

appointed by LDEO with NMFS concurrence. Observers will be on duty in shifts of duration no longer than 4 hours. Use of two simultaneous observers will increase the proportion of the marine mammals present near the source vessel that are detected.

It is proposed that one or two marine mammal observers aboard the seismic vessel will search for and observe marine mammals whenever seismic operations are in progress during daylight hours, and if feasible, observations will also be made during periods without seismic activity. Two observers will monitor for marine mammals near the seismic source vessel for at least 30 minutes prior to and during all daylight airgun operations including ramp-ups, after an extended shut-down, and during any nighttime startups of the airguns. Airgun operations will be suspended when marine mammals are observed within, or about to enter, designated safety radii, where there is a possibility of Level A harassment. Observers will not be on duty during ongoing seismic operations at night; bridge personnel will watch for marine mammals during this period and will call for the airguns to be powered-down if marine mammals are observed in or about to enter the safety radii. At least one marine mammal observer will be on "standby" at night, in case bridge personnel see a marine mammal. An image-intensifier night-vision device (NVD) will be available for use at night. Ramp-up will not occur if the safety radius has not been visible for at least 30 min prior to the start of operations in either daylight or nighttime. The 30-minute observation period is only required prior to commencing seismic operations following a shut-down of the 20-gun array for more than 1 hour. After 30 minutes of observation, the ramp-up procedure will be followed.

The *R/V Maurice Ewing* is a suitable platform for marine mammal observations. Observers will watch for marine mammals from the highest practical vantagepoint on the vessel, which is either the bridge or the flying bridge. The observer's eye level will be approximately 11 m (36 ft) above sea level when stationed on the bridge, allowing for good visibility within a 210° arc for each observer. If observers are stationed on the flying bridge, the eye level will be 14.4 m (47.2 ft) above sea level. The proposed monitoring plan is summarized later in this document. The observer(s) will systematically scan the area around the vessel with 7 X 50 Fujinon reticle binoculars or with the naked eye during the daytime. At night, night vision equipment will be available

(ITT F500 Series Generation 3 binocular image intensifier or equivalent). Laser rangefinding binoculars (Leica LRF 1200 laser rangefinder or equivalent) will be available to assist with distance estimation. If a marine mammal is seen well outside the safety radius, the vessel may be maneuvered to avoid having the mammal come within the safety radius (see Mitigation). When mammals are detected within or about to enter the designated safety radii, the airguns will be powered-down immediately. The observer(s) will continue to maintain watch to determine when the animal is outside the safety radius. Airgun operations will not resume until the animal is outside the safety radius or until the specified intervals (15 or 30 min) have passed without a re-sighting.

Reporting

The vessel-based monitoring will provide data required to estimate the numbers of marine mammals exposed to various received sound levels, to document any apparent disturbance reactions, and thus to estimate the numbers of mammals potentially taken by Level B harassment. It will also provide the information needed in order to shut down the airguns at times when mammals are present in or near the safety zone. When a mammal sighting is made, the following information about the sighting will be recorded: (1) Species, group size, age/size/sex categories (if determinable), behavior when first sighted and after initial sighting, heading (if consistent), bearing and distance from seismic vessel, sighting cue, apparent reaction to seismic vessel (e.g., none, avoidance, approach, paralleling, etc.), and behavioral pace; and (2) time, location, heading, speed, activity of the vessel (shooting or not), sea state, visibility, cloud cover, and sun glare. The data listed under (2) will also be recorded at the start and end of each observation watch and during a watch, whenever there is a change in one or more of the variables.

All mammal observations and airgun shutdowns will be recorded in a standardized format. Data will be entered into a custom database using a laptop computer when observers are off-duty. The accuracy of the data entry will be verified by computerized validity data checks as the data are entered and by subsequent manual checking of the database. These procedures will allow initial summaries of data to be prepared during and shortly after the field program, and will facilitate transfer of the data to statistical, graphical or other programs for further processing and archiving.

Results from the vessel-based observations will provide (1) the basis for real-time mitigation (airgun power-down); (2) information needed to estimate the number of marine mammals potentially taken by harassment, which must be reported to NMFS; (3) data on the occurrence, distribution, and activities of marine mammals in the area where the seismic study is conducted; (4) information to compare the distance and distribution of marine mammals relative to the source vessel at times with and without seismic activity; and (5) data on the behavior and movement patterns of marine mammals seen at times with and without seismic activity.

A report will be submitted to NMFS within 90 days after the end of the seismic program in the Bermuda Rise area. The end of the seismic program is predicted to occur on or about December 9, 2003. The report will describe the operations that were conducted and the marine mammals that were detected near the operations, and will be submitted to NMFS, providing full documentation of methods, results, and interpretation pertaining to all monitoring tasks. The 90-day report will summarize the dates and locations of seismic operations, sound measurement data, marine mammal sightings (dates, times, locations, activities, associated seismic survey activities), and estimates of the amount and nature of potential "take" of marine mammals by harassment or in other ways. The draft report will be considered the final report unless comments and suggestions are provided by NMFS within 60 days of its receipt of the draft report.

Endangered Species Act (ESA)

Under section 7 of the ESA, NMFS has begun consultation on the proposed issuance of an IHA under section 101(a)(5)(D) of the MMPA for this activity. Consultation will be concluded prior to the issuance of an IHA.

National Environmental Policy Act (NEPA)

The National Science Foundation has prepared an EA for the Bermuda Rise survey. NMFS is reviewing this EA and will either adopt it or prepare its own NEPA document before making a determination on the issuance of an IHA. A copy of the NSF EA for this activity is available upon request (see ADDRESSES).

Preliminary Conclusions

NMFS has preliminarily determined that the impact of conducting a seismic survey program in the Bermuda Rise