously received samples will be a priority as well as continued efforts to incorporate collections from past studies, some located at academic institutions and others such as the early Outer Continental Shelf Environmental Assessment Program (OCSEAP) collections at the California Academy of Sciences.

The dedicated NMNH independent website for collections from BOEM-funded projects will be continued. This resource includes extensive information about individual project locations, dates, station data, and links to BOEM final reports. It also includes direct links to the online catalog database where individual records and images of specimens can be retrieved. Quarterly and annual reports from the NMNH to BOEM provide updates on the numbers of specimens accessioned into the NMNH collections, those remaining to be accessioned, and those on loan to taxonomists around the world.

Current Status:

Final Report Due: Semi-Annual and Annual Reports are submitted during each of the five contract years, but not published. Specimen archiving and curation is posted to the web site and database on an ongoing basis.

Affiliated Web Sites: http://invertebrates.si.edu/boem/boem.htm

Revised Date: January 13, 2015

ESPIS: Environmental Studies Program Information System
All *completed* ESP studies can be found here:
http://www.data.boem.gov/homepg/data_center/other/espis/espisfront.asp