Development of Objectives in the Japanese Whale Research Program under Special Permit in the Antarctic (JARPA)

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ABSTRACT

The Government of Japan has been conducting the JARPA survey since the 1987/88 austral summer season, under the Article VIII of the International Convention for Regulation of Whaling, as a long term project. With the progress of the JARPA survey, the objectives of the project evolved from two in the original plan to four in current years. The current objectives are not the alternation of the original ones.

INTRODUCTION

Japan started the Scientific Research Program in the Antarctic (JARPA) in 1997/88 under a special permit issued by the Government based on the Article VIII of the International Convention for the Regulation of Whaling (ICRW). This survey has been continuing under the long term project.

Several rigorous steps are required for planning and conducting of the JARPA. Research plan in each season is submitted to the Scientific Committee (SC) of the International Whaling Commission (IWC) every year, after the approval of Japanese Government. It is re-examined and sometimes amended based on constructive comments by members of the SC, and then the JARPA survey is conducted under the final research plan which is circulated to the member countries through the IWC for the year. After the end of the JARPA survey in each season, the results are examined thoroughly by scientists, and the research plan in the next season is made by the scientific team based on the results of the examinations.

Two pillars of objectives were created for the JARPA project in 1987 (Government of Japan, 1987a), and they have been evolved gradually since then. The process of the development of objectives for the JARPA project will be introduced and discussed in this paper.

BACKGROUND OF THE JARPA PROJECT

Major disputes had continued in the SC during years from late 1970s to middle 1980s over the certainty of biological knowledge and study methods of whale populations. The IWC adopted the moratorium of the commercial whaling, which came into effect from the 1985/86 season, at the 34th Annual Meeting in 1982 based on the alleged grounds that the scientific knowledge was uncertain and that effective management was not possible based on such knowledge, despite the fact that the SC did not conclude such an uncertainty at that time.

Every member country of the ICRW should have a duty to undertake scientific research in order to achieve the objectives of the ICRW which are to "ensure proper conservation and optimum utilization of the great natural and renewable resources represented by the whale stocks". However, the enforcement of the moratorium of the commercial whaling loses the chance to collect data for the review of the decision, although countries which have interested in the resumption of whaling must gather scientific information based on new researches to dissolve the uncertainty which was the base of the moratorium decision (Nagasaki, 1995). And, the employment of lethal methods is essential to collect data and materials from whale resources as examined by Ohsumi (1995) for such works.

The JARPA project was planned to collect data and materials for the development of scientific knowledge which will solve the uncertainty problem related to the moratorium of commercial whaling. Furthermore, the monitoring of whale resources by continuation of research take of whales prevent the darkness for whale science during the whaling moratorium period.

THE ORIGINAL OBJECTIVES OF THE JARPA PROJECT

Two original research objectives were defined in the JARPA project, which were submitted as document SC/39/O4 (Government of Japan, 1987a) to the SC in its 1987 Annual Meeting (IWC, 1988). They are:

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

Objective II. Elucidation of the role of whales in the Antarctic marine ecosystem.

The Antarctic minke whale (*Balaenoptera acutorostrata*) was selected as the target whale species for the Objective I, because it is the most abundant and productive baleen whale species in the world. It is practically the most possible whale stock to be resumed its exploitation and there is no solicitude to harm the stock by the research take.

The main reason for the failure of the SC to recommend an agreed catch limit in 1980s for the Antarctic minke whale stock was that the SC has not been able to reach agreement on the value of natural mortality coefficient and its age-specific patterns.

From such a background, the Objective I was set up to estimate the age-specific natural mortality coefficient through stochastic samplings which are carried out in combination with systematic sighting surveys. The program was also designed to estimate the stochastic changes in stock size required for stock management, and the reproductive parameters and their changes based on the same samples (Government of Japan, 1987a).

The reason for the establishment of the Objective II was from the consideration that the most important need to understand the Antarctic ecosystem was the collection of data on the prey-predator relationship among krill, fish, squid and whales. The global scientific interest in the Antarctic ecosystem has been growing, as reflected in the coming into force of the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR).

FEASIBILITY STUDIES CARRIED OUT IN 1987/88 AND 1988/89

The original research program was submitted to the SC following its rules of procedure at its Annual Meeting in 1987 and reviewed by the members of the SC (IWC, 1988a).

A special meeting of the SC to consider the Japanese research permit was held to discuss the feasibility study (IWC, 1989). At the meeting Japan submitted a document (SC/D87/1) to conduct a preliminary research to test the feasibility of the original program in 1987/88 (Government of Japan, 1987b). The Government of Japan decided then to conduct a feasibility study in Area IV in 1987/88.

Japan carried out a second feasibility study in Area V in 1988/89 based on the research plan which was circulated to the SC members after the 40th Annual Meeting in 1988 (Government of Japan, 1988).

START AND CONTINUATION OF THE FULL-SCALE JARPA SURVEYS

After the thorough examination of the results of two years of feasibility study, the following improvement of the original plan was made for the full-scale survey in 1989/90, although the original two objectives were kept:

(1) To include monitoring of "crutmer" among the principal subjects of the study.
(2) Shorter interval between the sampling years.
(3) Survey by line transect method.

This research plan was submitted to the SC at the 41st Annual meeting of the IWC (Government of Japan, 1989).

Thus, the full-scale JARPA surveys had been conducted with the same two research objectives from 1989/90 to 1994/95 (Government of Japan, 1989; 1990; 1991; 1992; 1993; 1994)

DEVELOPMENT OF RESEARCH OBJECTIVES

The third objective was added for the research program in 1995/96 (Government of Japan, 1995), in response to the Commission's resolutions regarding to the environment and pollution (Resolution on research on environment change and whale stocks in 1994 and Resolution on promotion of research related to conservation of large whale stocks in the Southern Oceans in 1994).

This third objective is:

Objective III. Elucidation of the effect of environmental changes on cetaceans.

The Objective III had been already included in the original Objective II in previous surveys, so that the Objective III should be regarded as a ramification from the original Objective II. These objectives become more important in the present situation to examine the need of the Southern Ocean Whale Sanctuary passed by the Commission in 1994.

For 1996/97 research plan of the JARPA the fourth objective was established (Government of Japan, 1996). It is as follows:

Objective IV: Elucidation of the stock structure of the Southern Hemisphere minke whales to improve stock management.

This objective was regarded to be already included in the original Objective I, from the beginning of the JARPA project (Government of Japan, 1987a). However, with the development of the JARPA surveys, this part has become gradually larger and to be suitable to establish as an independent objective. The identification of biological stocks and the definition of the range of distribution of a whale stock in Areas IV and V is important for the estimation of biological parameters in the minke whale. The Objective IV is also important for the application of the multi-stock rules of the Revised Management Procedure (RMP) to the Antarctic minke whale.

DISCUSSION

Since the start of the JARPA survey, various modifications on the manners and methods of surveys have been made, basically, in response to constructive comments made by the SC members. However, the original two objectives of the JARPA have not changed, but developed into four objectives. The present objectives are the doubles of original objectives. The Objective III is separated from the Object II, and the Objective IV becomes independent from the Objective I.

The situation of the IWC related to the JARPA project has changed largely since the beginning of the project in 1987. The comprehensive assessment of the Southern Hemisphere minke whale finished in 1990 (IWC, 1991). The RMP was completed by the SC in 1992 (IWC, 1993). The JARPA project will contribute not only to the implementation of the present RMP, but also to further development of advanced management procedures.

The delay of the Revised Management Scheme (RMS) and the establishment of the Antarctic whale sanctuary in 1994 (IWC, 1995) obstruct the rational utilization of whale resources in the Antarctic and render the Antarctic to be the Dark Ocean for future management of the area. On the other hand, the IWC encourages the research by passing some resolutions related to the promotion of research on the conservation of large baleen whales in the Southern Oceans in 1994 and on the environmental change and whale stocks in 1994. The JARPA project is useful to monitor the Antarctic ecosystem in which whales play a central role.

In these situations there are scientific and social meaning of the JARPA surveys, and the project should be continued further. The objectives of the JARPA may be developed further in the process of continuation of the project.

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