

S-301 FIELD REQUIREMENTS

Ross Island

Cape Royds - Adelie Penguin Rookery, near ice edge (2 hours),
Shackleton's Hut

Cape Evans - Scott's Hut

Cape Crozier - Emperor Penguins

Mount Erebus Crater, Fly Over (by C-130)

Erebus Glacial Tongue, ice cover and fly over

McMurdo Ice Tongue, Anchor Ice, Sponges (with Dr. Kellogg)

McMurdo Sound Ice: Emperor Penguins, near ice edge; killer
whales

New Harbor ice foundations; where dives are
working (S-001 project, 1/2 day)

Koettlitz Glacier Crevasses - Fly by pattern study

Royal Society Range - Fly over, unusual lighting

Monastery Nunatak - Fly over (4 hours or recon?)

Cardiovascular Dynamics of Antarctic Homeotherms

S-011

Case Western Reserve University

Dr. David E. Murrish, Principal Investigator
Department of Biology
Case Western Reserve University
Cleveland, Ohio 44106
Phone: (216) 368-3573

Field Team: Everett Douglas (leader)
F. Russell Lockner

Dates in Field: Mid Dec. 75
End Feb. 76

Location: Palmer Station

Scientific Objectives

Nesting antarctic birds are often exposed to long periods of direct solar radiation that may place great demands on their thermoregulatory mechanisms. Adult pygoscelid penguins, blue-eyed shags, and giant petrels occasionally pant, and their young pant vigorously when subjected to heat loads. Panting during heat stress has been shown to result in marked hypocapnia and alkalosis in bird blood. The acid-base balance of adults and young of these species during normothermic and hyperthermic conditions will be investigated. Oxygen capacity, oxygen dissociation curves, and Bohr effect will also be determined.

Logistic Requirements

- Transportation of two persons to South America.
- Transportation via R/V Hero to Palmer Station and to Joubin Island.
- Use of biological laboratory facilities at Palmer Station.

Support Units Involved

Holmes and Narver, Inc.
R/V Hero

Charadriiform Bird Adaptations to the Antarctic

S-012

University of Minnesota

Dr. David F. Parmelee, Principal Investigator
Department of Ecology and Behavioral Biology
James Ford Bell Museum of Natural History
University of Minnesota
Minneapolis, Minnesota 55455
Phone: (612) 373-1292

Field Team: David Parmelee (leader)
William Fraser (winterover)

Dates in Field: Mid Oct. 75
Mid Dec. 75
Winterover

Location: Palmer Station

Scientific Objectives

Despite delays in starting our study at Palmer Station in 1974, many breeding adult and young skuas and terns, and also many young gulls, were banded and color-coded. Emphasis this season is on banding adult gulls and the remainder of the skua and tern populations. Observations of the ecology and breeding behavior of these marked birds will continue. Their movements in the Palmer area are being monitored year-round with the help of graduate students. Depending on the availability of R/V Hero, periodic observations will be made in the Joubin Islands. Visited briefly during January 1974, the Joubin Islands have a number of interesting bird populations within 25 kilometers of Palmer. In addition to heretofore unreported tern colonies, several penguin colonies -- including three penguin species that breed side-by-side -- are present in the Joubin Islands.

Logistic Requirements

- a. Transportation for two persons to South America.
- b. Transportation via R/V Hero to Palmer Station and Joubin Islands.
- c. Retrograde of frozen specimens to CONUS via U.S. Coast Guard icebreaker.

Support Units Involved

Holmes and Narver, Inc.
R/V Hero
U.S. Coast Guard icebreaker

Metabolic Studies of Antarctic Invertebrate Fauna
at Palmer Station and onboard R/V Hero

S-008

DePaul University

Dr. Mary Alice McWhinnie, Principal Investigator
Department of Biological Sciences
DePaul University
1036 W. Belden Avenue
Chicago, Illinois 60614
Phone: (312) 321-8000 ext. 572/577

Field Team: M. A. McWhinnie (leader)
Charlene Denys
Dennis Schenborn

Dates in Field: Jan. 18, 1975 -
Mar. 8, 1975

Location: R/V Hero Cruise 76-21
Palmer Station

Scientific Objectives

To be determined.

invertebrate physiology

Logistic Requirements

- a. R/V Hero
- b. Palmer Station Laboratory Equipment

Support Units Involved

R/V Hero
Palmer Station

S-301 FIELD REQUIREMENTS (Continued)

Dry Valley Areas

Beacon Valley - Rock glaciers near Farnell Valley, 4-6 hours

Lake Bonney - 2 hours

Nussbaum Riegal (weathered rocks) - 2-3 hours

Canada Glacier - 2-3 hours

Upper Wright Valley - Labyrinth, Icefalls - 2-3 Hours

Bull Pass - 1/2 day

Asgard Range - Fly over

Lower Wright Glacier - 4-6 hours - with assistant

Don Juan Pond (1 hour)

Abundance, Diversity, and Trophic Dynamics
of Antarctic Benthic Fishes and Invertebrates

S-024

University of Maine at Orono

Dr. Hugh DeWitt, Principal Investigator
Department of Oceanography
Ira C. Darling Center
University of Maine
Walpole, Maine 04573
Phone: (207) 563-3146

75-20045

Field Team: Dr. DeWitt
Mr. McCleave
Mr. Dearborn

Dates in Field: Jan. 18, 1976
Mar. 17, 1976

Location: R/V Hero
(Cruise 76-1)

Ed Innes *Rita Crawford*
Sharon Love

Scientific Objectives

The abundance, the biomass, and the structure of antarctic benthic fish populations will be determined in selected areas during R/V Hero Cruise 76-1 (mid-January to mid-March 1976). Feeding habits, digestion rates, and food consumption of selected fishes and echinoderms also will be studied to extend knowledge of the anatomy, the taxonomy, and the zoogeography of antarctic fishes, echinoderms, and certain coelenterates.

Logistic Requirements

- a. Transportation to and from Ushuaia for three persons.
- b. Use of R/V Hero and her facilities.

Support Units Involved

Holmes and Narver, Inc.
R/V Hero

Artist Program

S-301

National Science Foundation

Mr. Eliot Porter, Principal Investigator
Route 4, Box 33
Santa Fe, New Mexico 87501
Phone: (505) 983-6010

Field Team: Eliot Porter

Dates in Field: Early Dec. 75
Early Mar. 76

Location: McMurdo Station
Dry Valleys
South Pole Station
Glacier
Palmer Station
R/V Hero

Scientific Objectives

Mr. Porter will complete a project begun in the 1974-1975 season. The project consists of photographing and documenting flora, fauna, and other features of Antarctica in preparation for a traveling exhibition (sponsored by the Foundation) and a book.

Logistic Requirements

- a. Mr. Porter will require an assistant for about 14 days from the Naval Support Force, Antarctica, photo group at various times during his work at McMurdo, Pole, and the dry valleys, and other areas around McMurdo.
- b. Camping gear may be required in the dry valleys. It is anticipated Mr. Porter will visit various ongoing field projects for overnight stays.
- c. About 10 hours of dedicated helicopter support is required.
- d. Passage from McMurdo to Palmer aboard Glacier.
- e. From Palmer, Mr. Porter will accompany Hero during Cruise 76-2 in the waters adjacent to the Antarctic Peninsula.
- f. Northward passage to South America is required at the end of the Palmer Station summer season.

Support Units Involved

Naval Support Force, Antarctica
Antarctic Development Squadron Six
Holmes and Narver, Inc.
U.S. Coast Guard (Glacier)

Project Officer

TBA

0067