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U.S. RESEARCH ON DALL'S PORPOISE, 1987

by

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RESEARCH PLAN FOR DALL'S PORPOISE, 1987

The objectives of the U.S. - Japan cooperative research program are to assess the impact of the incidental take of Dall's porpoise by high seas gillnet fisheries and to find ways to reduce marine mammal entanglements by the fisheries. The basic elements of the research program are described in the Memorandum of Understanding (MOU) signed by the Governments of the United States and Japan in 1984 and the General Permit issued under the U.S. Marine Mammal Protection Act in 1981. The U.S. field research and laboratory analyses for 1987 are described in this document.

FIELD RESEARCH

I. Monitoring of the Incidental Take

Monitoring of the incidental take of marine mammals aboard salmon catcherboats as established under the U.S. General Permit and U.S.-Japan MOU will continue, however, based on the data collected under this program, additional observers are needed to provide reliable estimates of the incidental take. To obtain estimates that will be within 10% of the true value of the mean with a 90% confidence level, there needs to be a total of 6 observers per mothership fleet. One Japanese and 5 U.S. observers will board the catcherboats to monitor the incidental take of marine mammals, chinook salmon and other organisms in the gillnets. Training of the U.S. biological observers will be conducted by the National Marine Fisheries Service, Seattle, Washington.

The biological observers will record data on the distribution, numbers and species of marine mammals and other marine organisms in the gillnets, environmental conditions, presence and behavior of marine mammals near the vessels and gillnets, location of animals in the gillnets and gear characteristics for each gillnet operation.

During the 1987 fishing season, 20% of the catcherboats will use multifilament gillnets and 80% will use hollow tube nets. Vessels with multifilament nets will be monitored by 2 U.S. observers in each fleet; the remaining observers will monitor the hollow tube nets. Observers will be placed randomly within the fleet array each day.

The biologists onboard catcherboats and the captains of each catcherboat, including scoutboats, will transmit daily reports of the incidental take of marine mammals to the U.S. marine mammal biologist on each mothership. The report will include for each marine mammal species the number taken dead and returned to the mothership, number taken alive and released, number taken but lost during retrieval, and the number taken dead but not returned to the mothership. Information on the condition of released animals, the cause of loss of animals, and the approximate size of animals lost (when possible) will be recorded and transmitted to the biologist on the mothership. The size categories are: newborn (about 100 cm in body length), medium (about 150-180 cm) and large (more than 180 cm). Biologists on the motherships will

transmit these reports from the observers and catcherboat captains daily to the National Marine Fisheries Service for projection of the date of reaching the marine mammal quotas and closure of the fishery inside the U.S. Exclusive Economic Zone (EEZ).

The catcherboats with observers onboard will operate in different locations within the fleet to ensure there is no effect of position on the data. The Fleet Commander of each mothership fleet will determine the location of observed vessels within the fleet.

II. Population Estimation

U.S. biologists on Japanese salmon catcherboats, salmon research vessels, and U.S. Platforms of Opportunity Program research vessels in the eastern North Pacific, will collect sighting data for estimating abundance of Dall's porpoise. Data on other marine mammals will also be collected. Increased sighting effort is planned in 1987 to increase the areal coverage in the western North Pacific and to obtain data on the distribution of Dall's porpoise with respect to the squid fishery areas and oceanographic conditions.

A study of the errors in estimating distance and angles during sighting surveys will be conducted in southeast Alaska during March. The results will be used to analyze the effects of such errors on estimation of Dall's porpoise abundance.

III. Biological Studies

One U.S. biologist will be on each Japanese salmon mothership to collect biological specimens and information from Dall's porpoise and other marine mammals returned to the mothership. All animals will be measured, sexed, recorded by specimen number and photographs taken. Biological samples will include teeth, reproductive tissues, parasites, milk and stomachs as well as other tissues. Females will be examined for presence of a fetus, and lactation. Whole specimens will be frozen aboard each mothership for dissection and for training biologists at the National Marine Mammal Laboratory, Seattle, Washington.

South of the U.S. EEZ prior to the opening of the U.S. EEZ for fishing, at least 10 Dall's porpoise per mothership will be frozen for dissection by U.S. biologists after boarding on 10 June. After 25 June, if the vessels operate north of the U.S. EEZ, a Japanese national, trained by the U.S. observer, will collect specified biological samples and data from all porpoise returned to the mothership. Samples from the Bering Sea are particularly important for collection because of the low sample sizes obtained from this population and the need to determine reproductive rates of the population.

A study of the behavior of Dall's porpoise in Puget Sound, Washington has been implemented. The daily behavior patterns and responses to vessels will be recorded. The study will provide

information on the distance at which porpoise respond to vessels and how they respond. Information on the time of calf production will be obtained for comparison with data from the fishing areas.

IV. Laboratory Analyses

Studies of the trends in biological parameters are continuing. Description of the color patterns and the areal variations is continuing also.

The study involving the use of parasite occurrence and infestation levels to identify differences between populations of Dall's porpoise is being continued. Samples will be collected during the 1987 fishing season. Analysis of the 1986 samples is underway.

Genetic variability studies using both mitochondrial DNA and electrophoretic methods is in progress on samples from the Bering Sea and western North Pacific. Preliminary results show significant mtDNA polymorphism suggesting that mtDNA lineages are highly divergent. Whether this reflects geographic patterns will be determined by further analysis.