

## Sperm Whale Research by the Institute of Cetacean Research, Japan

The Institute of Cetacean Research, Tokyo

### Abstract

The sperm whale (*Physeter macrocephalus*) has been investigated by the Institute of Cetacean Research (ICR) in the Antarctic (JARPA) since 1987/88 and the western North Pacific (JARPNI: 1994-1999 and JARPNII: 2000-). For this whale species, non-lethal method is used in the JARPA and JARPNI, and both lethal and non-lethal methods are used in the JARPN II.

Key Words: Antarctic, ICR, Japanese whale research under Article VIII of ICWR, JARPA, JARPNI, JARPN II, sperm whale, western North Pacific,

### Introduction

The ICR was established in 1987 as a successor of the Whales Research Institute (WRI). The ICR engages in whale research under the Article VIII of the International Convention for Regulation of Whaling (ICRW) in the Antarctic called as the abbreviation of JARPA and in the western North Pacific called as the abbreviation of JARPNI and JARPN II. As the non-lethal methods, the sperm whale has been surveyed as a target species in the above three projects to conduct whale sightings as same as other whale species, and as the lethal method sampling of sperm whales has been conducted since the start of the JARPN II in 2000.

The outline of the JARPA, JARPNI and JARPN II Projects is introduced in this paper. The ICR supports the IWC/IDCR · SOWER Project of the International Whaling Commission (IWC) in the Antarctic providing research vessels, crew and researchers on the commission of the Government of Japan, but this paper will not deal with this project.

### Research areas and seasons

#### *JARPA*

This project started in the Antarctic Areas IV and V in 1987/88. The research

area was developed in 1995/96, and the current research area is between 60 S and pack ice edge and 35 E-145 W which is divided into two at 130 E, as shown in Fig. 1. The JARPA has been conducted survey in these two research areas every other year. Whale sighting survey are also conducted in the course to and from the Antarctic research area in the waters south of 30 S.

The research season is usually from the beginning of December to middle of March in main research areas of the Antarctic every year.

#### *JARPN*

This project lasts from 1994 to 1999. Research area was Sub-areas 7, 8, 9 and 11 (North Pacific west of 170 E, north of 35 N: Sub-areas 7, 8 and 9 and southern part of the Okhotsk Sea :Sub-area 11 as shown in Fig. 2) which were set by the IWC/SC in 1993 (IWC, 1994).

Research season was usually from May to September every year.

#### *JARPN II*

This project started in 2000, and is now continuing. Research area is Sub-areas 7, 8 and 9, as shown in Fig. 3. The research area of this project is separated into off-shore and coastal parts. The off-shore part is surveyed by a research fleet and a prey survey vessel, and the coastal part is surveyed by four small-type whaling boats, a whale sighting vessel and a prey survey vessel.

Research season is usually from May to September in off-shore part and from April to May and from September to October in the coastal part.

#### Whale sightings for sperm whales

A research fleet is consisted by one research base ship, three sighting and sampling vessels (SSVs) and one dedicated sighting vessel (SV) for JARPA, JARPN and off-shore part of JARPN II. Basic method of whale sightings is the same for these three projects. Whale sightings are conducted by SV which engages in whale sightings and environmental survey and SSVs.

The SV acts whale sightings independently from the research base ship on the fixed survey line. The SSVs engage in whale sightings and sampling of whales on the

fixed survey lines.

Whale sightings are conducted by SSVs and SV with vessel speed of 10.5 knot under the line transect method, when the wind force is less than 17 knot and visibility is more than 2 n. miles in day time.

The closing mode is basically used to confirm species, school size, body length composition and behavior, when a whale school is found, and biopsy sampling is carried out for a sperm whale by the instruction of the research leader on board of research base ship.

Two working papers related to the sperm whale sighting surveys are prepared for this CARP Workshop separately.

#### Sampling of sperm whales in JARPN II

When a sperm whale school is found in the off-shore part of research area of the JARPN II, a researcher on board of SSV informs it to the research leader and ask him whether the vessel is permitted to take it or not. A calf and cow pair or a whale of which body length is longer than 11 m is not permitted to be taken. The sample size of the sperm whale is permitted by the Government of Japan at most 10 whales every year.

Biological survey of sperm whales sampled on board of research base ship  
A sperm whale sampled is towed by SSV to the research base ship, and is measured and sampled on about 100 items including stomach contents on board of the ship.

Thirty one sperm whales were sampled by JARPN II during 2000-2004, and they are now in examination.

#### Main papers on sperm whales studied by JARPA, JARPN and JARPN II

##### *General*

Institute of Cetacean Research. 2004. Research activities of the Institute of Cetacean Research, May 2003-May 2004. SC/56/O20:31pp.

##### *JARPA*

Government of Japan. 1987. The program for research on the Southern Hemisphere minke whale and for the preliminary research on the marine ecosystem in the

Antarctic. SC/39/O4:57pp.

International Whaling Commission. 1998. Report of the intercessional working group to review data and results from special permit research on minke whales in the Antarctic, Tokyo, 12-16 May, 1997. Rep. int. Whal. Commn. 48:377-390.

Matsuoka, K., Nishiwaki, S., Hakamada, T. and Kasamatsu, F. 1998. Abundance and distribution of sperm and beaked whales in the Antarctic Areas IV and V -preliminary report. SC/50/CAWS9:15pp.

Matsuoka, K., Watanabe, T., Ichii, T., Shimada, H. and Nishiwaki, S. 2003. Large whale distributions (south of 60 S, 35 E-130 E) in relation to the southern boundary of the Antarctic circumpolar current. In: Huiskes, A.H.L., Gieskes, W.W.C. Rozema, J., Schorno, R.M.L., van der Vies, S.M. and Wolff, W.J. (ed.) Antarctic Biology in a Global Context:26-30.

Nishiwaki, S., Ishikawa, H., and Fujise, Y. Review of general methodology and survey procedure under the JARPA. JA/J05/PJR2:30pp.

#### *JARPN*

Fujise, Y. 2000. Outline of the research activities of the Japanese whale research program under special permit in the North Pacific (JARPN) from 1994 to 1999. SC/F2K/J8: 30pp.

International Whaling Commission. 2001. Report of the workshop to review the Japanese whale research programme under special permit for North Pacific minke whales. J. Cetacean Research and Management, 3 Supplement:377-413.

#### *JARPN II*

Fujise, Y., Kawahara, S., Pastene, L.A. and Hatanaka, H. 2002. Report of 2000 and 2001 feasibility study of the Japanese Whale Research Program under Special Permit in the Western North Pacific-Phase II (JARPN II). SC/54/O17:

Government of Japan. 2000. Research plan for cetacean studies in the western North Pacific under special permit (JARPN II) (Feasibility study plan for 2000 and 2001). SC/52/O1:

Government of Japan. 2002. Research plan for cetacean studies in the western North Pacific under special permit (JARPN II). SC/54/O2:

Tamura, T., Kubodera, T., Ohizumi, H., Konishi, K., Isoda, T. and Fujise, Y. 2004. Food habits of sperm whales based on JARPN II (2000-03). In: Government of Japan: Some considerations of the feasibility components of the JARPN II research plan. Appendix 4, SC/56/O2:10pp.

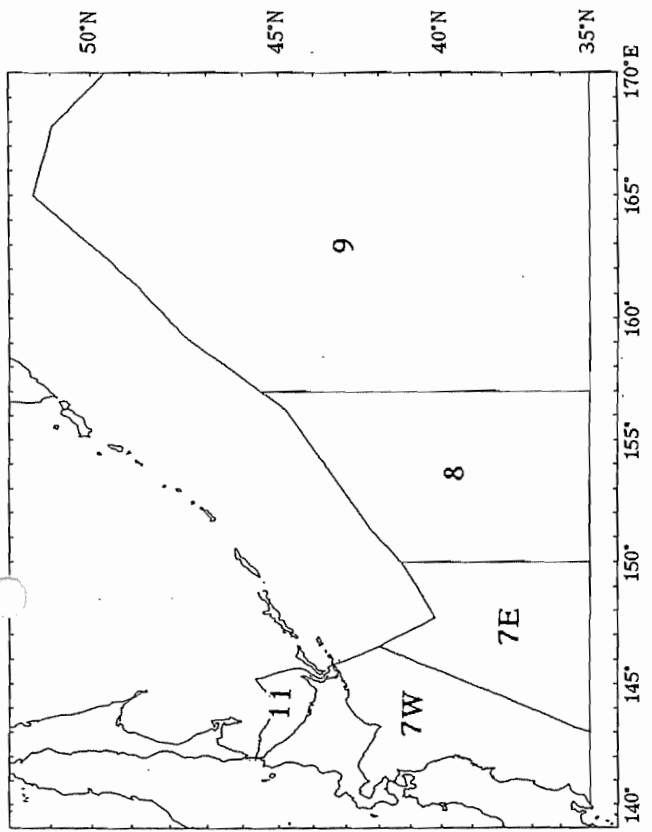


Fig. 2. Sub-areas surveyed by the JARPN from 1994 to 1999. Sub-areas were based on IWC (1994), excluding the EEZ of Russia. Furthermore, sub-area 7 was divided into east (7E) and west (7W).

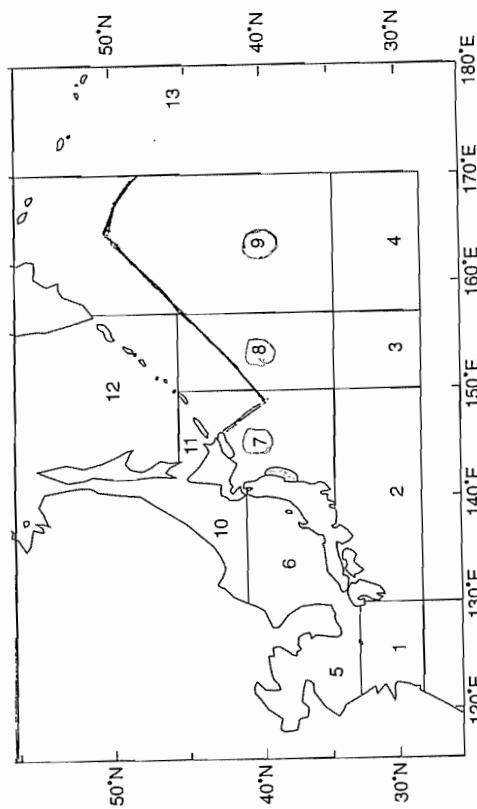


Fig. 3. Research Areas for JARPN II. Surveys are carried out only within Japan's EEZ and international waters. JARPN II offshore surveys are conducted in sub-areas 7, 8, and 9. Coastal surveys in 2002 and 2003 were conducted in waters shown in pink. Sub-area 11 has been surveyed in the past during the previous JARPA research program. It is necessary to survey in near future Sub-area 12 including waters within Russian EEZ.

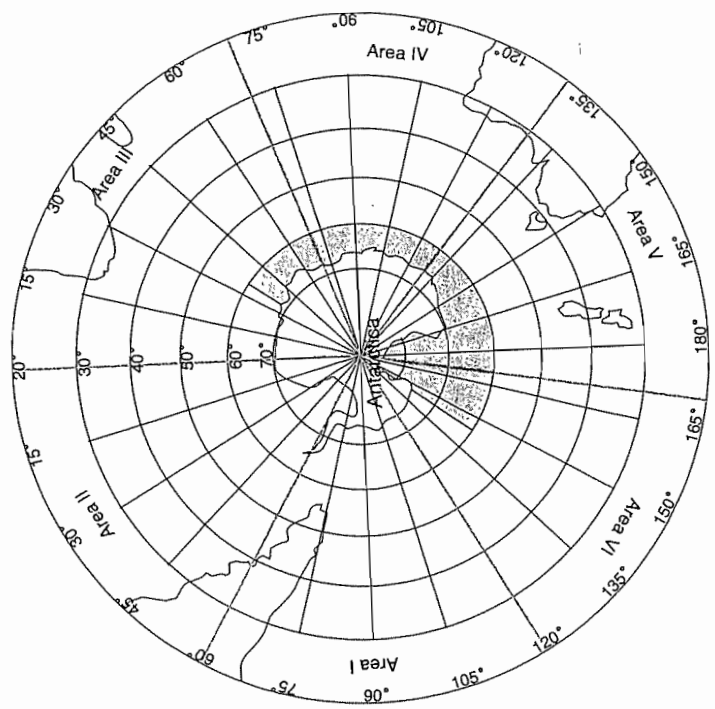


Fig. 4. Map of the Antarctic Ocean. The Roman numerals indicate IWC management areas and the research areas surveyed by JARPA.