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THE 2002/2003 RESEARCH PLAN FOR THE JAPANESE WHALE RESEARCH PROGRAM UNDER SPECIAL PERMIT IN THE ANTARCTIC (JARPA)

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I. INTRODUCTION

The Japanese Whale Research Program under Special Permit in the Antarctic (JARPA) has been conducted every year since the 1987/88 season in compliance with Article VIII of the International Convention for the Regulation of Whaling. After two seasons of feasibility study in 1987/88 and 1988/89, the full-scale research started in the 1989/90 season (Government of Japan, 1989).

The objectives of the JARPA are: (i) estimation of biological parameters of minke whale stock, (ii) elucidation of the role of whales in the Antarctic ecosystem, (iii) elucidation of the effect of environmental changes on cetaceans, and (iv) elucidation of the stock structure of the Southern Hemisphere minke whales to improve stock management (Government of Japan, 1987; Government of Japan, 1995;1996).

In the surveys in Areas IV and V, a sample size of 300 ($\pm 10\%$) has been maintained to achieve a long-term consistency of survey in these areas. From the 1995/96 season, the survey area was expanded to understand better on the stock structure of the minke whales in these areas and an additional sample of 100 ($\pm 10\%$) minke whales have been taken every year since then (Government of Japan, 1995).

Annual research plan and scientific papers derived from JARPA have been annually submitted to the Scientific Committee of the International Whaling Commission (IWC/SC) and the Committee has reviewed these reports.

In addition, the IWC/SC carried out a comprehensive review of the data and results obtained by the JARPA in May, 1997 (IWC, 1998a). Agreement was reached by the participants in this Working Group on several points as follows: with respect to estimation of biological parameters, no conclusive results have been obtained, because only half of the planned research period has been covered to date. However, it has been ascertained that JARPA has already made major contributions to the understanding of certain biological parameters (e.g., direct measures of age at sexual maturity) of the minke whale in Areas IV and V of the Antarctic.

With respect to the Antarctic ecosystem, it has also been ascertained that this research is useful in testing various hypotheses related to the "krill surplus" model. Furthermore, the results of JARPA would be useful in the reduction of the current set of plausible scenarios considered in implementation simulation trials and the identification of new hypotheses. With respect to other biological parameters, on the other hand, more time is needed to obtain sufficient age

composition and trend of population abundance. Further, some issues, such as representative nature of the sampling method and the stock structure of the minke whale, still remain unresolved. Also, some future tasks to be tackled have been identified, including the issue of survey on environmental change through meso-scale approach.

After further discussion at the 49th Annual Meeting of the IWC/SC, the Committee agreed finally that none of the sampling and stock identity problems that had been identified in the JARPA review or subsequently, would in principle prevent JARPA from achieving its objectives in terms of estimation of biological parameters (IWC, 1998b). At that meeting, the Committee also identified ten main areas of research to address these unresolved problems. Studies addressing these ten areas as well as other JARPA-related studies, were reported to the 51st IWC/SC meeting (Abe *et al.*, 1999; Clarke *et al.*, 1999; Fujise *et al.*, 1999; Fujise and Ohsumi, 1999; ICR, 1999; Matsuoka *et al.*, 1999; Pastene and Goto, 1999; Polacheck *et al.*, 1999; Butterworth *et al.*, 1999). Other studies related to the JARPA tasks e.g. GAM based abundance estimation, were presented to the 52nd IWC/SC meeting (Clarke *et al.*, 2000).