

JAPANESE PROGRESS REPORT ON SMALL CETACEAN RESEARCHES
April 2003 to April 2004

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This report summarizes small cetacean fisheries in 2003 as well as researches conducted during the period from April 2003 to April 2004 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 Japanese Progress Report on Cetacean Research April 2003 to April 2004 (submitted to 56th IWC/SC meeting).

1. 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>Phocoenoides dalli</i>	Off Pacific coast, Okhotsk Sea, Sea of Japan	2.1.1, 4.2, 6.1, 7
Finless porpoise	<i>Neophocoena phocenoidea</i>	Coastal waters of Japan	2.1.1, 6.1, 7
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>	Off Pacific coast	2.1.1, 4.1, 6.1, 7
Striped dolphin	<i>Stenella coeruleoalba</i>	Off Pacific coast, Western North Pacific	2.1.1, 3.1.2, 3.2, 4.1, 4.2, 4.4, 6.1, 7
Spotted dolphin	<i>Stenella attenuate</i>	Off Pacific coast	4.2, 4.4, 6.1, 7
Bottlenose dolphin	<i>Tursiops truncatus</i>	Kagoshima Bay, off Pacific coast, East China Sea	2.1.1, 3.1.3, 4.2, 4.4, 6.1, 7
Risso's dolphin	<i>Grampus griseus</i>	Western North Pacific	2.1.1, 4.2, 4.4, 6.1, 7
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, 7
False killer whale	<i>Pseudorca crassidens</i>	Off Pacific coast	2.1.1, 4.2, 6.1
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, 7
Additional species taken or sighted during dolphin fisheries or small-type whaling operations	-	Off Pacific coast, Okhotsk Sea	2.1.1, 4.3
Additional species sighted during the sighting cruise	-	North Pacific, Okhotsk Sea, Southern Hemisphere	2.1.1, 6.1
Additional species stranded	-	Around Japan	7

2. Sighting data (this section partly overlaps with descriptions of sighting data in SC/56/Japan /Progrep.)

2.1 Field work

2.1.1 Systematic

Regardless of the target species of sighting cruises, all sightings of small cetaceans have been recorded.

NRIFSF and FAJ launched a total of eleven dedicated sighting cruises and other related surveys using research

vessels and three sighting surveys by airplane from April 2003 to April 2004 in the North Pacific and the Southern Hemisphere, in cooperation with other scientific organizations, including the Institute of Cetacean Research (ICR). All vessels were equipped with a top barrel. Names of the vessels, scientists on board, and period of each cruise are given in Table 1.

Table 1. Name of vessels, scientists on board for sighting and other researches in the North Pacific and the Southern Hemisphere from April 2003 to April 2004.

Name of vessel	Main objective	Period and region	Scientists on board*
[North Pacific]			
<i>Kurosaki</i> (Japan-Korea joint survey)	Sighting surveys for mainly common minke whales	April 11 – May 10, Western Sea of Japan	Saito, T. (TS/FRA), Okumura, T. (TS/FRA), Okumura, T. (TS/FRA), Nitta, T. (TS/FRA)
<i>Shonan-maru No.2</i> (Japan-Korea joint survey)	Sighting surveys for mainly common minke whales	May 12 – June 30, Sea of Japan	Miyashita, T. (NRIFSF; June 19- June 30), Saito, T. (TS/FRA; May 12 – June 16), Noji, S. (TS/FRA), Sohn, H. (R. of Korea; June 19 – June 30)
<i>Shonan-maru</i>	Sighting surveys for mainly common minke whales	July 22-Sep 19, Eastern Okhotsk Sea	Saito, T. (TS/FRA), Hayashi, T. (TS/FRA), Chvetsov, E. (Russian Federation)
<i>Shonan-maru No.2</i>	Sighting surveys for mainly common minke whales	July 22-Sep 19, Western Okhotsk Sea	Miyashita, T. (NRIFSF), Tokuda, D. (TS/FRA), Vladimirov, A. (Russian Federation)
<i>Shunyo-maru</i>	Acoustic and sighting surveys for sperm whales	Aug. 18-Sep. 16, Off the Pacific coast of Japan	Shimada, H. (NRIFSF), Itou, H. (TS/FRA), Nishimaki, M. (TS/FRA), Okumura, T. (TS/FRA), Ebisui, T. (TS/FRA)
<i>Kurosaki</i>	Experimental cruise for cetacean satellite tracking	Oct. 16 – Nov. 14, Off the Pacific coast of Japan	Noji, S. (TS/FRA), Sato, H. (TS/FRA), S. Izumi (TS/FRA), K. Hashimoto (TS/FRA)
<i>Kurosaki</i>	Diving time for Baird's beaked and sperm whales	July 16 – August 8, Off the coast of Chiba prefecture	Minamikawa, S. (NRIFSF), Kawashima, M. (TS/FRA), S. Izumi (TS/FRA), K. Hashimoto (TS/FRA), T. Nitta, T. (TS/FRA)
<i>Kurosaki</i>	Cetacean sightings, markings and biopsies	Feb. 8 – Mar. 22, 2004 Off the Pacific coast of Japan	Noji, S. (TS/FRA), Sato, H. (TS/FRA), S. Izumi (TS/FRA), K. Hashimoto (TS/FRA)
<i>Kanou-maru</i>	Cetacean sightings	Feb. 16-Mar.11, 2004 Around Iki and Tsushima Islands	Shimada, H. (NRIFSF; Feb. 16-28), Ebisui, T. (TS/FRA), Nishimaki, M. (TS/FRA), Okumura, T. (TS/FRA), Endo, K. (TS/FRA)
[Southern Hemisphere]			
<i>Shonan-maru</i> (IWC/SOWER)	Sighting SOWER/Blue & Antarctic	Dec.19-Mar.8, 2004, Area V-east in the Antarctic	Ensor, P. (New Zealand), Mori, M. (Japan), Olson, P. (USA), Ljungblad, D. (USA)
<i>Shonan-maru No.2</i> (IWC/SOWER)	Sighting SOWER/Blue & Antarctic	Dec.19-Mar.8, 2004, Area V-east in the Antarctic	Matsuoka, K. (Japan), Sekiguchi, K. (Japan), Olavarria, C. (Chile), Morse, L. (USA)

The IWC/SOWER (Southern Ocean Whale and Ecosystem Research) Antarctic sighting cruise was conducted from 19 December 2003 to 8 March 2004. The Government of Japan provided two research vessels (*Shonan-maru* and *Shonan-maru #2*) and crew for this program, as has been the case for the last twenty-six years. H. Kato (NRIFSF) acted as the organizer of the cruise and as a member of the steering group of the program. Planned research area was in Area V E (170°E-170°W), including the Ross Sea, and for sixty-six days. A total of twenty-three sightings (fifty animals) of blue whales were recorded during the survey. The details of the cruise and results will be separately reported at the 56th IWC/SC meeting.

Table 2. Small cetaceans sighted during Japanese dedicated sighting surveys (*Shonan-maru* and *Shonan-maru No.2*) in the Southern Hemisphere in the 2003/2004 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 vessels.

10° square	Distance (nmi)	No. of sightings	
		Spectacled porpoise	Hourglass Dolphin
A 22	136	-	3
23	414	1	5
24	61	8	-
B24	1,089	7	15
25	1,656	4	-
C23	74	-	-
24	1,033	-	-
25	529	-	-
26	384	-	-
27	15	-	-
D21	18	-	-
22	56	-	-
Total	5,465	20	23

Of the nine cruises in the North Pacific, six were mainly for sighting surveys with skin biopsies conducted at an opportunistic basis.

Total distances covered by the searches during the sighting cruises were 5,465 and 8,535 nautical miles for the Southern Hemisphere and the North Pacific, respectively. In addition, systematic sighting data were also obtained during the biopsy and marking surveys. During these sighting surveys in the North Pacific, several species of small cetaceans were found (Table 3 for the summer season and Table 4 for the winter season).

The NRIFSF, Kochi prefectural government (KPG) and the Whale Watching Association of Tosa Bay (WATB), cooperated for sighting surveys on Bryde's whales implemented in the coastal waters off Kochi in September and November 2003, using a total of thirty-six whale watching boats belonging to the WATB. The boats (5 -10t) were without top barrels and the sightings made have been excluded from Table 2, but the boats were employed as sighting survey vessels in local coastal waters. There were six days of surveys in September and eight in November. T. Kishihiro (NRIFSF), thirteen research assistants and thirty-four fishermen members of WATB acted as the researchers on board. A total of three schools (410 animals) of common dolphins, three (761 animals) of bottlenose dolphins, three (twenty-six animals) of Risso's dolphins and one individual *Kogia sp.* were sighted.

A joint sighting survey on Bryde's whales was also carried out in the coastal waters off Kasasa, southwest end of Kyushu, in August 2003, by the NRIFSF, Kagoshima prefectural government (KAPG), and Nomaikie Fishery Cooperative Union (NFCU). A total of eighteen whale watching boats (belonging to the NFCU) were used as research vessels as in the surveys off Kochi. The surveys lasted six days. Kishihiro and thirteen research assistants (Kasasa Ebisu Maritime Museum and Kagoshima University) acted as the researchers on board. A total of fourteen schools (1,090 animals) of spinner dolphins and two (220 animals) of bottlenose dolphins were sighted.

Aerial sighting surveys for Baird's beaked whales were conducted in the coastal waters off the Boso Peninsula from 27 July to 4 August 2003 using a small aircraft (CESSNA 404 Titan; fixed wing and twin engines). Kishihiro,

Shimada, Yoshida and one research assistant (Kamogawa Sea World Aquarium) acted as the researchers on board. The survey involved five flights, and the total distance searched along the line transect lines were 810.1 nautical miles. During the survey, six schools (twenty-nine animals) of Baird's beaked whales and two (seven animals) 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 2003 summer season (April to September 2003). The number is given by 10° squares based on the noon position of the vessels.

10° Square	Distance (nmi)	No. of sightings				
		<i>Dalli</i> -type Dall's porpoise	<i>Truei</i> -type Dall's porpoise	Pacific white-sided dolphin	Bottlenose dolphin	Harbor porpoise
M19	169	-	-	-	-	-
20	1,477	-	-	128	-	-
21	443	-	-	1	12	-
N20	595	59	-	448	-	-
21	1,595	758	34	132	-	3
22	62	3	-	-	-	-
P21	1,342	196	296	-	-	15
22	605	303	34	-	-	-
Total	6,288	1,319	364	709	12	18

Table 4. Small cetaceans sighted during 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 2003/2004 autumn-winter season (November 2003-March 2004).

10° Square	Distance (nmi)	No. of sightings							
		<i>Truei</i> -type Dall's porpoise	Northern right whale dolphin	Pantropical spotted dolphin	Striped dolphin	Pacific white-sided dolphin	Bottlenose dolphin	Short-beaked common dolphin	<i>Delphinus</i> species
J21	142	-	-	-	-	-	-	-	-
K20	369	-	-	-	-	-	-	-	-
21	103	-	-	-	-	-	-	-	-
L20	79	-	-	-	-	-	-	-	-
M19	305	-	-	-	-	220	-	-	-
20	456	-	-	-	255	700	15	-	4
21	1,486	74	8	33	1,671	110	-	43	214
Total	2,247	74	8	33	1,926	1,030	15	43	218

Aerial sighting surveys for finless porpoises were carried out to obtain information on their abundance and distribution in 1) Ise and Mikawa bays, 2) the western parts of the Inland Sea and Hibiki-Nada and 3) Ariake Sound and Tachibana Bay, respectively. Yoshida and Minamikawa conducted the surveys in collaboration with three aquaria (Minamichita Beachland Aquarium, Shimonoseki Marine Science Museum, Toba Aquarium). In Ise and Mikawa bays, surveys were carried out on 5 and 7 October 2003. During the flight totalling 671.5 nautical miles, 159 schools (216 animals) of finless porpoises were sighted. The 376.4 nm aerial survey carried out in the western parts of the Inland Sea

and Hibiki-Nada on 19 October 2003, resulted in sightings of sixty-four schools of porpoises (eighty-two animals). In Ariake Sound and Tachibana Bay, 242.5 nautical miles were searched on 18 October 2003, and sixty schools (seventy-three animals) of porpoises were sighted.

Shimada assisted in the planning of an aerial sighting survey for small cetaceans in the waters around Iki Island conducted by the Nagasaki prefectural government. It was carried out in March 2004, but there were no sightings of any cetaceans.

Cetacean sighting surveys were conducted in the coastal waters of four Caribbean countries (Dominica, St. Lucia, St Vincent & the Grenadines, and Grenada) in the period of 7-12 July 2003, using small fishing or whale watching boats, by researchers of each country under the sponsorship of the NRIFSF and ICR. Yoshida (NRIFSF) joined in the survey carried out in coastal waters of Grenada. During the four surveys, a total of 844 nautical miles were searched and researchers recorded forty-one schools of cetaceans (962 animals), including two of false killer whales (five animals), two of short-finned pilot whales (seventeen animals), and one of bottlenose dolphins (150 animals).

The NRIFSF, ICR, and Kyodo Senpaku Kaisya, Ltd. (KSK) supported the Boussoura National Research Center of Fisheries Science, Republic of Guinea, to conduct sighting surveys in the coastal waters from Guinea to Senegal, western North Africa, from 24 January to 7 February 2004, using the research vessel "GENERAL LANSANA CONTE" of Guinea. Researchers of five other countries of western Africa (Capo Verde, Senegal, Guinea Bissau, Benin, and Gabon) were also on board and they looked for cetaceans from the upper bridge of the vessel. Yoshida and I. Yoshimura (KSK) joined the survey. A total of 514.5 nautical miles were searched and researchers recorded sixty-two schools of cetaceans (2,198 animals), including thirteen of short-finned pilot whales (350 animals), eleven of bottlenose (135 animals), eight of common (485 animals) and twelve of rough-toothed dolphins (287 animals).

2.1.2 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).

2.2 Analyses/development of techniques

Using time-depth record of the Baird's beaked whale, Minamikawa categorized its dives into three types by depth, and calculated their mean dive duration and surface interval after the dives. These values will be used to improve the accuracy of estimation of $g(0)$ (sighting probability of cetacean schools on the track line, ideally equal to 1 but really less than 1) with further data in the future.

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 April 2003 to April 2004.

3.1.2 Artificial marking data

Iwasaki and S. Noji (FRA) succeeded in "dart-tag" marking of seventy-five striped dolphins in total during the research cruise on *Kurosakil* (Table 5). No marks were retrieved during the period from April 2003 to April 2004.

Table 5. Artificial marking data released by NRIFSF, April 2003 - April 2004.

Species	Area	No. marked
Striped dolphin	N.Pacific	75

3.1.3 Telemetry data

Using the improved attachment system, Iwasaki conducted satellite tracking of three bottlenose dolphins. They were released on 3 December 2003 from Taiji, and were tracked for thirty-six days at the longest. They moved clockwise from Boso Peninsula to Kyushu Island and across the Kuroshio Current.

Minamikawa (NRIFSF) and Kawashima (FRA) deployed, with an air gun, a harpoon head attached tag containing a data-logger (depth and temperature) and Argos PTT on a free-swimming Baird's beaked whale at 4° 55.03'N, 140° 49.92' E on 19 July. It was retrieved at 35° 27.34'N 141° 48.64' E on 21 July. The data-logger had recorded eighty-one dives for approximately twenty-nine hours and the maximum depth recorded was 1,777 m. Characteristically, the Baird's beaked whale would dive to a depth of more than 1,300 m., followed by several dives to 140-800 m.

3. 2 Analyses/development of techniques

Iwasaki constructed a new "attachment plate" for the planar Argos transmitter to enable longer periods of satellite tracking of dolphins. He experimented for forty days in an aquarium to ensure it would not do any harm to the attached animals. He continued to make improvements on the satellite tag attachment system for free-ranging dolphins, and

successfully managed to tag three striped dolphins; however, no signals were received.

Minamikawa and Iwasaki developed a system to tag a data-logger to a whale using an air gun. 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 are listed in Table 6.

Table 6. Biopsy samples collected during Japanese research cruises, April 2003 - April 2004.

Species	Area	No. Collected	Archived (Y/N)	No. Analyzed	Total holdings	Contact Institute
Striped dolphin	N. Pacific	2	Y	0	2	NRIFSF
Pacific white-sided dolphin	E.China Sea	3	Y	0	3	NRIFSF

4.2 Samples from direct catches or bycatch

The national quota of Baird's beaked whales was sixty-two animals. Fishing season was from 20 May to 30 June for one land station in Hakodate on the Sea of Japan coast, 1 July to 31 August for two land stations in Ayukawa and Wadaura on the Pacific coast, and 1 to 10 September for the Abashiri station on the Okhotsk coast. A total of sixty-two whales (eight off Hakodate, two off Abashiri, twenty-six off Ayukawa and Wadaura) were taken by four catcher boats (*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 five biologists: Kishiro, D. Yamamoto (FAJ), T. Hara (FAJ), S. Tabata (FAJ) and R. Okamoto (FAJ). The national quota of northern form short-finned pilot whales for small-type whaling was fifty-three whales with a fishing season from 1 October to 30 November for two boats (*Kohei-maru #75* and *Taisho-maru #28*). A total of forty-two whales were taken by the two vessels from the station in Ayukawa. All the catches were examined and samples taken by Kishiro and T. Hayashi (FAJ). The national quota of southern form short-finned pilot whales for small-type whaling was sixty whales with a fishing season from 1 May to 30 September. A total of twenty-seven 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 Kishiro, Hara, Hayashi, H. Sato (FAJ) and M. Kawashima (FAJ). The FAJ also set a national catch quota of twenty Risso's dolphins for small-type whaling in Taiji from 1 May to 30 September. A total of nineteen animals were taken by *Katsu-maru #7*, *Sumitomo-maru #31* and *Seiwa-maru*, and examined by Hara, Hayashi, Sato and Kawashima. In Taiji during May-August 2003, the researchers also collected samples from hand harpoon catches when they had the opportunity, including thirty-four bottlenose, thirty spotted, eleven Risso's and three striped dolphins.

Iwasaki and his colleagues, S. Saino (TS/FRA), H. Sato(TS/FRA), T. Hara (TS/FRA) and Y. Morita, 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 2003 and 7 January to 28 February 2004. They examined a total of 1,224 animals composed of 496 striped, 291 Risso's, 265 bottlenose, one hundred spotted dolphins, fifty-five southern form short-finned pilot and seventeen false killer whales. As for the sixty-two southern form short-finned pilot whales caught after the research period, biological data were supplied from the Taiji Fisheries Cooperative Union. M.Sakakibara and T.Nozaki (both of TS/FRA) collected samples for life history, genetic and food preference studies from forty-five *dalli*-type Dall's porpoises taken by hand harpoon fishery off Iwate prefecture.

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 fifty-four *truei*-type Dall's porpoises (taken off Iwate during 16-27 February 2003). During April and November through March, K. Onodera (IFTC), K. Miura (IFTC) and Horikoshi recorded color type, sex and body length and collected DNA samples from Dalls' porpoises landed at the Kamaishi Fish Market including 2,186 *truei*- and 439 *dalli*-types. H. Miyahara and N. Higashi of Okinawa Expo Aquarium took samples for life history and genetic studies, aboard the crossbow fishing boats, from eighteen southern form short-finned pilot and three false killer whales. Details of biological materials collected by the above activities are given in Table 7.

Kishiro, Yamamoto (FAJ) and R. Okamoto (TS/FRA) collected stomach contents of six Baird's beaked whales taken by small-type whaling in Hakodate in May 2003. Y. Morita (TS/FRA) collected stomach contents of fourteen southern form short-finned pilot whales and eleven Risso's dolphins, which were taken by small-type whaling and local hand harpoon fishery at Taiji in May and June 2003. Morita recorded prey species and weight of stomach content of fifteen northern form short-finned pilot whales taken by small-type whaling in Ayukawa in November 2003. Okamoto collected stomach contents of fifty *truei*-type and two *dalli*-type Dall's porpoises that were taken off Iwate prefecture in February 2004.

Table 7. Samples collected from operations of small-type whaling and dolphin fisheries, April 2003-April 2004.

Species		Area	Type of fishery	No. collected	Archived (Y/N)	Tissue type(s)	Contact Institute
Dall's porpoise	<i>dalli</i> -type	Sea of Japan	Hand harpoon	45	Y	tooth(To), skin(Sk), liver(L), muscle(M), ovary(O), uterine horn(U) and testis(Te)	NRIFSF
	<i>truei</i> -type	N.Pacific	Hand harpoon	54	Y	To, Sk, L, M, O, U, Te and stomach content(St)	NRIFSF
Striped dolphin		N.Pacific	Hand harpoon	57	Y	To, Sk, M, O, U and Te	NRIFSF
			Driving	442	Y	To, S, M, O, U and Te	NRIFSF
Spotted dolphin		N.Pacific	Hand harpoon	30	Y	To, S, M, O, U, Te and St	NRIFSF
			Driving	100			
Bottlenose dolphin		N.Pacific	Hand harpoon	35	Y	To, Sk, M, O, U, Te and St	NRIFSF
			Driving	264	Y	To, Sk, M, O, U and Te	NRIFSF
		E. China Sea	Hand harpoon (crossbow)	3	Y	To, Sk, L, M, O, U, Te and St	NRIFSF
Risso's dolphin		N.Pacific	Small-type whaling	19	Y	To, Sk, L, M, O, U, Te, epididymis (E), vertebral epiphysis (V) and St	NRIFSF
			Hand harpoon	11	Y	To, Sk, L, M, O, U and Te	NRIFSF
			Driving	291	Y	To, Sk, L, M, O, U and Te	NRIFSF
Short-finned pilot Whale	northern form	N.Pacific	Small-type whaling	42	Y	To, Sk, L, M, O, U, Te, E, V and St	NRIFSF
	southern form	N.Pacific	Small-type whaling	27	Y	To, Sk, L, M, O, U, Te, E, V and St	NRIFSF
			Driving	55	Y	To, Sk, L, M, O, U and Te	NRIFSF
		E. China Sea	Hand harpoon (crossbow)	18	Y	To, Sk, L, M, O, U, Te and St	NRIFSF
False killer whale		N.Pacific	Driving	17	Y	To, Sk, L, M, O, U and Te	NRIFSF
		E. China Sea	Hand harpoon (crossbow)	3	Y	To, Sk, L, M, O, U, Te and St	NRIFSF
Baird's beaked Whale		N.Pacific	Small-type whaling	52	Y	To, Sk, L, M, O, U, Te, E, V and St	NRIFSF
		Okhotsk Sea	Small-type whaling	2	Y	To, Sk, L, M, O, U, Te, E, V and St	NRIFSF
		Sea of Japan	Small-type whaling	8	Y	To, Sk, L, M, O, U, Te, E, V and St	NRIFSF

Unidentified dolphin ¹⁾	N.Pacific	Hand harpoon	1	Y	Sk, L, M, O and U	NRIFSF
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1) Landed without head.

4.3 Samples from stranded animals

Skin sample of a stranded pygmy sperm whale was sent to NRIFSF from the Ohsuka Town Office (Shizuoka prefecture, see Table 10) via the Port of Nagoya Public Aquarium.

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 2002.

Kishiro examined the teeth of Risso's dolphin taken by small-type whaling and drive fisheries, and estimated the age of 126 animals.

S. Nakatsuka (NRIFSF) and Okamoto preliminarily analyzed stomach contents of thirty-two Baird's beaked whales in total, collected in 2002 in Hakodate, Wada, and Abashiri. Fish and cephalopods were present in the stomach contents of all samples, but cephalopods were relatively abundant in specimens from Hakodate, and fish was relatively abundant in Wada samples. As for the two whales from Abashiri, one was revealed to contain more fish, and the other more cephalopods. Nakatsuka preliminarily analyzed stomach contents of eleven Risso's dolphins, four southern form short-finned pilot whales, five bottlenose dolphins, one striped dolphin, and three spotted dolphins collected in May 2002 in Taiji. Risso's dolphins fed almost exclusively on cephalopods. Pilot whales, striped dolphins and spotted dolphins fed on fish and cephalopods, and bottlenose dolphins consumed fish and cephalopods as well as a small amount of crustaceans. The analyses were performed with cooperation from H. Ohizumi (Tokai University).

5. Pollution studies

No pollution studies were conducted during the period.

6. Statistics for small cetaceans

6.1 For the calendar year 2003

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 2003, 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 2003/2004 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 2003 (January to September in 2003 and October to December of the 2003/2004 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 2003. Unless otherwise stated species and figures are those reported (provisional figures).

Species	Prefecture ¹⁾	Type of fishery	Direct catch ²⁾	Incidental catch	Live capture	
Dall's porpoise	<i>dalli</i> -type	Hokkaido	Hand harpoon	1,655	0	0
		Iwate ³⁾	Hand harpoon	6,427	0	0
		Miyagi	Hand harpoon	226	0	0
		Total		8,308	0	0
	<i>truei</i> -type	Hokkaido	Hand harpoon	84	0	0
		Iwate	Hand harpoon	7,325	0	0
		Miyagi	Hand harpoon	3	0	0
		Total		7,412	0	0
	Finless porpoise	Ibaraki	Other coastal fishery	0	1	0
		Chiba	Tuna long-line	0	1	0
Aichi		Trap net	0	1	0	
		Other coastal fishery	0	4	0	
Yamaguchi		Other coastal fishery	0	2	0	
Total			0	9	0	
Pacific white-sided dolphin	Kanagawa	Other coastal fishery	0	1	0	
	Ishikawa	Trap net	0	0	8	
	Total		0	1	8	
Striped dolphin	Wakayama	Hand harpoon	68	0	0	
	Wakayama	Driving	382	0	0	
	Total		450	0	0	
Spotted dolphin	Wakayama	Hand harpoon	30	0	0	
		Driving	102	0	0	
	Total		132	0	0	
Bottlenose dolphin	Kanagawa	Other coastal fishery	0	1	0	
	Wakayama	Hand harpoon	52	0	0	
		Driving	105	0	16	
	Okinawa	Hand harpoon	7	0	0	
	Total		164	1	16	
Risso's dolphin	Wakayama	Hand harpoon	168	0	0	
		Driving	186	0	5	
		Small-type whaling	19	0	0	
	Kyoto	Trap net	0	0	1	
	Total		373	0	6	
Short-finned pilot whale	Northern form	Miyagi	Small-type whaling	42	0	0
		Wakayama	Small-type whaling	27	0	0
	Southern form	Wakayama	Driving	55	0	0
		Okinawa	Hand harpoon	36	0	0
	Total		118	0	0	
False killer whale	Wakayama	Driving	12	0	5	
	Okinawa	Hand harpoon	4	0	0	
	Total		16	0	5	
Baird's beaked whale	Hokkaido	Small-type whaling	10	0	0	
	Miyagi	Small-type whaling	26	0	0	
	Chiba	Small-type whaling	26	0	0	
	Total		62	0	0	
Unidentified dolphin	Kagoshima	Other coastal fishery	0	1	0	

1) Catches by small-type whaling, drive fishery and trap nets 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).
- 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.
- 4) Apart from the above, the following small cetaceans were incidentally taken but later released alive: eight Pacific white-sided dolphins in Ishikawa (trap net), ten unidentified dolphins and one Pacific white-sided dolphin in Kyoto (trap net).

Table 9. List of small cetacean catches by Japanese fisheries and strandings in 2003, by species and type of fishery. For further details see Tables 8 and 10. D= direct takes, I= incidental takes. (provisional figures).

Species	Small-type whaling [D]	Hand harpoon [D]	Driving [D]	Live capture [D, I]	Tuna long-line [I]	Trap net [I]	Other coastal fisheries [I]	Strandings [I]	Total
Dall's porpoise	0	8,308	0	0	0	0	0	2	8,310
<i>dalli</i> -type	0	7,412	0	0	0	0	0	0	7,412
<i>truei</i> -type									
Finless porpoise	0	0	0	0	1	1	7	114	123
Harbor porpoise	0	0	0	0	0	0	0	1	1
Pacific white-sided dolphin	0	0	0	8	0	0	1	10	19
Striped dolphin	0	68	382	0	0	0	0	1	451
Spotted dolphin	0	30	102	0	0	0	0	3	135
Bottlenose dolphin	0	59	105	16	0	0	1	2	183
Risso's dolphin	19	168	186	6	0	0	0	10	389
Pygmy killer whale	0	0	0	0	0	0	0	1	1
Melon-headed whale	0	0	0	0	0	0	0	1	1
Short-finned pilot whale									
Northern form	42	0	0	0	0	0	0	0	42
Southern form	27	36	55	0	0	0	0	2	120
False killer whale	0	4	12	5	0	0	0	0	21
Killer whale	0	0	0	0	0	0	0	3	3
Baird's beaked whale	62	0	0	0	0	0	0	8	70
Cuvier's beaked whale	0	0	0	0	0	0	0	1	1
Stejneger's beaked whale	0	0	0	0	0	0	0	10	10
Blainville's beaked whale	0	0	0	0	0	0	0	1	1
Hubbs' beaked whale	0	0	0	0	0	0	0	1	1
Pygmy sperm whale	0	0	0	0	0	0	0	9	9
Dwarf sperm whale	0	0	0	0	0	0	0	4	4
Spinner dolphin	0	0	0	0	0	0	0	1	1
Rough-toothed dolphin	0	0	0	0	0	0	0	1	1
Unidentified	0	0	0	0	0	0	1	16	17

dolphin									
Total	150	16,085	842	35	1	1	10	202	17,326

6.2 Past year statistics

There are no modifications to last year's 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.

Table 10. Strandings of small cetaceans in Japan, January-December 2003. 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)	Miyagi	1	Southern form short-finned pilot whale	Ibaraki	1
	Chiba	1		Kagoshima	1
	Total	2		Total	2
Finless porpoise	Miyagi	1	Killer whale	Hokkaido	3
	Fukushima	1	Baird's beaked whale	Hokkaido	7
	Ibaraki	1		Chiba	1
	Chiba	17		Total	8
	Aichi	30	Cuvier's beaked Whale	Fukushima	1
	Mie	34			
	Hyogo	1	Stejneger's beaked whale	Hokkaido	3
	Yamaguchi	18		Aomori	3
	Ehime	2		Akita	1
	Fukuoka	2		Niigata	1
	Kumamoto	5		Ishikawa	1
	Oita	2		Fukui	1
	Total	114		Total	10
	Harbor porpoise	Hokkaido	1	Blainville's beaked whale	Okinawa
Pacific white-sided dolphin	Akita	3	Hubbs' beaked whale Pygmy sperm whale	Ibaraki	1
	Ibaraki	1		Chiba	3 ³⁾
	Chiba	2		Shizuoka	1
	Niigata	2		Wakayama	1
	Toyama	1		Kochi	1
	Ishikawa	1		Kagoshima	2
Total	10		Okinawa	1	
Striped dolphin	Wakayama	1		Total	9
Spotted dolphin	Shimane	1	Dwarf sperm whale	Miyazaki	2
	Okinawa	2		Kagoshima	2
	Total	3		Total	4
Bottlenose dolphin	Ibaraki	1	Spinner dolphin	Niigata	1
	Kagoshima	1	Rough-toothed dolphin	Yamaguchi	1 ²⁾
	Total	2			
Risso's dolphin	Chiba	4	Unidentified dolphin	Hokkaido	3
	Niigata	1		Fukui	1
	Ishikawa	1		Ehime	4
	Shizuoka	1		Fukuoka	1
	Yamaguchi	1 ²⁾		Nagasaki	2
	Ehime	1		Miyazaki	1
	Oita	1		Kagoshima	2
	Total	10		Okinawa	2
Pygmy killer whale	Tokyo	1		Total	16
Melon-headed	Chiba	1			

- 1) Recorded at the prefecture where strandings occurred.
- 2) Rescued and sent to an aquarium.
- 3) One of the three was 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 Ibaraki, one finless porpoise, one Risso's dolphin and one unidentified dolphin in Chiba, two pygmy sperm whales and one southern form short-finned pilot whale in Kagoshima and one spotted dolphin in Okinawa.

8. Other studies and analyses

No other studies or analyses on small cetaceans were conducted during the period from April 2003 to April 2004.

9. Publications on small cetaceans

- Hayashi, K., Nishida, S., Yoshida, H., Goto, M., Pastene, L. A., and Koike, H. 2003. Sequence variation of the DQB allele in the cetacean MHC, *Mammal Study*, 28 p.89-96.
- Iwasaki, T. 2003. Macroscopical screening of abnormal reproductive tissues of dolphins taken off Taiji. Abstract for 9th meeting of the Japanese Society of Zoo and Wildlife Medicine. Okinawa June 2003 p.92 (in Japanese)
- Iwasaki, T. and Minamikawa, S. 2003. Cetacean population study using satellite tracking Abstract for 28th Annual Meeting of Japanese Avian Endocrinology. Shizuoka November 2003 p.25-27 (in Japanese)
- Iwasaki, T. 2003. Temporal changes in hematology and blood chemistry of a female bottlenose dolphin (*Tursiops truncatus*) with a dummy satellite tag on her dorsal fin Capture and handling techniques for small odontocetes during tagging, health assessment and sample collection. A Workshop at 15th Biennial Conference on the Biology of Marine Mammals. Greensboro, North Carolina, USA December 2003
- Iwasaki, T. and T. Yoshida 2004. Examination of catches – the bottlenose dolphin. Abstract for the presentation of the research results on the cetacean fisheries in Wakayama Prefecture. Nachikatusuura January 2004 p.7-10 (in Japanese)
- Kato, H. 2003. Progress report of Advisory Panel on Marine birds and mammals. Abstract; PICES XII (W2) , 148-151. Seoul, October 2003
- Kato, H. 2003. Current activities on marine birds and mammals by PICES, (S-II-1-4). Abstract; Annual symposium of Japanese society of fisheries oceanography. Sendai December 2003 p149-150 (in Japanese)
- Kato, H. 2004. Current research activities on cetacean fisheries by Japan. Abstract for the presentation in the publicity campaign about whale research activities in Wakayama prefecture, Nachikatsuura, January 2004. p.4 (in Japanese)
- Kato, H. and Sydeman, W. J. 2003. Combining data sets on distributions and diets of marine birds and mammals. Abstract; PICES XII (W2-MBM-AP), Seoul, October 2003 p. 247-248
- Kato, H. 2004. Origin and diversity of cetaceans. Dr. Kato's guide to cetology. The MAINICHI student daily newspaper. The MAINICHI, Tokyo, 4 March 2004 p.6 (in Japanese)
- Kato, H. 2004. Growth and size of cetaceans. Dr. Kato's guide to cetology. The MAINICHI student daily newspaper. The MAINICHI, Tokyo, 18 March 2004 p.6 (in Japanese)
- Kato, H. 2004. Toothed whales (1). Dr. Kato's guide to cetology. The MAINICHI student daily newspaper. The MAINICHI, Tokyo, 15 April March 2004 p.6 (in Japanese)
- Kato, H. 2004. Toothed whales (2). Dr. Kato's guide to cetology. The MAINICHI student daily newspaper. The MAINICHI, Tokyo, 22 April 2004 p.6 (in Japanese)
- Kato, H. 2004. Stranding! Dr. Kato's guide to cetology. The MAINICHI student daily newspaper. The MAINICHI, Tokyo, 203 May 2004 p.6 (in Japanese)
- Kishiro, T. 2004. Biology of Risso's dolphin, results of the research on commercial catch. Abstract for the presentation of the research results on the cetacean fisheries in Wakayama Prefecture Nachikatusuura January 2004 p.11 (in Japanese)
- Minamikawa, S., Iwasaki, T., Noji, S., Sato, H., Tanaka, Y., Ryono, A., Kurosawa, S. and Kato, H. Diurnal pattern in diving behavior of a striped dolphin Abstracts for he 22nd annual meeting of Japan ethological society. Sapporo October 2003 p. 86
- Miyashita, T. 2004. Cetacean research activity of the National Research Institute of Far Sea Fisheries. Abstract for the presentation in the publicity campaign about whale research activities in Wakayama prefecture, Nachikatsuura, January 2004. p.4-5. (in Japanese).
- Miyashita, T., Furuta, M., Hasegawa, S. and Okamura, H. 2003. Sighting survey of finless porpoise in the Ise ad Mikawa Bay. *Kaiyo Monthly* 35(8): 581-5.
- Miyashita, T. 2003. Cetacean sighting survey - present and future - , Abstract for Symposium 'Abundance estimate of the wild mammals - achievement and problem -', 2003 Annual meeting of the Mammalogical Society of Japan, Morioka, September 2003 p.32 (in Japanese).

- Ohizumi, H., Isoda, T. and Kato, H. 2003. Feeding habits of southern form short-finned pilot whales (*Globicephala macrorhynchus*) in the western North Pacific off central Japan 15th Biennial Conference on the Biology of Marine Mammals December 2003 Greensboro, NC, USA
- Shimada H. 2003. Development of the length measurement equipment of the whales under swimming. 2003 annual meeting in Iwate on the Mammalogical Society of Japan. September 2003 (in Japanese)
- Shirakihara, M., Yoshida, H., and Shirakihara, K. 2003. Indo-Pacific bottlenose dolphins *Tursiops aduncus* in Amakusa, western Kyushu, Japan. *Fisheries Science*, 69 p654-656.
- Watanabe, N, Hatano, J., Asahina, K. and Iwasaki, T. Gonadotropin produced by the placenta of the bottlenose dolphin Abstracts for the Annual Meeting of the Japanese Society of Fisheries Science Kagoshima April 2004 p.255