

**JAPAN. PROGRESS REPORT ON SMALL CETACEAN RESEARCH
May 2005 to April 2006, WITH STATISTICAL DATA FOR THE CALENDAR YEAR 2005**

Compiled by Toshihide Iwasaki

*National Research Institute of Far Seas Fisheries,
2-12-4,Fukuura, Kanazawa, Yokohama, Kanagawa 236-8648, Japan*

This report summarizes small cetacean fisheries in 2005 as well as researches conducted during the period from May 2005 to April 2006 by the National Research Institute of Far Seas Fisheries (hereafter NRIFSF) of the Fisheries Research Agency of Japan (hereafter FRA) and the Fisheries Agency of the Ministry of Agriculture, Forestry and Fisheries, the Government of Japan (hereafter FAJ) with the cooperation of other related organizations. This report covers information on small cetaceans which is not included in the “JAPAN PROGRESS REPORT ON CETACEAN RESEARCH, May 2005 TO April 2006, WITH STATISTICAL DATA FOR THE CALENDAR YEAR 2005” (submitted to 58th IWC/SC meeting).

Species and stocks studied

The following species and stocks of small cetaceans were studied by NRIFSF and FAJ:

Common name	Scientific name	Area/stock(s)	Items referred to
Dall's porpoise	<i>Phocaenoides dalli</i>	Off Pacific coast, Okhotsk Sea, Sea of Japan	2.1.1, 4.2, 4.4, 6.1, 6.2.1
Finless porpoise	<i>Neophocoena phocaenoides</i>	Coastal waters of Japan	2.1.1, 4.3, 6.2.1, 6.2.3
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>	Off Pacific coast	2.1.1, 6.2.1, 6.2.3
Striped dolphin	<i>Stenella coeruleoalba</i>	Off Pacific coast, Western North Pacific	2.1.1, 3.1.2, 4.1, 4.2, 4.3, 6.1, 6.2.1
Spotted dolphin	<i>Stenella attenuata</i>	Off Pacific coast	2.1.1, 4.2, 6.1
Bottlenose dolphin	<i>Tursiops truncatus</i>	Kagoshima Bay, off Pacific coast, East China Sea	2.1.1, 3.1.3, 4.2, 6.1, 6.2.1, 6.2.3
Risso's dolphin	<i>Grampus griseus</i>	Western North Pacific	2.1.1, 4.2, 4.4, 6.1, 6.2.1
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	Off Pacific coast, western North Pacific, East China Sea	2.1.1, 4.2, 4.4, 6.1, 6.2.1
False killer whale	<i>Pseudorca crassidens</i>	Off Pacific coast	4.2, 6.1, 6.2.1
Baird's beaked whale	<i>Berardius bairdii</i>	Off Pacific coast, Sea of Japan, Okhotsk Sea	2.1.1, 3.1.3, 3.2, 4.2, 4.4, 6.1
Additional species taken or sighted during dolphin fisheries or small-type whaling operations	-	Off Pacific coast, Sea of Japan, Okhotsk Sea	2.1.1, 4.3, 6.2.3
Additional species sighted during the sighting cruise	-	North Pacific, Okhotsk Sea, Southern Hemisphere	2.1.1
Additional species stranded	-	Around Japan	6.2.1

2. Sighting data (this section partly overlaps with descriptions of sighting data in SC/58/Japan /Progprep.)

2.1 Field work

2.1.1 SYSTEMATIC

The NRIFSF and FAJ conducted a total of eight dedicated shipboard sighting and other related surveys using research vessels and one sighting surveys using airplane in the North Pacific, in cooperation with other scientific organizations such as the Institute of Cetacean Research (ICR) *etc.* All of the vessels are equipped with a top barrel. Names of the vessels, scientists on board, and period of each cruise are given in Table 1. During these cruises, all sighting information including small cetaceans was recorded.

Table 1. Name of vessels, scientists on board for the sighting and other research in the North Pacific and the Southern Hemisphere from May 2005 to April 2006.

Name of vessel	Main objective	Period and region	Scientists on board*
[North Pacific]			
<i>Shonan-maru No.2</i>	Sighting survey for mainly common minke whales	May 12 – June 30, Northern Sea of Japan	Saito, T.(TS/FRA), Noji, S. (TS/FRA)
<i>Shonan-maru</i>	Sighting survey for large cetaceans	July 29-Sep 20, East of the Kamchatka Peninsula	Miyashita, T. (NRIFSF), Hiruda, H. (TS/FRA), Kornev, S. (Russian observer)
<i>Shonan-maru No.2</i>	Sighting survey for large cetaceans	July 29-Sep 20, East of the Kuril Islands	Saito, T.(TS/FRA), Noji, S. (TS/FRA), Gusakov, P. (Russian observer)
<i>Shunyo-maru</i>	Acoustic and sighting survey for sperm whales	Aug. 23 – Sep. 12, Off the Pacific coast of Japan	Shimada, H. (NRIFSF), Itou, H. (TS/FRA), Kusano, A. (TS/FRA), Okumura, T. (TS/FRA), Fujiwara, G. (TS/FRA)
<i>Kurosaki</i>	Experimental cruise for cetacean satellite tracking	Sep. 28 – Oct. 18, Off the Pacific coast of Japan	Noji, S. (TS/FRA), Masuda, Y. (TS/FRA), Tanaka, Y. (TS/FRA), Hashimoto, K. (TS/FRA)
<i>Kurosaki</i>	Diving time for Baird's beaked whale	May 11 – July 9, Sea of Japan	Minamikawa, S. (NRIFS), Kawashima, M (TS/FRA). Izumi, S. (TS/FRA), Fujiwara, G. (TS/FRA), Tanaka, Y. (TS/FRA)
<i>Kurosaki</i>	Cetacean sightings, marking and biopsy	Oct. 25 – Dec. 7 Off the Pacific coast of Japan	Noji, S. (TS/FRA), Masuda, Y. (TS/FRA), Tanaka, Y. (TS/FRA), Hashimoto, K. (TS/FRA)
[Southern Hemisphere]			
<i>Shonan-maru No.2 (IWC/SOWER)</i>	Sighting SOWER/Antarctic	Dec. 22-Feb.22, Area III in the Antarctic	Ensor, P. (New Zealand), Sekiguchi, K.(Japan), Olson, P. (USA), Stafford, K.(USA)

The IWC/SOWER (Southern Ocean Whale and Ecosystem Research) Antarctic sighting cruise was conducted from 22 December 2005 to 22 February 2006. The government of Japan offered a research vessel (*Shonan-maru No.2*) and crew for this program, as has been in the case for the last 28 years. The research area planned in the western part of Area III (000° - 020°E) for 50 days. The details of the cruise and results will be separately reported at the 58th IWC/SC meeting (SC/58/IA1). Sightings of smaller cetaceans during the cruise were shown in Table 2.

Table 2. Small cetaceans sighted during Japanese dedicated sighting surveys (*Shonan-maru No.2*) in the Southern Hemisphere in the 2005/2006 austral summer season (including SOWER/Blue whale cruise, SOWER/Antarctic cruises and those before and after them). The number is given by 10° squares based on the noon position of vessel.

10° square	Distance (n. miles)	No. of sightings	
		Hourglass	dolphin
A 7	270	–	–
8	543	–	–
9	18	–	–
B 7	984	–	–
8	1,160	–	–
9	108	–	–
D 8	118	10	–
E 8	106	–	–
Total	3,307	10	–

In the North Pacific, a total of seven sighting and related research cruises were conducted. Of these, four cruises were mainly engaged in sighting survey. Miyashita and Shimada worked in planning, track designs, and searching methods of all the above cruises.

Russian Federation kindly granted the permission to survey in the EEZ east of the Kuril Islands and the Kamchatka Peninsula, and the sighting surveys were conducted in summer using *Shonan-maru* and *Shonan-maru No.2* (SC/58/NPM5).

With cooperation among the NRIFSF, 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 July and August 2005, using a total of 27 whale watching boats belong to the WATB. The boats (5 -10t) were without top barrels and excluded from Table 1, but the boats were employed as sighting survey vessels in local coastal waters. The survey lasted six days in July and three days in August, and T. Kishi (NRIFS), ten research assistants and 27 fishermen members of WATB acted as the researchers on board. A total of three schools (250 animals) of common dolphins and five schools (50 animals) of Risso's dolphins were sighted.

A sighting survey for Bryde's whales was also conducted in the coastal waters off Kasasa, Southwest end of Kyushu, in August 2005, under the cooperation among the NRIFSF, Kagoshima prefecture government (KAPG), and Nomaie Fishery Cooperative Union (NFCU). A total of 18 whale watching boats (belong to the NFCU) was used as the research vessels. The surveys lasted five days. Kishi and eight research assistants acted as the researchers on board. A total of 20 schools (781 animals) of spinner dolphins, one (40 animals) of short-finned pilot whales and one (25) of Risso's dolphins were sighted.

Table 3. Small cetaceans sighted during Japanese dedicated sighting surveys (*Shonan-maru*, *Shonan-maru No.2* and *Kurosaki*) operated in the North Pacific during 2005 summer season (April to September 2005). The number is given by 10° squares based on the noon position of the vessels.

10° Square	Distance (n. miles)	No. of sightings						
		Bottlenose dolphin	Striped dolphin	Pacific white-sided dolphin	Baird's beaked whale	dalli-type Dall's porpoise	truei-type Dall's porpoise	Northern right whale dolphin
M 20	510	–	–	1,710	–	6	–	–
21	411	9	3,912	–	–	–	–	–

N 20	2,735	-	-	1,049	609	220	11	-
21	670	-	-	34	-	83	2	-
22	690	-	-	7	3	163	-	3
23	428	-	-	-	-	111	-	-
P22	86	-	-	-	-	92	6	-
23	1,185	-	-	-	-	587	-	-
Total	6,715	9	3,912	2,800	612	1,262	19	3

Table 4. Small cetaceans sighted during Japanese dedicated sighting surveys (*Kurosaki*, *Kanou-maru* and transit cruises of the SOWER by *Shonan-maru No.2*) in the North Pacific in 2005/2006 autumn-winter season (October 2005-March 2006).

10° square	Distance (n. miles)	No. of sightings			
		Bottlenose dolphin	Striped dolphin	Short-beaked common dolphin	Spotted dolphin
E 10	80	-	-	-	65
F 14	305	-	100	-	-
G 16	134	-	40	-	-
K 20	291	-	-	-	50
L 20	200	-	52	-	45
M 21	633	23	16,134	170	-
Total	1,643	23	16,326	170	160

Aerial sighting surveys for finless porpoises using small airplanes (CESSNA 172P) were conducted to obtain information on their abundance and distribution in Sendai Bay-Tokyo Bay and western part of Inland Sea. Yoshida and Minamikawa conducted the surveys under collaboration of four Japanese aquariums (Ibaraki Prefectural Oarai aquarium, Kamogawa Sea World, Miyajima Public Aquarium, and Shimonoseki Marine Science Museum). K. Hattori (Hokkaido National Fisheries Research Institute, Fisheries Research Agency) also joined the survey in Sendai Bay-Tokyo Bay. In Sendai Bay-Tokyo Bay, surveys were carried out on 29 August and 1 September 2005, and all the 49 schools (237 animals) of finless porpoises were detected during the flight of 578.5 n.miles. In western part of Inland Sea, a total of 839.7 nautical miles was searched on 17 and 21 October 2005 and all the 86 schools (143 animals) of porpoises were sighted. No sightings of other cetaceans were recorded in both areas.

In order to accumulate further information on distribution and density of cetaceans inhabiting coastal waters of the western North Africa, a sighting survey was conducted in coastal waters from southern Guinea to Sierra Leone, by Boussoura National Research Center of Fisheries Science, Republic of Guinea of G. uinea. The research vessel "GENERAL LANSANA CONTE" (198t) was used. The NRIFS and ICR supported the survey. All the 11 African researchers from 8 countries were on board (four researchers from Guinea and one from each of Mauritania, Senegal, Sierra Leone, Cote d'Ivoire, Togo, Benin, and Cameroon) and searched cetaceans from the upper deck and search mast of the vessel. Yoshida also joined the survey. A total of 618.8 n. miles was searched in a period of 18-27 January 2006 and sightings of 36 cetacean schools (1567 animals) were recorded. These sightings included 6 short-finned pilot whale schools (275 animals), 63 bottlenose dolphin schools (197 animals), 2a common dolphin schools (520120 animals), 2 spotted dolphin schools (208 animals), a Atlantic spotted dolphin

school (100 animals), and 2a schools of 38000 short-snouted spinner dolphin

2.1.2 OPPORTUNISTIC, PLATFORMS OF OPPORTUNITY

Opportunistic sighting data have been collected during small-type whaling and dolphin fishery operations. They mainly consist of sightings of target species within the fishing grounds (e.g. southern form short-finned pilot and false killer whales, Risso's, bottlenose, striped and spotted dolphins off Taiji).

3. Marking data

3.1 Field work

3.1.1 NATURAL MARKING DATA

No small cetacean natural marking data were collected during the period from May 2005 to April 2006.

3.1.2 ARTIFICIAL MARKING DATA

S. Noji (FRA) and Y. Masuda (FRA) succeeded in "dart-tag" marking of 414 striped dolphins in total during the research cruise on *Kurosaki*. These are shown in Table 5.

Table 5. Artificial marking data released by NRIFSF, May 2005 - April 2006.

Species	Area	No. marked
Striped dolphin	N.Pacific	414

3.1.3 TELEMETRY DATA

Iwasaki conducted satellite tracking of bottlenose dolphins. Eight dolphins were released from Taiji on 6 February 2006, and were tracked for 19 days at the longest. They moved to the southeast crossing the Kuroshio Current and then moved northbound.

Minamikawa (NRIFSF) and Kawashima (FRA) deployed, with an air gun, a tag containing a data-logger (depth and temperature) and Argos PTT on a free-swimming Baird's beaked whale on 1st July in Sea of Japan on . The tag was released from the whale approximately one hour later and recovered on 2nd July. .Consequently two dives were recorded.

3. 2 Analyses/development of techniques

Minamikawa and Iwasaki further improved the tagging system of a data-logger using air gun for beaked whales. The tag was made lighter and smaller, and had built-in automatic releaser. It was used to obtain diving behavior data of Baird's beaked whales.

4. Tissue/biological samples collected

4.1 Biopsy samples

Skin biopsy was attempted during the cruises mentioned in 2.1.1. All of the biopsy samples collected during the cruises is listed in Table 6.

Table 6. Biopsy samples collected during Japanese research cruises, May 2005 - April 2006.

Species	Area	No. Collected	Archived (Y/N)	No. Analyzed	Total holdings	Contact Institute
Striped dolphin	N. Pacific	11	Y	0	11	NRIFSF
Short-beaked common dolphin	N. Pacific	2	Y	0	2	NRIFSF

4.2 Samples from direct catches or bycatch

The national quota of Baird's beaked whales was sixty-six animals. Fishing season was from 25 May to 30 June for land station in Hakodate on the Sea of Japan coast, 10 June to 31 August for land station in Ayukawa on the Pacific coast, 20 June to 31 August for land station in Wadoura on the Pacific coast, and 16 to 31 August for land station in Abashiri on the Okhotsk coast. A total of sixty-six whales (ten off Hakodate(eight in the last season), four off Abashiri (two in the last season), 52 off the Pacific coast) were taken by five catcher boats (*Seiwa-maru*, *Kohei-maru* #75, *Taisho-maru* #28, *Katsu-maru* #7 and *Sumitomo-maru* #31). Kishiro organized the field data collection from the fishery operations, and all the catches were examined and samples taken by the following four biologists: Kishiro, H. Sato (FAJ), T. Hara (FAJ) and S. Tabata (FAJ). The national quota of northern form short-finned pilot whales for small-type whaling was 36 whales (50 in the last season) with a fishing season from 18 October to 15 December for two boats (*Kohei-maru* #75 and *Taisho-maru* #28). A total of twenty-two whales were taken by the two vessels from the station in Ayukawa. All the catches were examined and samples taken by Kishiro and Y. Morita (FAJ). The national quota of southern form

short-finned pilot whales for small-type whaling was fifty whales with a fishing season from 1 May to 15 August and 1 to 30 September. A total of twenty-five whales were taken by three catcher boats (*Katsu-maru #7*, *Sumitomo-maru #31*, and *Seiwa-maru*) operating from one land station (Taiji). All of the catches were examined and samples taken by Hara, Sato and Morita. The FAJ also set a national catch quota of twenty Risso's dolphins for small-type whaling in Taiji from 1 May to 15 August and 1 to 30 September. A total of eight animals were taken by *Katsu-maru #7*, *Sumitomo-maru #31* and *Seiwa-maru*, and examined by Hara, Sato and Morita. In Taiji during May-August 2004, the researchers also collected samples from hand harpoon catches when they had the opportunity, including sixty-four bottlenose, forty-one striped, thirteen spotted and three Risso's dolphins.

Kishiro and T. Tajima (FRA) collected stomach contents of ten Baird's beaked whales taken by small-type whaling in Hakodate from May to June 2005. A. Watanabe (FRA) and Morita recorded prey species and weight of stomach content of 22 northern form short-finned pilot whales taken by small-type whaling in Ayukawa from October to December 2005.

Iwasaki and his colleagues, Y. Tomizawa (FRA), S. Saino (FRA), T. Hara (FRA) and Y. Morita (FRA), collected samples for life history and genetic studies from catches of drive and hand harpoon fisheries in Taiji during operations through 1 October to 20 December 2004 and 7 January to 10 February 2006. They examined a total of 770 animals composed of 310 striped, 301 Risso's and 119 bottlenose dolphins and 40 southern form short-finned pilot whales.

Under contract with FRA and supervised by NRIFSF, sample collection for life history and genetic studies of dolphin fisheries was performed in Iwate and Okinawa prefectures. T. Horikoshi of Iwate Fisheries Technology Center (hereafter IFTC) and his colleagues collected samples from 45 *truei*-type and two *dalli*-type Dall's porpoises (taken off Iwate during 6-17 February 2006). During April through March, S. Shirakizawa (IFTC), J. Sato (IFTC) and Horikoshi recorded color type, sex and body length of 804 *truei*-type and 668 *dalli*-type Dall's porpoises landed at the Kamaishi Fish Market and collected DNA samples from 86 *dalli*-types. N. Higashi and S. Arai of Okinawa Churaumi Aquarium collected samples for life history and genetic studies from 25 southern form short-finned pilot whales, two bottlenose dolphins and one false killer whale which were taken by hand harpoon fishery in Okinawa. Details of biological materials collected by the above activities are given in Table 7.

Table 7. Samples collected from operations of small-type whaling and dolphin fisheries and from by-caught cetaceans by other fisheries, May 2005-April 2006.

Species	Area	Type of fishery	No. collected	Archive d (Y/N)	Tissue type(s)	Contact Institute	
Dall's porpoise	<i>dalli</i> -type	N.Pacific	Hand harpoon	86	Y	skin(Sk) and muscle(M)	NRIFSF
	<i>truei</i> -type	N.Pacific	Hand harpoon	45	Y	tooth(To), Sk, liver(L), M, ovary(O), uterine horn(U) and testis(Te)	NRIFSF
Striped dolphin	N.Pacific	Hand harpoon	42	Y	To, Sk, M, O, U and Te	NRIFSF	
		Driving	309	Y	To, S, M, O, U and Te	NRIFSF	
Spotted dolphin	N.Pacific	Hand harpoon	13	Y	To, S, M, O, U, Te and St	NRIFSF	
Bottlenose dolphin	N.Pacific	Hand harpoon	67	Y	To, Sk, M, O, U, Te and St	NRIFSF	
		Driving	116	Y	To, Sk, M, O, U and Te	NRIFSF	
	E. China Sea	Hand harpoon (crossbow)	2	Y	To, Sk and M	NRIFSF	
Risso's dolphin	N.Pacific	Small-type whaling	8	Y	To, Sk, L, M, O, U, Te, epididymis (E), vertebral epiphysis (V) and St	NRIFSF	
		Hand harpoon	5	Y	To, Sk, L, M, O, U and Te	NRIFSF	
		Driving	299	Y	To, Sk, L, M, O, U and Te	NRIFSF	

Fales killer whale	E. China Sea	Hand harpoon (crossbow)	1	Y	To, Sk and M	NRIFSF
Short-finned pilot whale	northern form	N.Pacific	Small-type whaling	22	Y	To, Sk L, M, O, U, Te, E, V NRIFSF and St
	southern form	N.Pacific	Small-type whaling	25	Y	To, Sk, L, M, O, U, Te, E, V NRIFSF and St
		E. China Sea	Hand harpoon (crossbow)	25	Y	To, Sk and M NRIFSF
Baird's beaked whale		N.Pacific	Small-type whaling	52	Y	To, Sk, L, M, O, U, Te, E, V NRIFSF and St
		Okhotsk Sea	Small-type whaling	4	Y	To, Sk, L, M, O, U, Te, E, V NRIFSF and St
		Sea of Japan	Small-type whaling	10	Y	To, Sk, L, M, O, U, Te, E, V NRIFSF and St

4.3 Samples from stranded animals

Skin samples of four finless porpoises (July, October, November 2005 and February 2006, respectively in Ibaraki) and one short-beaked common dolphin (April 2006, Nagasaki) were sent to NRIFSF.

4.4 Analyses/development of techniques

In order to clarify the stock structure of Baird's beaked whales in the Sea of Japan, Kishiro, Ohizumi and Yoshida continued to analyze reproductive organs, external body proportion, stomach contents and genetic composition of Baird's beaked whales taken by small-type whaling in Hakodate in 2004.

Kishiro examined the teeth, mammary tissue, ovaries and endometrium samples of Risso's dolphin taken by small-type whaling and drive fisheries, and estimated the age of 173 animals and examined reproductive status of 194 females.

NRIFSF continued to give research on feeding habits of smaller odontocetes in charge to School of Marine Science and Technology in Tokai University, and continued cooperative research with Ohizumi in the university. Ohizumi and Tajima (Tokai Univ.) with Kishiro cooperatively started stomach contents analysis of ten Baird's beaked whales taken by coastal whaling off Hakodate in 2005. Ohizumi and Watanabe (Tokai Univ.) with Kishiro cooperatively started stomach contents analysis of 34 northern form short-finned pilot whales taken by coastal whaling off Ayukawa in 2004 and 2005.

Ohizumi and Aoki (Tokai Univ.) with Kishiro cooperatively started stomach contents analysis of 17 short-finned pilot whales taken by hand-harpoon fishery in May and June of 2002 and 2003 in Taiji. Ohizumi, Yamazaki (Tokai Univ.), and Kishiro started cooperative stomach content analysis of 18 Risso's dolphins taken by hand-harpoon fishery in May and June of 2002 and 2003 in Taiji. Okamoto (Tokai Univ.), Ohizumi and Iwasaki cooperatively started stomach content analysis of 41 Dall's porpoises taken by hand harpoon fishery off Sanriku during January to February 2005.

Yoshida carried forward the mtDNA sequence analysis in order to obtain further information on Baird's beaked whale stock structure, using tissue samples of 5 whales taken in 2002-03 by the small-type whaling. Yoshida also conducted stock structure analysis of short-finned pilot whales, using mtDNA sequences obtained from 17 animals caught in 2002-03 by the hand harpoon fishery at Okinawa. 2002-03 small-type whaling and the 2001 drive fisheries.

5. Pollution studies

No pollution studies were conducted during the period between May 2005 and April 2006.

6. Statistics for small cetaceans

6.1 For the calendar year 2005

Target species, fishing season, quota, catcher boats and actual catches of small-type whaling are the same as shown in 4.2. For dolphin fisheries, as explained in the progress report presented to 52nd IWC/SC, FAJ introduced in 1996 a new management season starting on 1 August and closing on 31 July for Dall's porpoise fisheries, and from 1 October to 30

September of the next year for other species. As has been the case in previous years, the statistics, following the modified guideline for IWC national progress report, cover catches from 1 January to 31 December 2005, while FAJ manages dolphin fisheries by their own yearly season aforementioned. Thus, in some cases, the calendar yearly catch may exceed the seasonal (yearly) catch in appearance, but the actual seasonal catch is well below the allocated catch quota. Direct small cetacean catches are given in Table 8 by prefecture and type of fisheries. By species is shown in Table 9, together with incidental catches and strandings. The data have been collected by the Far Seas Division of the FAJ based on reports from the prefectural governments.

Catch quota for the 2005/2006 season remains the same as the last season: 9,000 *dalli*-type Dall's porpoise, 8,700 *truei*-type Dall's porpoises, 1,300 Risso's dolphins (including twenty for small-type whaling), 1,100 bottlenose dolphins, 950 spotted dolphins, 725 striped dolphins, 450 southern form short-finned pilot whales (including fifty for small-type whaling) and fifty false killer whales.

Corresponding operational months by prefecture in 2005 (January to September in 2005 and October to December of the 2005/2006 season) was as follows: Japanese hand harpoon fishery for porpoises was permitted for nine months (1 February to 31 October) in Okinawa prefecture; seven months (1 January to 9 March, 1 May to 31 August, 20 to 31 December) in Wakayama; six months (1 January to 30 April and 1 November to 31 December) in Aomori, Miyagi, Iwate and Chiba; and 4.5 months (1 May to 15 June and 1 August to 31 October) in Hokkaido. Drive fishery was permitted for seven months in Wakayama (1 January to 30 April and 1 October to 31 December) and Shizuoka (1 January to 31 March and 1 September to 31 December).

Table 8. Catch of small cetaceans by Japanese fisheries by type of fishery and prefecture, January-December 2005. Unless otherwise stated species and figures are those reported (provisional figures).

Species	Type of fishery	Prefecture ¹⁾	Total landed ²⁾	
Dall's porpoise	<i>dalli</i> -type	Hand harpoon	Hokkaido	1,240
		Hand harpoon	Iwate ³⁾	5,394
		Hand harpoon	Miyagi	246
			Total	6,880
	<i>truei</i> -type	Hand harpoon	Hokkaido	51
		Hand harpoon	Iwate	7,733
		Total	7,784	
Striped dolphin	Hand harpoon	Wakayama	60	
	Driving	Wakayama	397(2)	
		Total	457(2)	
Spotted dolphin	Hand harpoon	Wakayama	13	
Bottlenose dolphin	Hand harpoon	Wakayama	66	
	Driving	Wakayama	285(36)	
	Hand harpoon	Okinawa	10	
		Total	361(36)	
Risso's dolphin	Small-type whaling	Wakayama	8	
		Wakayama	46	
	Driving	Wakayama	340	
		Total	394	
Short-finned pilot whale	northern form	Small-type whaling	Miyagi	22
		southern form	Wakayama	24
	southern form	Hand harpoon	Okinawa	90
		Driving	Wakayama	40(2)
		Total	154(2)	

False killer whale	Hand harpoon	Okinawa	1
Baird's beaked whale	Small-type whaling	Hokkaido	14
	Small-type whaling	Miyagi	26
	Small-type whaling	Chiba	26
		Total	66

- 1) Catches by small-type whaling and drive fishery were recorded at the place of landing of products. Catches by hand harpoon fishery were recorded at the place of registration of vessels.
- 2) Statistics of small-type whaling are based on reports of biologists and gunners. Those of other fisheries are based on reports of prefectural governments to the Fisheries Agency. They are a compilation of landing slips (hand harpoon fisheries in Iwate and Hokkaido) or reports from individual fishermen or fishery cooperative unions (other prefectures). In parenthesis are number of live captured animals which are included into total catch.
- 3) Small portions of catches by hand harpoon fishery off Hokkaido were reported as meat by fishermen and thus have been converted into the number of *dalli*-type Dall's porpoises at 50kg/porpoise (c.f. Ishikawa et al. 1990) by respective prefectural governments.

6.2 Non-natural mortality for the calendar year 2005

6.2.1 STRANDINGS OF SMALL CETACEANS

Strandings of small cetaceans during January to December 2005 were shown in Table 9.

Table 9. Strandings of small cetaceans in Japan, January-December 2005. Species and figures were submitted by prefectural governments to the Fisheries Agency, based on reports from individual fishermen, fishery cooperative unions, and the general public (provisional figures).

Species and stocks	Prefecture ¹⁾	No. of animals	Species and stocks	Prefecture ¹⁾	No. of animals
Dall's porpoise (<i>dalli</i> -type)	Hokkaido	2 ²⁾	Rough-toothed dolphin	Iwate	1
	Chiba	1		Ibaraki	1
	Niigata	1		Wakayama	1
	Total	4		Total	3
(<i>truei</i> -type)	Saga	2	Melon-headed whale	Ibaraki	1
Finless porpoise	Fukushima	7	southern form short-finned pilot whale	Kagoshima	1
	Ibaraki	7		Total	2
	Chiba	26	False killer whale	Ibaraki	1
	Shizuoka	1		Chiba	1
	Aichi	28	Killer whale	Total	2
	Mie	19		Chiba	1
	Hyogo	1		Fukuoka	1
	Yamaguchi	9	Baird's beaked whale	Total	2
	Ehime	1		Hokkaido	9
	Fukuoka	3	Stejneger's beaked whale	Hokkaido	2
	Nagasaki	2		Aomori	4
	Kumamoto	1		Akita	3
	Oita	4		Niigata	3
Total	109		Ishikawa	2	
Short-beaked common dolphin	Ibaraki	2		Total	12
Long-beaked common dolphin	Kagoshima	1	Hubb's beaked whale	Kanagawa	1
Pacific	Hokkaido	1	Pygmy sperm	Hokkaido	1

white-sided dolphin	Aomori	1	whale	Miyagi	1	
	Akita	1		Mie	1	
	Kanagawa	3		Wakayama	1	
	Niigata	6		Kagoshima	2	
	Toyama	1		Total	6	
	Shizuoka	1		Dwarf sperm whale	Ibaraki	1
	Tottori	1			Niigata	1
	Fukuoka	1			Oita	1
Total	16	Kagoshima	2			
Striped dolphin	Kanagawa	1	Okinawa		1	
	Miyazaki	1	Total		6	
	Total	2	Brainville's beaked whale	Shizuoka	2	
Bottlenose dolphin	Nagasaki	1		Fukuoka	1	
	Oita	1		Miyazaki	1	
	Miyazaki	1		Kagoshima	3	
	Kagoshima	2		Total	7	
	Total	5	Unidentified dolphin	Hokkaido	4	
Indo-Pacific bottlenose dolphin	Aichi	1 ³⁾		Iwate	3	
	Risso's dolphin	Miyagi		1	Akita	2
Chiba		2	Tokyo	1		
Kanagawa		1	Niigata	1		
Wakayama		1	Mie	1		
Ehime		1	Ehime	1		
Miyazaki		1	Kagoshima	2		
Total		7	Total	15		

1) Recorded at the prefecture where strandings occurred.

2) One of the two was rescued and sent to an aquarium.

3) Rescued and sent to an aquarium.

4) Apart from the above, the following cetaceans were stranded or had strayed into harbors but were safely driven back to sea: one striped dolphin in Nagasaki, one Risso's dolphin in Kagoshima and two spotted and one unidentified dolphins in Okinawa.

6.2.2 OBSERVED OR REPORTED SHIP STRIKES

No records of ship strike incidence were obtained during the calendar year 2005.

6.2.3 FISHERY BYCATCH

Records of fishery bycatch during the calendar year 2005 were shown in Table 10.

Table 10. Catch of small cetaceans by Japanese fisheries by type of fishery and prefecture, January-December 2004. Unless otherwise stated species and figures are those reported (provisional figures).

Species	Prefecture ¹⁾	No. of animals ²⁾	Cause ³⁾
Harbor porpoise	Hokkaido	3(2)	FPN
Finless porpoise	Yamaguchi	1	GNS
	Yamaguchi	2	MIS
	Nagasaki	1	GNS
	Fukuoka	1	GNS
	Total	5	
Pacific white-sided dolphin	Chiba	2(1)	FPN
	Ishikawa	12(12)	FPN
	Total	14(13)	

Bottlenose dolphin	Kyoto	1(1)	FPN
	Nagasaki	1(1)	FPN
	Total	2(2)	
Melon-deaded whale	Miyazaki	3	FPN

1) Recorded at the place of fishing gears.

2) In parenthesis are the number live captured animals which are included into of total bycatch.

3) Described using "FAO FISHING DESCRIPTION AND CODES", that is, stationary uncovered pound nets (FPN), set gillnets (GNS) and miscellaneous gear (MIS).

4) Apart from the above, the following small cetaceans were incidentally taken but later released alive: 17 Pacific white-sided dolphins in Iwate (FPN) , 19 bottlenose dolphins in Kyoto (FPN) and two unidentified dolphins (one by MIS in Hokkaido and one by FPN in Mie, respectively).

6.4 Earlier years' statistics

There are no changes in earlier years' statistics.

7. Strandings

Information of stranded cetaceans has been officially collected by the Far Seas Division of the FAJ (1-2-1, Kasumigaseki, Tokyo 100-8907, Japan). The data are shown in Table 10. In addition, the Institute of Cetacean Research, (Tokyo Suisan Building, 4-18 Toyomi, Chuo-ku, Tokyo 104-0055, Japan) and T. Yamada (National Science Museum, Hyakunin-cho, Shinjuku-ku, Tokyo 164, Japan) voluntarily collected relevant information on the strandings.

8. Other studies and analyses

No other studies or analyses on small cetaceans were conducted during the period from May 2004 to April 2005.

9. Literature cited

Ishikawa, H., Fujise, Y., Saino, S. and Zenitani, R. 1990. III. Report on onboard biological research on the dolphin hand harpoon boats in the Okhotsk Sea and waters off the Pacific coast of northern Honshu Island.53-78. In: Report on dolphin research around Japan (1989 fiscal year) . Institute of Cetacean Research

10. Publications on small cetaceans

10.1 Published or In Press' papers only

- Hayashi, K., H. Yoshida, S. Nishida, M. Goto, L. A. Pastene, N. Kanda, Y. Baba, and H. Koike. 2006. Genetic variation of the MHC *DQB* locus in the finless porpoise. *Zoological Science*, 23:147-154.
- Iwasaki, T. 2005. Geographical movement of the bottlenose dolphins harvested in the coastal waters off the Kii Peninsula *Kaiyo Monthly* 37:442-7 (in Japanese)
- Iwasaki, T. 2006. Fisheries and research on small cetaceans (review) p309-13. *In* Muto F (eds.) The Current status of international fishery stocks. Fisheries Agency and Fisheries Research Agency. 467p. (in Japanese)
- Iwasaki, T. 2006. Dall's porpoise p314-9 *In* Muto F (eds.) The Current status of international fishery stocks. Fisheries Agency and Fisheries Research Agency. 467p. (in Japanese)
- Kishiro, T. 2006. Baird's beaked whale, *Berardius bairdii*, Sea of Japan, Sea of Okhotsk and Pacific Ocean. P320-3. *In* Muto F (eds.) The Current status of international fishery stocks. Fisheries Agency and Fisheries Research Agency. 467p. (in Japanese)
- Miyashita, T. 2006. Killer whale p357-8 *In* Muto F (eds.) The Current status of international fishery stocks. Fisheries Agency and Fisheries Research Agency. 467p. (in Japanese)
- Okamura, H. Minamikawa, S. and Kitakado, T. 2006. Effect of surfacing patterns on abundance estimates of long-diving animals. *Fisheries Science* 72(3): 631-638.
- Okamura, H. 2005. Multi-species management using ecosystem models and the application of the Ecopath model to western North Pacific. In I. Aoki, A. Nihira, A. Yatsu, and T. Yamakawa (eds). "Regime Shifts and Fisheries Stock Management", Koseisya-Koseikaku, Tokyo, 72-86.
- Sakai, N., Nikaido, M., Hamilton, H., Goto, M., Kato, H., Kanda, H., L.A. Pastene., Cao, Y., R.E. Fordyce., Hasegawa, M. and Okada, N. 2005. Mitochondrial phylogenetics and evolution of mysticete whales. *Syst.Biol.*54(1):77-90.
- Yoshida, H. 2006. Finless porpoise p351-6 *In* Muto F (eds.) The Current status of international fishery stocks. Fisheries Agency and Fisheries Research Agency. 467p. (in Japanese)

10.2 Unpublished literature

Iwasaki, T. 2005. Overview of Japanese research activities on small cetacean fisheries, with special

- reference to false killer whales (*Pseudorca crassidens*) Abstract for Discussion Group on Reducing Cetacean Interactions with Pelagic Longline Gear 27 July 2005, Inter-Continental Grand Yokohama, Aegean Room
- Iwasaki, T. and Minamikawa S. 2005. Chase the large marine animals! *Osakana Kawaraban* 4:4 (in Japanese)
- Iwasaki, T. and Minamikawa, S. 2005. Cetacean behavioral studies using satellite tracking (conducted by the National Research Institute of Far Seas Fisheries, Japan) p140. Abstract for IX International Mammalogical Congress, Sapporo July 31-August 5 2005.
- Kato, H. 2005. Let's study cetology of Tosa Bay 57th Lecture for Kochi citizens April 2005, Kochi city
- Kato, H., M. Kobayashi, E. M. Grigoryev, H. Yoshida, K. Sasamori, H. Sato, and N. Ohtaishi. 2005. Marine Mammals in the Northern Four Islands (Kunashiri, Itrup, Habomai and Shikotan Islands). p136 Abstract for IX International Mammalogical Congress, Sapporo, Japan.
- Kawahara, S. 2005. Cetacean resources off Japan's coast Port of Nagoya Public Aquarium, June 24 2005 (in Japanese)
- Kishiro, T. 2005. Age determination methods of toothed whales. Abstract for the 2nd meeting of the central branch of Japanese society of fisheries science Shimizu. (in Japanese) p2-3
- Kishiro, T., Okano, K., Tokuhiro, Y., Nakanishi, Y., Nonoshita, Y. and Kato, H. 2005. Movement and residency of the coastal Bryde's whales off southwest Japan suggested from photo-identification study. Abstract for IX International Mammalogical Congress, Sapporo, Japan. p.401
- Kuroki, M., Watanabe, G., Sasakawa, Y., Yoneda, K., Iwasaki, T. and Taya, K. 2005. Monitoring steroid hormones in eyes to evaluate reproductive status. P244. Abstract for IX International Mammalogical Congress, Sapporo July 31-August 5 2005.
- Miyashita, T. and Kato, H. 2005. Current status of large and small cetacean stock in the western North Pacific. Abstract for IX International Mammalogical Congress, Sapporo, Japan. p131-132
- Miyashita, T., Vladimirov, V. A. and Kato, H. 2005. Current status of cetaceans in the Sea of Okhotsk. Abstract for PICES 14th Annual Meeting. Vladivostok, Russia. p33
- Nakatsuka, H., Ohizumi, T., Kishiro, T. and Kato, H. 2005. Feeding habitats of bottlenose dolphin (*Tursiops truncatus*) off Kii Peninsula, Japan. p391. Abstract for IX International Mammalogical Congress, Sapporo, Japan.
- Nakatsuka, H., Ohizumi, H., Kishiro, T. and Kato, H. 2005. Feeding habitats of bottlenose dolphin (*Tursiops truncatus*) Abstract for Japanese society of fisheries science, Kochi, p.108.
- Ohizumi, H., Matsui, M., Arai, S., Higashi, N. and Iwasaki, T. 2005. Stomach contents of short-finned pilot whale (*Globicephala macrorhynchus*) and false killer whale (*Pseudorca crassidens*) in Okinawa, southern Japan p210. 16th Biennial Conference on the Biology of Marine Mammals
- Okamoto, R., H. Ohizumi, M. Ito, T. Iwasaki (2006) Feeding ecology of Dall's porpoises on the continental slope in spring. P108. Abstracts of annual meeting of the Japan Society of Fishery Science, 2006.
- Okamura, H., Kitakado, T., and Iwasaki, T. 2006.. Social structure of toothed whales and effect of whaling methods. Abstract for Japanese society of fisheries science, Kochi, p.107.
- Okamura, H. Minamikawa, S. and Kitakado, T. (2005) Abundance estimation of long-diving cetaceans. Abstract for the 2nd meeting of the central branch of Japanese society of fisheries science, Shimizu, p.22.
- Suzuki, M., Endo, N., Kato, H., Kishiro, T. and Asahina, K. Urine concentrating ability in cetacean species. p272-273. Abstract for 16th Biennial Conference on the Biology of Marine Mammals, San diego, USA