

**JAPAN PROGRESS REPORT ON CETACEAN RESEARCH
May 2000 to May 2001**

(compiled by)

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This report summarizes cetacean researches conducted during the period from May 2000 to May 2001 by the National Research Institute of Far Seas Fisheries (hereafter NRIFS) and the Fisheries Agency of the Ministry of Agriculture, Forestry and Fisheries, the Government of Japan (hereafter FAJ) with cooperation of other related organizations. S. Minamikawa joined NRIFS on January 2001.

In accordance with the statement made by the Japanese representative at the 52nd Commission meeting of IWC in June 2000 on the small cetaceans, information on small cetaceans is not included in this report for this year. The information will be made available to interested parties through methods and by a timing to be decided by the Government of Japan.

1. Species and stocks studied

Following species and stocks were studied by NRIFS and FAJ in cooperation with other organizations (excluding small cetaceans):

Common name	Scientific name	Area/stock(s)	Items referred to
True Blue whale	<i>Balaenoptera musculus intermedia</i>	Southern Hemisphere	2.1.1, 2.2, 4.1
Pygmy blue whale	<i>B. m. brevicauda</i>	Southern Hemisphere	2.1.1, 2.2
Fin whale	<i>B. physalus</i>	Sea of Okhotsk, North Pacific, Southern Hemisphere.	2.1.1, 2.2
Sei whale	<i>B. borealis</i>	North Pacific	2.1.1, 8
Minke whale	<i>B. acutorostrata</i>	Southern Hemisphere, North Pacific, Sea of Japan, Sea of Okhotsk	2.1.1, 2.2, 3.2, 4.1, 4.2, 4.3, 4.4, 6.1, 6.2
Bryde's whale	<i>B. edeni</i>	North Pacific, coastal waters off Kochi and off Kasasa (south west Japan), Southern Hemisphere	2.1.1, 2.1.2, 3.1.1, 3.2, 4.2, 6.1, 8
Humpback whale	<i>Megaptera novaeangliae</i>	North Pacific, SH, Caribbean Sea	2.1.1, 4.1, 6.2
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(cont.)			
Northern right whale	<i>E. glacialis</i>	North Pacific, Sea of Okhotsk	2.1.1
Gray whale	<i>Eschrichtius robustus</i>	Sea of Okhotsk	2.1.1
Sperm whale	<i>Physeter macrocephalus</i>	North Pacific, Off Ogasawara, South Pacific, Southern Hemisphere	2.1.1, 4.1, 4.2, 4.4, 6.1
Southern bottlenose whale	<i>Hyperoodon planifrons</i>	Southern Hemisphere	2.1.1

2.Sighting data

2.1 Field work

2.1.1 Systematic

The NRIFS and FAJ conducted a total of nine sighting and related surveys from May 2000 to March 2001 in the North Pacific and the Southern hemisphere. Seven cruises were conducted in the former water and two in the latter. All of the vessels except one vessel are equipped with a top barrel. Names of the vessels, scientists on board, and period of each cruise are given in Table 1.

The IWC/SOWER Antarctic sighting cruise was conducted under auspices of the IWC/SOWER (Southern Ocean Whale and Ecosystem Research) program from 5 January 2001 to 5 March 2001. This cruise consisted of the blue whale research component, the minke whale assessment component. The main purpose of the blue whale component was to obtain scientific information relevant to developing shipboard identification methods for separating “true” blue whales (*Balaenoptera musculus intermedia*) from “pygmy” blue whales (*B. m. brevicauda*). For this purpose, acoustic survey, biopsy skin sampling, digital video taking and photo-identification were prepared in addition to sighting survey. The government of Japan offered two research vessels (*Shonan-maru* and *Shonan-maru #2*) and crew for this program, as has been the case for the last 23 years. H. Kato (NRIFS) acted as an organizer of the cruise and as a member of the steering group of the program. Weather conditions were about average and good survey coverage was obtained on the constructed cruise tracks of minke whale component in Area •E and •W (110-140W) for 38 days. Six sightings (16 animals) of true blue whale were encountered during the survey. P. Ensor (New Zealand) acted as a cruise leader. K. Matsuoka (Japan) participated in the cruise as a senior scientist, Marques (Brazil), Murase (Japan), Pitman (USA), and Waerebeek (Peru) as researchers. The details of the cruise and results will be separately reported at the 53rd IWC/SC meeting.

In the North Pacific, of a total seven cruises, five cruises mainly engaged in sighting survey with biopsy skin sampling at an opportunistic base. Miyashita (NRIFS) and Shimada worked in planning, track designs, and searching methods of all the above cruises. Total searching distances made during the cruises were 6,978 n. miles, 7,243 n.miles. and 5,700 n.miles for the Southern hemisphere, the North Pacific in summer and the North Pacific from autumn to winter, respectively. During these cruises, minke whale cruise was oversighted by Miyashita and Nishiwaki, S. (ICR) and Bryde's whale by Shimada. In addition, systematic sighting data were also obtained from the other two cruises for biopsy and marking. The results from the offshore sighting cruises are given in Tables 2, 3 (surveys in summer season) and 4 (in winter season).

Under cooperative program with the Republic of Korea, two cruises were conducted by both countries; one by R/V Kurosaki and another by R/V *Tamgu 3* (Korea). Kurosaki investigated coastal waters off the western Japan in the Sea of Japan from 4 May to 12 June. On the other hand,

Tamgu 3 investigated coastal waters off southeast coast of the Korean Peninsula, 9 May – 2 June. The cruises was conducted under Z.G. Kim (National Fisheries Research and Development Institute, the Republic of Korea), Yoshida, H. (ICR) joined the cruise from 20 May to 2 June.

Under the cooperation among the NRIFS, Kochi prefecture government (KPG) and the Whale Watching Association in Tosa Bay (WATB), the sighting surveys on Bryde's whales were conducted in the coastal waters off Kochi in October 2000, using 20 whale watching boats that belong to the WATB. The survey lasted ten days and T. Kishihiro (NRIFS), 3 research assistants (Kagoshima University and Tokyo University of Fisheries) and the total of 20 members of WATB acted as the researchers on board. A total of 8 schools (16 individuals) of Bryde's whales were detected during the survey.

The sighting surveys on Bryde's whales were also conducted in the coastal waters off Kasasa, Southwest end of Kyushu, in September 2000, under the cooperation among the NRIFS, Kagoshima prefecture government (KAPG), and Nomaikie Fishery Cooperative Union (NFCU). 2-8 whale watching boats (belong to the NFCU) were used as the research vessels. The surveys lasted 6 days. Kishihiro and 12 research assistants (Kagoshima University) acted as the researchers on board. A total of 13 schools (40 individuals) of Bryde's whales were detected during the surveys.

The Institute of Cetacean Research (ICR) and NRIFS conducted the non-lethal survey using R/V *Torishima* in waters surrounding Ogasawara Islands, Japan during 10 November-25 December 2000, in order to obtain information on winter feeding and breeding ecology of large cetaceans, i.e., sperm, Bryde's, and minke whales which are target species of JARPN II. H. Yoshida (ICR) joined the survey and sighted 49 schools of cetaceans including 15 of sperm whales and 1 of sei whales during research of 2266.9 nautical miles, though Bryde's and minke whales were not detected. For the sperm and sei whales, swimming behavior was observed for total of 17 hours and 58 minutes. To attach satellite tags, 3 sperm whale schools were pursued and tags were launched 13 times, whereas no tags were attached successfully. For biopsy sampling, darts were launched 16 times to 5 schools of sperm and 1 of sei whales, which resulted in 2 samples of sperm whales.

The ICR and NRIFS conducted sighting surveys with Caribbean scientists in the Caribbean Sea, in order to obtain information on distribution of cetaceans, especially humpback whales. H. Yoshida (ICR) participated in pre-survey meetings held in Dominica and St. Lucia and then joined in sighting survey conducted in St. Vincent and the Grenadines and Grenada during 3 -11 April 2001. Four schools of cetaceans were sighted during the research of 349 nautical miles. The humpback whale went to the north at high speed. Acoustic survey using a hydrophone was conducted at 30 points and sound of humpback whales was recorded successfully at 2 points.

The results (excluding small cetaceans) from the offshore sighting cruises and the coastal whale sighting surveys off Kochi and Kasasa are given in Tables 2, 3 (surveys in summer season) and 4 (in winter season).

2.1.2 Opportunistic, platforms of opportunity

Opportunistic sighting data have been collected during operations by the small type whaling and by dolphin fisheries.

Under the cooperation among NRIFS, Nomaikie Fishery Cooperative Union (NFCU) and Faculty of Fisheries, Kagoshima University opportunistic sighting data of Bryde's whales have been collected during the whale watching operations in the coastal waters off Kasasa, southwest end of Kyushu.

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Table 1. Name of vessels, scientists on board for the sighting and other survey in the North Pacific and the Southern Hemisphere by the Japanese vessels in 2000 fiscal year.

Name of vessel	Main objective	Period and region	Scientists on board
[North Pacific]			
<i>Kurosaki</i>	Sighting of minke whales (Japan-Korea Joint sighting survey)	May 4 – June 12, Sea of Japan, 2000	Saito, T.(FAJ), Kariya, T.(FAJ), Okumura, T.(FAJ), Okumura, T.(FAJ)
<i>Shonan-maru No.2</i>	IO passing mode survey of minke whales	July 14-Sep11, 2000. Sea of Okhotsk	Miyashita, T.(July 14-Aug. • •), Nishiwaki, S.(ICR)(Aug.11–Sep.11), Kariya, T.(FAJ) (July 14–Sep.11)
<i>Kurosaki</i>	Sighting and observation of diving behavior of minke whales	July 14 – Aug.12, 2000 western Sea of Okhotsk	Saito, T.(FAJ), Tanaka, Y.(FAJ), Okumura, T.(FAJ), Okumura, T.(FAJ)
<i>Toshi-maru No.11</i>	Sighting of Bryde's whales	July 28- Sep.25, 2000 Western North Pacific	Shimada, H. and Takei, J.(FAJ)
<i>Kurosaki</i>	Biopsy and marking for dolphins	Oct.28- Dec.24, 2000 Off the Pacific coast of Japan	Noji, S. and Saino, S. (FAJ, Oct.28-Dec..24)
<i>Kanou-maru*</i>	Sighting and acoustic survey	Jan.28 - Mar.21,2001, Lower latitudinal waters in the western North Pacific	Shimada, H.(Jan26-Feb.19), Noji, S.(FAJ), Okumura, T.(FAJ), Endo, K.(FAJ)
<i>Kurosaki</i>	Biopsy and marking for dolphins	Mar.1-28.,2001, Off the Pacific coast of Japan	Iwasaki, T.(Mar.1-14), Susuki, M.(FAJ), Nonaka, K. (FAJ) (Mar.16-28), Okumura, T. FAJ), Tanaka, Y.(FAJ)
<i>Kurosaki</i>	Sighting of minke whales (Japan-Korea Joint sighting survey)	Apr.12-May 21,2001 Coastal waters off the western Japan in the Sea of Japan	Saito, T.(FAJ), Isoda, T.(FAJ), Okumura, T.(FAJ), Morino, K.(FAJ)
[Southern Hemisphere]			
<i>Shonan-maru</i>	Sighting SOWER/Blue&Ant arctic	Jan.5–Mar.5, 2001, Areas V(175W-180), IV and I(120W-110W)	Ensor, P. (New Zealand), Murase, H.(Japan), Waerebeek, K.V. (Peru)
<i>Shonan-maru No.2</i>	Sighting SOWER/Blue&Ant arctic	Jan.5–Mar.5, 2001, Areas V(175W-180), IV and I(120W-110W)	Matsuoka, K.(Japan), Pitman R.(USA), Marques, F.(Brazil)

2.2 Analyses/development of techniques

Kato, E. Kojima (Tokyo University of Fisheries), Y. Honno (Hokkaido University), and H. Yoshida (ICR) conducted further analyses on ID-keys to discriminate sub-species of blue whales from the shipboard survey, using photographs and video sequence of whales obtained through the Japan/IWC blue whale cruise in 1995/96-98/99 and 2000/01 IWC/SOWER blue whale cruises and using impression on body shape pattern reported by topmen in 1996/97, 98/99 and 2000/01 IWC/SOWER blue whale cruises. They confirmed remarkable difference in body shape and external morphology of blowholes.

Miyashita has further improved the aural recording system and used in minke whale sighting survey in the Sea of Okhotsk in 2000 summer. Voice of the observers became clearer than past to hear at the upper bridge and wheel house, which was very effective to identify the duplicate sightings in the field.

Shimada, Matsuoka (ICR), Murase (ICR), Nishiwaki (ICR) and Takei (Nihon University) analyzed vocalization of large whales using acoustic data that recorded by a spar-type sono-buoy in JARPA98/99. 171 calls from blue whales and 425 calls from fin whales were confirmed clearly for 163 minutes at two stations.

Okamura and co-workers examined the density of minke whales (*Balaenoptera acutorostrata*) in the western North Pacific using the generalized additive model in order to investigate the spatial and temporal distribution pattern and the necessity of modification for the sub-areas pre-established in the RMP. The employed data were a part of JARPN sighting data collected from 1994 to 1999. It concluded that there was no suggestion for the stratification of the western North Pacific regions of the minke whales. The monthly transition of the density distribution suggested the northward seasonal feeding migration of the minke whales.

3. Marking data

3.1 Field work

3.1.1 Natural marking data

Many photographs were taken through the dedicated sighting cruises above-mentioned and these were preserved for future analysis.

Photographs were also collected from local sighting cruises for the coastal Bryde's whales off Kochi and Kasasa. A cumulative total of 43 Bryde's whales (Kochi) and 7 Bryde's whales (Kasasa) have been individually identified by mainly shape of dorsal fin, which has been deposited in NRIFS under the cooperative program.

3.2 Analyses/development of techniques

Kishiro and Ohata further examined the natural marking data (photographs of dorsal fin) of the coastal Bryde's whales off Kasasa deposited in 1998 to 2000, and confirmed that one animal individually identified in August 1998 were re-sighted in August 1999 and September 2000 in almost the same location off Kasasa.

Miyashita collected and analyzed the diving time data of minke whales in the Sea of Okhotsk. A total of ten schools was tried to get the data based on the observation by the naked eyes.

4. Tissue/biological samples collected

4.1 Biopsy samples

Biopsy skin sampling was tried at an opportunistic base during the sighting survey cruises in the North Pacific and the Southern Hemisphere as mentioned in Section 2.1.1. Furthermore, two

biopsy/marketing cruises were conducted, in which S. Noji (FAJ) and S. Saino (FAJ) were on board *Kurosaki* sailing off the Pacific coast of the Main Island of Japan from 28 October to 24 December 2000 and Iwasaki, M. Susuki (FAJ), K. Nonaka (FAJ), T. Okumura (FAJ) and Y. Tanaka (FAJ) were on board *Kurosaki* sailing off the Pacific coast of the Main Island of Japan in 1-28 March 2001 (the ships also conducted line transect sighting survey along the predetermined track line). All of biopsy samples collected during the cruises are listed in Table 5.

4.2 Samples from direct catches or bycatch

As detailed in Table 6, under the scientific permits, 440 minke whales were taken in the Antarctic (under JARPA program) and 40 minke whales, 43 Bryde's whales and 5 sperm whales in the western North Pacific (under JARPN II program) respectively. Extensive biological materials were collected from the sampled whales. Details of such materials are described in the cruise reports (SC/53/O10, SC/53/O11) and the progress report of the Institute of Cetacean Research, Tokyo (SC/53/O8).

The JARPN II started last year as the two-year feasibility study. One of the main objectives is to estimate the prey preference of cetaceans. The cooperative ecosystem survey was conducted off the Pacific coast of the northern Japan with four vessels for cetacean and two vessels for prey species surveys, respectively. The survey consisted of two terms, the first from 3 to 11 August and the second from 22 to 31 August. The abundance of the prey was estimated in seven small blocks set in the survey area with an acoustic devices (EK-600) on *Kyoshin-maru* #2 and the species composition from the catches taken by *Shunyo-maru*, a stern trawler. Also oceanographic data were collected with CTD and XCTD. The prey species survey was organized by S. Kawahara (NRIFS), and H. Watanabe and H. Ohizumi (NRIFS) and S. Yonezaki (University of Nagasaki) acted as the researchers on board *Shunyo-maru*. While the data are being analyzed now, the stomach contents of minke and Bryde's whales seem to reflect the abundance and size of prey species in the sea.

4.3 Samples from stranded animals

Several tissues of stranded minke whales and other whales were collected by ICR and the details are given in the ICR progress report.

4.4 Analyses/development of techniques

Kato, in cooperation with R. Zenitani (ICR), examined earplugs, ovaries and testis sections of minke whales collected under the JARPN operations in 1999, and consequently aged 42 animals and determined sexual status for 100 animals. These were used for biological analyses submitted to the JARPN review meeting held at Tokyo in February 2000 (SC/F2K/J13).

T. Tamura (ICR), Ohizumi, and T. Kubodera (National Science Museum) partly analyzed stomach contents of 5 sperm whales collected in the sampling survey of JARPN II. Most of the prey items were mesopelagic or deep sea squids.

For development of the technique for the analysis of stomach contents of whales, Ohizumi, H. Watanabe (Squid section NRIFS), and Kawahara made a guide manual for species identification of myctophids using otoliths. T. Kubodera and Ohizumi also made a guide manual for species identification of cephalopods using lower beak. These manuals are now under preparation for publication in a CD-ROM and internet home page.

Okamura and M. Goto (ICR) calculated the power of the test for the stock hypotheses using the simple method for the allozyme data of the North Pacific minke whale. The power for the present sample size under some conditions was considerably high. The further development such as inclusion of the uncertainty of the statistics and so on is expected in the future.

Okamura and co-workers examined the stock hypotheses of the western North Pacific minke whale using the conception date data. It was indicated using the maximum likelihood estimation and the Akaike's Information Criterion that the best model among several hypotheses was a model under the hypothesis with the only one stock in the western North Pacific. The power of the test was also executed using the simple simulation.

5. Pollution studies

ICR conducted pollution study under the leadership of Y. Fujise, and results are summarized in SC/53/O8

6. Statistics for large cetaceans

6.1 Direct catches

The government of Japan issued the Institute of Cetacean Research, Tokyo (ICR) permits to take Southern Hemisphere minke whales of no more than 440 individuals for 2000/01 JARPA. (Research take in the Antarctic). In addition, the government also issued the sampling limits of 100 minke whales, 50 Bryde's whales and 10 sperm whales in the North Pacific for research purpose under the 2000 JARPN (Research take in North Pacific).

Under the scientific permits, 440 minke whales were taken in the Antarctic (under JARPA program) and 40 minke whales, 43 Bryde's whales and 5 sperm whales in the western North Pacific (under JARPN II program), respectively (Table 7). Extensive biological materials were collected from the sampled whales. Details of such materials are described in the cruise reports (SC/53/O10, SC/53/O11) and the progress report of the Institute of Cetacean Research, Tokyo (SC/53/O8).

6.2 Other non-natural mortality for the calendar year 2000

All of information relevant to this item are given in Tables 8 and 9.

7. Stranding

Information of stranded cetaceans has been officially collected by the Far Seas Fisheries Division of the FAJ, 1-2-1, Kasumigaseki, Tokyo 100, Japan. The information is summarized in Tables 9 and 10. In addition, the Institute of Cetacean Research, Tokyo Suisan Building, 4-18 Toyomi, Chuo-ku, Tokyo 104, Japan and T. Yamada, National Science Museum, Hyakunin-cho, Shinjuku-ku, Tokyo 164, Japan voluntarily collected relevant information of the stranding.

8. Other studies and analyses

Kishiro, Miyashita, S. Wada (NRIFS) and Y. Shimadzu (SNFRI) examined the validity of species identification of Bryde's and sei whales in the commercial catches in the Japanese pelagic whaling in 1973 and 1974 to address a question raised last year at the SC meeting. Through the analyses of individual allozyme and operational information, they concluded that the species identification was correct.

From a view of future multispecies management, Okamura and Kawahara examined how the *Ecopath* model performed for the test data. They concluded that the *Ecopath* model was useful for the ecosystem study to some degree. However they also stated that the models including the fishery dynamic such as the *Ecosim* or the *Multispec* were needed for more detailed analyses.

9. Publications (excluding IWC volumes and documents submitted to the IWC meetings)

- Amano, M., Marui, M., Guenther, T., Ohizumi, H. and Miyazaki, N. 2000. Re-evaluation of geographic variation in the white flank patch of dalli-type Dall's porpoise. *Marine Mammal Science*, Vol. 16, No 3. 631-636.
- Hunt, G. L., Kato, H. and Mckinnell, M. 2000 Predation by marine birds and mammals in the subarctic North Pacific Ocean. *PICES Scientific Report No. 14*, pp165,
- Isoda, T., Ohizumi, H., Asahina, K. and Kato, H. 2001. Comparison of feeding habits of southern form short-finned pilot whales and Risso's dolphin in Kii peninsula, central Japan. Abstract for the meeting of the Japanese Society of Fisheries Science. p92. (in Japanese).
- Kato, H. 2000. Natural history of Bryde's whales. Abstract, Joint symposium of the union of owners of fishing boat. Ohgata, Kochi, Japan. November 2000. (in Japanese).
- Kato, H. 2000. "Natural history of Bryde's whales -Japanese whales in Tosa bay-" 308pp. Heibonsha Ltd, Tokyo. (in Japanese).
- Kato, H., Bengtson, J., Baba, N., Jay, C., Lowry, L. and Trites, A. 2000. Prey consumption by marine mammals; estimation by the PICES working group 11. Abstract (W6-333), PICES XI annual meeting, Hakodate, October 2000.
- Kato, H. and Hunt, G. 2000. Summary of the workshop on "the basis for estimating the abundance of marine birds and mammals, and the impact of their predation on the other organisms". Abstract (S2-334), PICES XI annual meeting, Hakodate, October 2000
- Kato, H. and Miyashita, T. 2000. Cetaceans in Okhotsk Sea from current joint survey Japan and Russia. Report, Japan-Russia Joint Symposium "Iturup, Kunasir, Shikotan, Habomai Islands of the 21st Century - The coexistence between rich nature and human-" (in Japanese).
- Kato, H. 2001. The blue whale skeleton beyond the century. *Aquabiology* 23(2):105.
- Kato, H. 2001. Current cetacean surveys in Japan. Abstract, Symposium on whale in Japan-Korea. Pusan, February 2001.
- Kato, H. 2001. Gray whales off Ulsan, Republic of Korea. Abstract. Korea and Japan Friendship Symposium in Ulsan. Ulsan, February 2001.
- Kida, M., Ohizumi, H., Ito, M. and Tanaka, S. 2001. Structure of peripheral airways in Baird's beaked whale (*Berardius bairdii*). Abstracts of 60th meeting of central Japan branch, The Japanese Association of Anatomists. p25-26.
- Kishiro, T. 2000. Sperm whale stranded at Ohsuka, Shizuoka Prefecture. *Enyo* 106:23-24. (in Japanese).
- Kishiro, T. 2000. Stranding of sperm whale - an instance at Ohsuka, Shizuoka Prefecture - Abstract for the meeting of the central branch of Japanese Society of Fisheries Science, December 2, Shizuoka, Japan. p3. (in Japanese).
- Miyashita, T. 2000 Case study on marine mammal: shipboard survey for cetacean population. Abstract, Ninth Annual Meeting of PICES. November 2000
- Miyashita, T. 2000. Distribution of whales in the North Pacific inferred from the Japanese sighting surveys. Abstract, Symposium on whale in Japan-Korea. February 2001.
- Ohizumi, H. 2000. Approaches to dietary study of cetaceans and problems in the analyses of stomach contents. Abstract, North Pacific Marine Science organization (PICES), Ninth Annual Meeting, Hakodate, Japan. October 2000.
- Ohizumi, H., Kuramochi, T., Amano M. and Miyazaki, N. 2000 Prey switching of Dall's porpoise, *Phocoenoides dalli*, with population decline of Japanese Pilchard, *Sardinops melanostictus*, around Hokkaido, Japan. *Marine Ecology Progress Series*, Vol. 200. 265-275.
- Ohizumi, H., Terasawa, F., Kitamura, M., Fujimoto, A., Kato, H. and Tsuda, A. 2001. Development of the methods for respiratory study of captive toothed whales. Abstract for the meeting of the Japanese Society of Fisheries Science. p91. (in Japanese).
- Shimada, H., Matsuoka, K., Murase, H., Nishiwaki, S. and Takei, J. Report of Acoustic Studies for Baleen Whale in the JARPA 98/99 • Area V •. Abstracts for the Meeting of the Japanese Society of Fisheries Science, September 2000, 42p. (in Japanese).

Tamura, T. and Ohizumi, H. 2000. Foods and feeding habits of cetaceans, and their food consumption in the North Pacific –Especially western North Pacific Marine Science Organization (PICES). Abstract, Ninth Annual Meeting, Hakodate, Japan October 2000

Table 2. Large cetaceans sighted by Japanese dedicated sighting surveys (*Shonan-maru* and *Shonan-maru #2*) in the Southern Hemisphere in the 2000/2001 austral summer season (including SOWER/Blue whale cruises, SOWER/Antarctic cruises and those before and after the cruises). The number is given for the noon position of vessels. Key : B = blue, F = fin, H = humpback, Mi = minke, Sp = sperm, Bo = southern bottlenose whale

10• square	Distance (n.miles)	Number of whales sighted					
		B	F	H	Mi	Sp	Bo
A 25	424	-	-	-	-	2	-
B 25	407	4	4	5	33	6	-
26	116	3	-	-	49	1	2
27	170	-	-	-	10	1	-
28	43	-	-	-	5	-	2
29	918	-	76	13	140	10	30
30	1,096	4	14	23	146	6	14
31	1,434	5	13	29	153	4	14
C 25	136	-	-	-	11	2	-
28	54	-	-	-	74	1	-
29	94	-	-	-	47	3	-
31	70	-	1	6	75	1	4
D 24	495	-	3	-	-	5	25
29	86	-	-	-	-	-	4
E 28	236	-	-	-	-	5	-
29	509	-	-	-	-	25	-
F 28	572	-	-	-	-	1	-
G 28	118	-	-	-	-	-	-
Total	6,978	16	111	76	743	73	95

Table 3. Large cetaceans sighted by Japanese dedicated surveys (*Toshi-maru No.11*, *Shonan-maru No.2* and *Kurosaki*) operated in the North Pacific during 2000 summer season (June to October 2000) in addition two local line transect surveys off Kochi and Kagoshima in September. Number of sighting by 10° square are based on the noon position of the vessels. Key : Br = Bryde's whale, R = right whale and G = gray whale. For other species Table 2.

10° square	Distance (n.miles)	Number of whales sighted						
		F	Br	R	G	Mi	Sp	
K	20	459	-	-	-	-	-	7
	21	1,029	-	4	-	-	-	21
L	20	468	-	4	-	-	-	16
	21	532	-	-	-	-	-	20
M	20	1,725	-	56	-	-	3	-
	21	228	-	-	-	-	-	77
N	20	323	-	-	-	-	-	-
	21	1,211	31	-	1	-	40	2
P	20	108	-	-	-	-	6	-
	21	846	44	-	3	8	36	-
	22	314	10	-	-	-	-	-
Total	7,243	85	64	4	8	85	143	

Table 4. Large cetaceans sighted by Japanese dedicated sighting surveys (*Kurosaki*, *Kano-maru* and transit cruises of the SOWER by *Shonan-maru* and *Shonan-maru No.2*) in the North Pacific in 2000/2001 autumn-winter season (October 2000- March 2001) . For species key see Tables 2 and 3.

10° Square	Distance (n.miles)	Number of whales sighted				
		H	Mi	Br	Sp	
E	23	119	-	-	-	1
F	23	98	-	-	-	-
G	27	328	-	-	-	-
H	25	120	-	-	3	-
	26	277	-	-	-	-
J	21	563	-	-	6	1
	22	365	-	-	4	-
	24	18	-	-	1	-
K	25	60	-	-	-	-
	20	121	-	-	-	-
L	22	147	-	-	6	-
	23	113	-	-	2	1
	24	222	-	-	-	-
	20	254	1	-	-	2
L	21	109	-	1	-	1
	22	246	-	-	10	-

(cont.)

						(cont.)
	M	20	1,314	-	-	-
		21	1,226	-	1	-
	Total		5,700	1	2	32
						101

Table 5. Large cetacean biopsy samples collected through Japanese research, May 2000 - May 2001. In addition, some samples were obtained through JARPA and JARPN as referred in 53/SC/O8.

Species	Area	No. collected	Archived (Y/N)	No. analyzed	Total holdings	Contact Institute
Blue whale	Antarctic	24	Y	0	24	NRIFS
Humpback whale	Antarctic	37	Y	0	37	NRIFS
Minke whale	Antarctic	9	Y	0	9	NRIFS
Sperm whale	S. Pacific	4	Y	0	4	NRIFS

Table 6. Large cetacean samples from bycatch, May 2000-May 2001. In addition, some samples were collected by ICR as referred in SC/53/O8.

Species	Area	Type of fishery	No. collected	Archived (Y/N)	Tissue type(s)	Contact Institute
Minke whale	N.Pacific	Trap net	1	Y	Skin and muscle	NRIFS

Table 7. Direct catch of large cetaceans by Japan, May 2000-May 2001.

Species	Type of catch	Area/stock	Males	Females	Total holdings
Minke whale	Special permit	N.Pacific	35	5	40
	Special permit	Antarctic	258	182	440
Bryde's whale	Special permit	N.Pacific	21	22	43
Sperm whale	Special permit	N.Pacific	3	2	5

Table 8. Other non-natural mortality of large cetaceans (bycatch) by Japanese fisheries by Prefecture, January-December 2000. Species and figures are based on reports of prefecture governments to the Fishery Agency which are reports from individual fishermen or fishery cooperative unions (provisional figures).

Species	Prefecture ¹⁾	Type of fishery	No. of individuals
Minke whale	Niigata	Trap net	1
	Toyama	Trap net	6
	Ishikawa	Trap net	11
	Chiba	Trap net	1
	Wakayama	Trap net	4
	Kochi	Trap net	3
	Nagasaki	Trap net	2
	Aomori	Other coastal fishery	1
	Total		29
Humpback whale	Chiba	Trap net	1

1) Recorded to the place where mortality occurred.

- 2) This table excludes large cetaceans taken in trap net but later released alive (Nine minke whales in Hokkaido, one minke whale in Chiba, one minke and one humpback whales in Kochi, one minke whale in Shimane and one minke whale in Kagoshima).

Table 9. Summary of large cetacean bycatch and strandings in 2000, by species and type of fisheries. For further details see Tables 8 and 10. [I]= incidental take. (provisional figures).

Species	Trap net	Other coastal fisheries	Strandings	Total
	[I]	[I]	[I]	
Bryde's whale	0	0	1	1
Minke whale	28	1	4	33
Humpback whale	1	0	0	1
Sperm whale	0	0	5	5
Total	29	1	9	39

Table 10. Large cetacean strandings in Japan, January-December 2000. Species and figures are based on reports of prefecture governments to the Fisheries Agency which are reports from individual fishermen, fishery cooperative unions or the general public (provisional figures).

Species	Prefecture ¹⁾	No. of Individuals
	Minke whale	Hokkaido
Tottori		1
Shimane		1
Total		4
Bryde's whale	Kanagawa	1
Sperm whale	Hokkaido	2
	Shizuoka	1
	Tokyo	1
	Miyazaki	1
	Total	5
Total	Total	10

Recorded to the place where strandings occurred.