

SC/45/SHBa10

The 1993/94
Research Plan of Whale Resources
in
the Antarctic

The Government of Japan

April, 1993



INTRODUCTION

Japan has been conducting research on minke whales under the "Program for the Research on the Southern Hemisphere Minke Whale and for the Preliminary Research on the Marine Ecosystem in the Antarctic" since the 1987/88 Season in compliance with Article VIII of the International Convention for the Regulation of Whaling.

After the feasibility researches conducted in a part of Area IV in 1987/88 and in a part of Area V in 1988/89, Japan commenced the full-scale research activity from 1989/90. Both management areas have been surveyed two times, Area IV in 1989/90 and 1991/92 and Area V in 1990/91 and 1992/93.

The research plan for 1993/94 is the fifth of the long-term program made in 1987 and amended in 1989. The main objectives of the research are to estimate biological parameters necessary for the rational management of the Antarctic minke whale stocks and to ascertain the role of the whales in the marine ecosystem of the Antarctic. Specific objectives involves the attainment of information on natural mortality, natality, segregation by sex and age and change in abundance though continual monitoring by the research over a long period.

At the 44th Annual Meeting of the IWC, the Japanese research plan in Area V in 1992/93 was submitted to the Scientific Committee as a document SC/44/SHB14, and some constructive and positive comments were given by some members. At the Plenary Commission meeting, a resolution requesting the improvement of the program (Doc. IWC/44/23) was adopted by consensus. The Government of Japan examined the comments given by the Scientific Committee members and the resolution and provided a paper (Circular Communication MH/VJH/19539) with some consideration taken in order to improve the research plan, which circulated through the IWC Office last October.

The research in Area V in 1992/93 season was conducted based on the improved plan, and preliminary results indicate that the measures taken in order to improve the research were proper. Then, the research in the 1993/94 season would be conducted based on the improved plan.

OBJECTIVES

There are no substantial changes from the initial research plan.

The objectives of the research are as follows:

1. Estimation of the biological parameters required for the stock management of the Southern Hemisphere minke whale.

The primary objective of the program is to estimate the age-specific natural mortality rate from samples obtained through a stochastic samplings carried out in combination with systematic sighting surveys. The program is also designed to estimate the abundance and its changes, including the monitoring of the recruitment and reproductive parameters and their change, based on the same samples.

2. Elucidation of the role of whales in the Antarctic marine ecosystem.

The program also includes this objective. One of the important component of this objective is the collection and quantitative analysis of data on the prey-predator relationships centering on the minke whale.

NUMBER, SEX, SIZE AND STOCKS OF ANIMALS TO BE TAKEN AS SAMPLES

There is no change from the previous plan except the sampling area.

Three hundred (300) minke whales with allowance of $\pm 10\%$ will be sampled randomly. Samples are to be collected without predetermination of sexes and size of the animals. Research and sampling are to be made in Area IV.

OPPORTUNITY FOR PARTICIPATION IN THE RESEARCH BY SCIENTISTS OF OTHER NATIONS

There is no change from the previous plan.

Opportunity for participation in the research by foreign scientists are available as described in the research proposal presented to the IWC in previous years. The followings are the particulars for participation by foreign scientists:

Opportunity for participation by foreign scientists:

Opportunity for participation in the research under this program will be given to any scientist to the extent allowed by accomodation and other logistic conditions, provided that such participation does not cause inconveniences in the implementation of the program. The selection of the participants are to be

determined by the Whale Research Coordination Committee, Japan, which will consider the various conditions such as accomodation and others for a final determination.

Conditions for participation

1. Costs

Costs for participation, such as travel expenses to and from the port of embarking and disembarking from the research vessel, meals on board the research vessel, and any special instruments required by the participant, are to be borne by the participant.

2. Indemnification and insurance for casualty or personal injury on board the research vessels

The Institute of Cetacean Research and the crew of the research vessels or the research team will be not able to take responsibility for any casual injury that be inflicted on the foreign participants resulting from their negligence or manœuvre.

3. Cancellation of the participation

Any participants who are found to have intentionally sabotaged in the course of implementation of the research and thereby impaired the execution of such a research shall be canceled of their participation in this program.

POSSIBLE EFFECT ON CONSERVATION OF THE STOCK

The last IWC/IDCR minke whale sightings cruise in Area IV was conducted in 1988/89, and the Scientific Committee at the 42nd Annual Meeting agreed in the course of the comprehensive assessment of the Southern Hemisphere minke whales that the population size of minke whales in Area IV was 74,692 (CV=0.257) (IWC, 1991:p.59). At the same meeting, the stock of Area IV was classified as SMS, and a conservative catch limit of 583 for this stock, according to the NMP was calculated by the Scientific Committee (IWC, 1991: p.62). As the research in Area IV has been conducted in every other year, the proposed sample size of 300 to be taken in Area IV during 1993/94 would be synonymous to the catch of 150 per year on the basis of the average take over the two years. It is clear that the take of this sample size would not affect on the conservation of the stock in any way.

OUTLINE OF THE 1993/94 SURVEY

Number of vessels

One factory ship (research base),
Three sighting-sampling vessels, and
Two sighting vessels (they may be used for this program
before and/or after the IDCR survey, depending on the
plan of the IDCR cruise in the 1993/94 season).

Survey period

From November 1993 to April 1994.

Survey area

Area IV (70 E-130 E) south of 30 S.

Stratification of research areas

The entire research area: the research area will be divided at 100 E into the East and West Sub-areas. For both Sub-areas, the waters between ice edge and 45 miles off the ice edge will be designated as the southern sectors, and in each sub-area the waters beyond 45 miles from ice-edge and south of 60 S are designated as the middle sector. Thus, four strata (West-middle, East-middle, West-south and East-south) are formed as units of research. In the West-south stratum Prydz Bay (south of 66 S) is considered as a separate stratum, when a mouth of the Bay opens at the research period. Therefore, five strata are set as the research units at that time.

Special Monitoring Zone: a part of the research area of about 25 in longitudinal range is defined as "Special Monitoring Zone (SMZ)". The middle and southern strata will be treated in the same way as the entire research area.

Northern Zone: correspond to the area between 30-60S. On the way go to and from SMZ, three sighting-sampling vessels will conduct whale sighting survey in this zone. Other two research vessels which will be planned to engage in the IDCR cruise may engage in whale sightings in the middle and/or lower latitudinal waters of the Southern Hemisphere as a part of the Japanese research.

Number of surveys

The entire survey of Area IV - once
SMZ: one each before and after the entire research
Northern Zone: each on the way go to and from SMZ

The same trackline design used in the 1991/92 season in Area IV will be adopted.

Minimum proceeding distance

The minimum daily proceeding distance will be established in order to increase research activities.

Sighting survey method

As in the case of the previous researches, a similar method as that adopted by the IDCR cruise will be used in this research. Limited closing mode will be applied for minke whales and three other species (blue, humpback and right whales) after primary sightings. As regards minke whales, closing will be made only for sightings of the animal within the range of 3 miles from the trackline. Research time will be from 30 min. after sunrise to 30 min. before sunset or from 06:00 to 20:00. Research will be suspended at an average wind velocity of 26 knots or more in the southern sub-areas and at 21 knots or more in the middle sub-areas. No research will be conducted when the visibility is 1.5 miles or less. One vessel, out of the three sighting-sampling vessels, will be used only for sightings in all research areas.

Sampling method

Samples will be collected by only two sampling vessels in all research areas. In order to attach greater importance to the representativeness of the samples, only one whale will be caught from a school.

Selection of the target whale will follow the previous pattern by which one whale is selected randomly according to the random digits table.

Samples/data to be collected

1. Sightings data including those on other whale species than minke whales.
2. Biological samples/data: stock identity, age, maturity, breeding, nutrition, distribution of heavy metals, hormones, parasites and others.
3. Weather, oceanography and environment: environmental factors such as wether, sea ice, water temperature and marine debris.
4. Biopsy and satellite telemetry (feasibility studies): shooting test for attachment of a satellite telemetry transmitter to the whale body is planned.
5. Photo-identification for blue, humpback and right whales.

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