Cruise Announcement

Cruise MF02-04 NOAA Ship Miller Freeman

Echo Integration-Trawl Survey of Walleye Pollock in the Gulf of Alaska

Scientists from the Alaska Fisheries Science Center (AFSC) will conduct an echo integration-trawl (EIT) survey of walleye pollock (*Theragra chalcogramma*) while aboard the NOAA ship *Miller Freeman* from March 13-April 1, 2002, for a total of 20 sea days. The cruise will begin in Dutch Harbor, AK, and end in Seattle, WA. The areas of operations are the Shelikof Strait area and Chiniak and Barnabas Troughs on the east side of Kodiak Island (Fig. 1).

VESSEL ITINERARY

Mar 13	Embark scientists in Dutch Harbor, AK; depart at 1000;
Mar 13	Conduct sphere calibration in Captains Bay;
Mar 13-15	Transit to survey start location in the Shelikof Strait area near Chirikof Island;
Mar 15-26	EIT surveys of the Shelikof Strait area and Chiniak and Barnabas Troughs;
Mar 26	Conduct sphere calibration in Ugak Bay;
Mar 27	Transit to Kodiak, AK; disembark scientists;
Apr 1	Arrive Seattle, WA; end of cruise.

OBJECTIVES

The principal objectives of the cruise are to:

1. collect echo integration data and midwater and bottom trawl data necessary to determine the distribution, biomass, and biological composition of walleye pollock in the Shelikof Strait area and Chiniak and Barnabas Troughs;

2. collect pollock target strength data using hull-mounted and lowered transducers for use in scaling echo integration data to

estimates of absolute abundance;

3. calibrate the 38-kHz and 120-kHz scientific acoustic systems using standard sphere techniques;

4. collect acoustic data from an acoustic buoy to determine the distribution and behavioral response of walleye pollock to ship and trawl noise;

5. collect physical oceanographic data including temperature and salinity profiles at selected sites, and conduct continuous monitoring of sea surface parameters (e.g., temperature, salinity) and water current profiles.

Secondary objectives of the cruise are to spawn mature walleye pollock and culture the fertilized eggs for laboratory experiments on eggs and larvae, collect samples of pollock ovary tissue for studying the interannual variation in fecundity, and collect and preserve whole stomachs from walleye pollock, Pacific cod (*Gadus macrocephalus*), and arrowtooth flounder (*Atheresthes stomias*).

METHODS

Survey operations will be conducted 24 hours per day. Acoustic data will be collected continuously along a series of parallel transects with an EK500 echo integration system incorporating two centerboard-mounted transducers operating at 38 kHz and 120 kHz, respectively. Parallel transect spacing for the survey will be 7.5 nm in the Shelikof Strait area and 3.0 nm in Chiniak and Barnabas Troughs. Ship speed is expected to average 11 knots in favorable weather conditions. Midwater and bottom trawl hauls will be made to identify selected echosign and provide biological data and samples of pollock. Biological data collected from each haul will usually include species and sex compositions, length frequencies, whole fish and ovary weights, gonad maturities, and otoliths from selected species. Conductivity-temperature-depth (CTD) data may be collected with an AFSC Seabird SeaCat system at trawl locations and at other selected locations. Temperature and depth data will be collected by attaching a Seabird SBE39 micro-bathythermograph to the headrope of selected trawls. A buoy filled with echosounding equipment will be deployed and recovered during the survey on an opportunistic basis. A standard sphere calibration of the centerboard-mounted scientific acoustic systems (38 kHz and 120 kHz) will be conducted at the beginning of the cruise in Captains Bay, AK, and at the end of the cruise in Ugak Bay, AK. This work requires anchoring the vessel at the stern and bow, then suspending a calibration sphere assembly directly beneath the vessel:s centerboard. A CTD cast will be conducted at these sites.

SCIENTIFIC PERSONNEL

Name	Sex/ Nationality	Position	Organization
Michael Guttormsen	M/USA	Chief Scientist	AFSC
Chris Wilson	M/USA	Fish. Biologist	AFSC
Sarah Stienessen	F/USA	Fish. Biologist	AFSC
Steve de Blois	M/USA	Fish. Biologist	AFSC
Annette Brown	F/USA	Fish. Biologist	AFSC
Guy Fleischer	M/USA	Fish. Biologist	NWSC
Lawrence Hufnagle	M/USA	Fish. Biologist	NWSC
Elliot Hazen	M/USA	Fish. Biologist	UW

AFSC - Alaska Fisheries Science Center, Seattle, WA
NWSC - Northwest Science Center, Seattle, WA
UW - University of Washington, Seattle, WA