

clearance obligation to collect data of value to coastal states.

Leg 2, from Puerto Caldera, Costa Rica, to Manta, Ecuador, is planned for October 10–November 6, 2003. The plan for this leg is to (i) conduct a 2–day seismic reflection plus rock dredging survey of Cobia Ridge, south of Panama, (ii) collect a north-south seismic reflection plus magnetics profile across the eastern Panama Basin, and (iii) conduct a 14–day seismic reflection plus bathymetry plus rock dredging survey off northern Peru. A total of 200–250 hours of seismic reflection profiling is anticipated for this leg of the cruise.

Leg 5, from Callao, Peru, to Puerto Caldera, Costa Rica, is planned to take place from December 28–February 23, 2003. Primary survey tools will be a multibeam echo-sounder and a new magnetometer system. Seismic reflection profiling will have a subsidiary role, imaging the relief of the igneous crust in the approximately 20 percent of the survey area that has a significant cover of structure-obscuring sediment. A total of 150–200 hours of profiling is anticipated for this leg of the cruise. All three legs will use the same bathymetric sonar and seismic profiling system, described above.

All planned geophysical data acquisition activities are funded by the National Science Foundation (NSF) and will be conducted by SIO scientists, with a specific Principal Investigator aboard the vessel. Additional information on the airgun array and bathymetric multibeam sonar is contained in the application, which is available upon request (see ADDRESSES).

Description of Habitat and Marine Mammals Affected by the Activity

A detailed description of the ETP and its associated marine mammals can be found in the SIO application (as updated by Peter Lonsdale) and in a number of documents referenced therein. That information is not repeated here. Throughout the entire proposed study regions during the fall and winter months of 2003, approximately 21 species of cetaceans and four species of pinnipeds are likely to occur. These species are the sperm whale (*Physeter macrocephalus*), pygmy sperm whale (*Kogia breviceps*), dwarf sperm whale (*Kogia sima*), Cuvier's beaked whale (*Ziphius cavirostris*), rough-toothed dolphin (*Steno bredanensis*), bottlenose dolphin (*Tursiops truncatus*), pantropical spotted dolphin (*Stenella attenuata*), spinner dolphin (*Stenella longirostris*), striped dolphin (*Stenella coeruleoalba*), short-beaked common dolphin (*Delphinus delphis*), Pacific white-sided

dolphin (*Lagenorhynchus obliquidis*), Risso's dolphin (*Grampus griseus*), melon-headed whale (*Peponocephala electra*), pygmy killer whale (*Feresa attenuata*), false killer whale (*Pseudorca crassidens*), killer whale (*Orcinus orca*), short-finned pilot whale (*Globicephala macrorhynchus*), humpback whale (*Megaptera novaeangliae*), minke whale (*Balaenoptera acutorostrata*), Bryde's whale (*Balaenoptera edeni*), blue whale (*Balaenoptera musculus*), Guadalupe fur seal (*Arctocephalus townsendi*), northern elephant seal (*Mirounga angustirostris*), South American sea lion (*Otaria flavescens*), and California sea lions (*Zalophus californianus*). It is also possible that four species of beaked whales may be encountered within the proposed survey areas: Longman's beaked whale (*Indopacetus pacificus*), pygmy beaked whale (*Mesoplodon peruvianus*), Ginkgo-toothed beaked whale (*Mesoplodon ginkgodens*), and Blainville's beaked whale (*Mesoplodon densirostris*). In addition, four other species of cetaceans have been reported in the area of the proposed surveys, but have been rarely or never seen during NMFS population assessments. These species are the dusky dolphin (*Lagenorhynchus obscurus*), Fraser's dolphin (*Lagenodelphis hosei*), fin whale (*Balaenoptera physalus*), and Baird's beaked whale (*Berardius bairdii*). Additional information on most of these species can be found in the application, but is also contained in Caretta *et al.* (2001, 2002) which are available at: http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/sars.html.

Potential Effects on Marine Mammals

NMFS described the characteristics of acoustic sources from airguns and from mid-frequency sonar and, in general, the anticipated effects on marine mammals including masking, disturbance, and potential hearing impairment and other physical effects in another Notice of Receipt of an IHA application and proposed IHA involving seismic survey activities, published on April 14, 2003 (68 FR 17909). That information is not repeated here. The SIO application also provides information on what is known about the effects on marine mammals from the types of seismic operations planned by SIO.

Estimates of Take by Harassment for the ETP Cruise

As described previously (68 FR 17909), animals subjected to sound levels ≥ 160 dB may alter their behavior or distribution, and therefore might be

considered taken by Level B harassment.

The estimates of takes by harassment are based on the number of marine mammals that might be found within the 160 dB isopleth radius and potentially disturbed by operations with the 2 GI-guns planned for the project. Based on summer/fall marine mammal density calculations by Ferguson and Barlow (2001), SIO used their average marine mammal densities from the ETP to compute a "best estimate" of the number of marine mammals that may be exposed to seismic sounds ≥ 160 dB re 1 μ Pa (rms) (NMFS' current criterion for onset of Level B harassment). The average densities were then converted to per-km abundances and multiplied (for the appropriate region) by the area that is planned to be ensonified at levels ≥ 160 dB re 1 μ Pa (rms) during the proposed seismic survey program. Where abundance estimates for certain species (pacific white-sided dolphins, pygmy sperm whales, minke whales, and humpback whales) were not readily available for stocks found within the proposed survey areas, minimum population estimates were taken from individual Marine Mammal Stock Assessment Reports, which are available online as mentioned previously.

SIO did not estimate numbers of pinnipeds potentially vulnerable to harassment due to insufficient data on distribution, seasonal abundance, and pinniped response. However, SIO determined that it is unlikely to encounter significant numbers of any of the pinniped species that live, at least part of the year, in the area of the proposed activity. We preliminarily agree.

Based on this method, Table 3 in the application gives the best estimates of numbers for each species of cetacean that might be exposed to received levels ≥ 160 dB re 1 μ Pa (rms), and thus potentially taken by Level B harassment, during seismic surveys in the proposed study areas of the ETP.

Eight species of delphinidae would account for 95 percent of the overall estimate for potential taking by harassment. Common dolphins are the most abundant delphinid in the proposed seismic survey areas, representing 71 percent of the total estimate for potential taking by harassment. Most of the remaining 5 percent of the overall estimate for potential taking by harassment consists of pilot whales, dwarf sperm whales, and five species of beaked whales.

Conclusions-effects on Cetaceans

Baleen whales have been seen to avoid operating airguns with avoidance