CRUISE PLAN

PROJECT: HABITAT UTILIZATION BY GOLDEN KING CRAB

VESSELS: M/V MEDEIA – Submersible support vessel
          F/V NORTHERN QUEEN – Commercial crabbing vessel (Pending)

AREA: Frederick Sound, near Brothers Islands, SE Alaska (attached chart)

ITINERARY: 11 May 2000 - MEDEIA departs ADF&G dock, Juneau, 8:00am
           11 May 2000 - Arrive at Brother Islands, rendezvous with crab vessel
           12 May 2000 - Deploy tagged crabs with submersible
           13 May 2000 - Submersible operations in Frederick Sound
           14 May 2000 - Submersible operations in Frederick Sound
           15 May 2000 - Submersible operations in Frederick Sound
           16 May 2000 - Submersible operations in Frederick Sound
           17 May 2000 - Submersible operations in Frederick Sound
           18 May 2000 - Submersible operations in Frederick Sound
           19 May 2000 - Submersible operations in Frederick Sound
           20 May 2000 - MEDEIA transits to Sitka, offloads crab personnel

Participating Organizations:
  School of Fisheries and Ocean Sciences, University of Alaska Fairbanks
  Auke Bay Lab, National Marine Fisheries Service, NOAA
  Biology Department, University of Alaska Southeast

OVERVIEW

Cruise Description and Objectives:
This is a field study by scientists at the University of Alaska Fairbanks (UAF) and the National Marine Fisheries Service (NMFS). The objectives of this cruise are to: (1) Describe and quantify habitat utilized by adult golden king crab. (2) Describe bathymetric and spatial distribution and dispersion patterns of golden king crab. (3) Record responses of golden king crabs to depth translocations. (4) Measure movements of golden king crab over short time periods. (5) Collect selected species for related studies.

Personnel:

Chief Scientist:
The Chief Scientist of the cruise beginning May 11 and ending May 20, will be Dr. Thomas Shirley, School of Fisheries and Ocean Sciences (SFOS) University of Alaska
Fairbanks. (907-465-6449; Tom.Shirley@uaf.edu). The Chief Scientist has the authority to revise or alter the technical portion of the cruise plan as work progresses provided that, after consultation with the Captain, it is ascertained that the proposed changes will not:
(1) jeopardize the safety of personnel or the ship, (2) exceed the overall time allotted for the project, (3) result in undue additional expenses, (4) alter the general intent of the cruise plan.

Participating Scientists:

Dr. Charles E. O’Clair - ABL, NMFS, 907-789-6031
Dr. Thomas C. Shirley – SFOS, UAF, 907-465-6449
Robert P. Stone - ABL, NMFS (May 11-14), 907-465-6031
Dr. Sherry Tamone - UAS (May 17-20), 907-465-6599
Jonnathan Warrenchuk - SFOS, UAF, 907-465-6441
SFOS graduate students TBA (to a max of 9 scientific personnel at any time)

Schedule of Operations:
Scheduling of individual activities will depend upon weather conditions and progress of scientific work; therefore, firm advance scheduling of events will not be possible, and a continual dialogue between scientific and ships personnel will be important. Operations will be conducted 10 - 12 hours a day, with vessel(s) anchoring in the study area for rest periods. After each work period the Chief Scientist and Co-P.I., and the vessel Captain and submersible Pilots will meet to plan the activities for the coming day. It is anticipated that 4-6 submersible dives will be completed per day, but the duration and number of dives will be dependent upon spatial and depth distributions of the tagged crabs.

SUMMARY OF ACTIVITIES
Beginning the afternoon of May 11, the R/V MEDEIA will rendezvous with the commercial crabber in the Brothers Islands area (Figure 1) and deploy one or two scientists to that vessel to record locations and depths of crab pot collections. The crabs will then be offloaded to the MEDEIA, where crabs will be measured and sonic tags will be affixed to 26 selected crabs. On May 12, the manned submersible DELTA fitted with a release cage will return sonically tagged crabs to the seafloor, either near the site of their original capture, 100 m shallower or 100 m deeper. The crab release operation will require 3 to 4 dives.

Following the release of crabs, the DELTA will initiate transects in the adjacent area proceeding from deep to shallow depths. On May 13 - 19, the sonically tagged crabs will be located and the habitats and aggregations (if present) they are associated with will be recorded on video. The transects to be run each day will be determined by the the vessel Captain, the submarine Pilot, and the Chief Scientist and Co-PI, and will depend on weather, vessel operating restrictions, and scientific objectives. Some personnel will be
able to participate in the cruise for only a few days. It is anticipated that personnel will transit to and from the support vessel by float plane from Petersburg. Two exchanges of personnel are currently anticipated: on May 14 and May 17. Weather may require that the float plane land in Pybus Bay, adjacent to the planned study area.

**Additional Sampling:**
In addition to locating and tracking sonically tagged crabs, transects will be conducted from deep to shallow depths which span the depth distribution of the species (or to the safe operating limit of the DELTA) to record bathymetric distribution and habitat preferences of golden king crab.

**Tagging Studies**
Beginning 12 May, additional crabs collected by the commercial crabbing vessel will be measured, have pertinent attributes recorded, and will be tagged with numbered spagetti tags. If sufficient numbers of crabs are tagged, in situ density estimates of crabs may be possible by analyzing marked vs. unmarked crabs on video recordings.

**Oceanographic Data.**
Temperature, salinity, dissolved oxygen, depth and height off the seafloor will be collected continuously on each dive from instruments located on the DELTA.

**Debriefing of Scientific Observers**
Immediately following each dive, the scientific observer will record pertinent observations made during the dive. Additionally, the observer will review the video transect recorded during his dive and record onto data sheets the numbers of golden king crabs and their behavior, association, etc., quantify and identify other macrofauna to the lowest possible taxon, record the substrate type and slope of the seafloor with specified categories, all within 5 minute intervals of the transect.