

**Japan. Progress report on small cetacean research
April 2010 to March 2011, with statistical data for the calendar year 2010**

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This report summarizes small cetacean fisheries in 2010 as well as researches conducted during the period from April 2010 to March 2011 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, April 2010 to March 2011, with statistical data for the calendar year 2010” (submitted to 63rd IWC/SC meeting). FAJ considers management of small cetaceans is outside the framework of the International Convention for the Regulation of Whaling.

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	2.1.1, 4.2, 5.1, 5.3, 8.1
Harbor porpoise	<i>Phocoena phocoea</i>	Coastal waters of Japan	5.2.2, 5.3
Finless porpoise	<i>Neophocaena phocaenoides</i>	Coastal waters of Japan	5.2.2, 5.3, 8.1
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>	Off Pacific coast	2.1.1, 2.1.2, 3.1.3, 4.1, 4.2, 4.3, 4.4, 5.1, 5.2.2, 5.3
Striped dolphin	<i>Stenella coeruleoalba</i>	Western North Pacific	2.1.2, 4.2, 5.1, 5.3
Pantropical spotted dolphin	<i>Stenella attenuata</i>	Off Pacific coast	2.1.1, 2.1.2, 4.2, 5.1, 5.3
Bottlenose dolphin	<i>Tursiops truncatus</i>	Off Pacific coast, Okhotsk Sea and East China Sea	2.1.1, 2.1.2, 2.2, 4.4, 5.1, 5.2.2, 5.3, 8.2
Indo-Pacific bottlenose dolphin	<i>Tursiops aduncus</i>	Western North Pacific	5.3
Risso's dolphin	<i>Grampus griseus</i>	Western North Pacific	2.1.1, 2.1.2, 4.2, 5.1, 5.2.2, 5.3
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	Western North Pacific, Okhotsk Sea and East China Sea	2.1.2, 2.2, 4.2, 4.4, 5.1, 5.3, 8.2
False killer whale	<i>Pseudorca crassidens</i>	Off Pacific coast and East China Sea	2.1.1, 2.1.2, 4.2, 4.4, 5.1, 5.3, 8.2
Killer whale	<i>Orcinus orca</i>	Coastal waters of Japan and Okhotsk Sea	2.1.1, 3.1.1, 5.3, 8.1
Baird's beaked whale	<i>Berardius bairdii</i>	Off Pacific coast, Sea of Japan and Okhotsk Sea	2.1.1, 2.2, 4.2, 4.4, 5.1, 5.3, 8.1, 8.2
Additional species	-	Around Japan	2.2, 5.2.2,

2. Sighting data (this section partly overlaps with descriptions of sighting data in SC/63/Japan /Progrep.)

2.1 Field work

2.1.1 SYSTEMATIC

The NRIFSF and FAJ conducted a total of five dedicated shipboard sighting and other related surveys using research vessels in the North Pacific. All of the vessels are equipped with a top barrel. During these cruises, all sighting information including small cetaceans was recorded.

Table 1. Sightings of small cetaceans obtained through dedicated shipboard surveys during the period from April 2010 to March 2011.

Target species	Date	Area	No. of sightings	Contact institute
<i>dalli</i> -type Dall's porpoise	7/05/10-31/05/10	Western North Pacific	3	NRIFSF
	13/07/10-26/08/10	Okhotsk Sea	98	NRIFSF
	6/09/10-4/10/10	Western North Pacific	40	NRIFSF
	13/05/10-21/06/10	Sea of Japan	22	NRIFSF
<i>truei</i> -type Dall's porpoise	7/05/10-31/05/10	Western North Pacific	3	NRIFSF
	13/07/10-26/08/10	Okhotsk Sea	2	NRIFSF
	6/09/10-4/10/10	Western North Pacific	11	NRIFSF
	13/05/10-21/06/10	Sea of Japan	14	NRIFSF
Pacific white-sided dolphin	7/05/10-31/05/10	Western North Pacific	2	NRIFSF
	13/07/10-26/08/10	Okhotsk Sea	6	NRIFSF
	6/09/10-4/10/10	Western North Pacific	23	NRIFSF
	13/05/10-21/06/10	Sea of Japan	103	NRIFSF
Killer whale	7/05/10-31/05/10	Western North Pacific	1	NRIFSF
	13/07/10-26/08/10	Okhotsk Sea	22	NRIFSF
	6/09/10-4/10/10	Western North Pacific	1	NRIFSF
	12/11/10-21/12/10	Sea of Japan	2	NRIFSF
Baird's beaked whale	13/07/10-26/08/10	Okhotsk Sea	13	NRIFSF
	6/09/10-4/10/10	Western North Pacific	3	NRIFSF
	13/05/10-21/06/10	Sea of Japan	7	NRIFSF

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 2010, using a total of 24 whale watching boats belong to the WATB. The boats (5 -10t) were without top barrels and excluded from the above table, but the boats were employed as sighting survey vessels in local coastal waters. The survey lasted six days both in July and August, and T. Kishiro (NRIFSF), seven research assistants and 24 fishermen members of WATB acted as the researchers on board. Besides Bryde's whales, a total of six schools (350 animals) of long beaked common dolphins, 11 schools (90 animals) of Risso's dolphins, three schools (328 animals) of bottlenose dolphins, one school (eight animals) of pantropical spotted dolphins, and three schools (22 animals) of false killer whales were sighted.

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, spotted and pacific white-sided dolphins off Taiji).

2.2 Analyses/development of techniques

Kanaji, Okamura and Miyashita developed an adjusting method for mean school size estimation to cope with problems in misjudgment of school size, and applied the method to the abundance estimation of the northern form of short-finned pilot whale.

Kanaji conducted the multivariate analysis to clarify distributional patterns of small odontocetes.

Okamura and Kishiro forwarded abundance estimation considering $g(0)$ and population dynamics simulation of Baird's beaked whale.

Okamura, Kanaji and Iwasaki forwarded abundance estimation of southern form short-finned pilot and melon-headed whales, bottlenose and rough-toothed dolphins off the Japanese coast using sighting data collected in 2006 and 2007.

3. Marking data

3.1 Field work

3.1.1 NATURAL MARKING DATA

Table 2. Natural marking data of small cetaceans collected during the period from April 2010 to March 2011.

Species	Feature	Area/stock	No. photo-id'd	Catalogue (Y/N)	Catalogue total	Contact person/institute; refs
Killer whale	Dorsal fin and saddle mark	Okhotsk Sea	16	N	0	NRIFSF
Killer whale	Dorsal fin and saddle mark	Western North Pacific	3	N	0	NRIFSF

A total of 19 killer whales were photographed for the photo-identification during the common minke whale biopsy sampling survey in the Okhotsk Sea, and the common minke whale satellite tagging survey in the coastal waters off Kushiro.

3.1.2 ARTIFICIAL MARKING DATA

No artificial marking was conducted during the period from April 2010 to March 2011.

3.1.3 TELEMETRY DATA

Minamikawa (NRIFSF) and Iwasaki tried to deploy pop-up archival transmitting (PAT) tags (MK10-PAT or PAT4, Wildlife Computers) on free-swimming Pacific white-sided dolphins in the Sea of Japan or the Pacific in May and June 2010. As a result, successful deployment was made on 10 dolphins and 9 tags popped up. The lengths of tagging period were from 5 to 12 days. 7 tags were retrieved and fine-scaled time-series data of depth, temperature and light level were obtained.

3. 2 Analyses/development of techniques

No new attempts were conducted.

4. Tissue/biological samples collected

4.1 Biopsy samples

Table 3. Biopsy samples of small cetaceans collected during the period from April 2010 to March 2011.

Species	Area/stock	Season - no. collected	Archived (Y/N)	No. analyzed	Total holdings	Contact institute
Pacific white-sided dolphin	Sea of Japan	48	Y	36	48	NRIFSF
Pacific white-sided dolphin	Western N. Pacific	8	Y	5	8	NRIFSF
Pacific white-sided dolphin	Tsugaru Strait	2	Y	1	2	NRIFSF

4.2 Samples from direct catches or bycatch

Table 4. Samples of small cetaceans from direct catches or bycatch collected during the period from April 2010 to March 2011.

Species	Area	Tissue type(s)	No. collected	Archived (Y/N)	Contact Institute
<i>dalli</i> -type Dall's porpoise	Western N.Pacific	Sk and Mu	24	Y	NRIFSF
Pantropical spotted dolphin	Western N.Pacific	To, Ma, O, U, Te, Sk and Mu	72	Y	NRIFSF
Striped dolphin	Western N.Pacific	To, Ma, O, U, Te, Sk and Mu	288	Y	NRIFSF
Bottlenose dolphin	Western N.Pacific	To, Ma, O, U, Te, Sk and Mu	138	Y	NRIFSF
	E.China Sea	To, Sk and Mu	1	Y	NRIFSF
Risso's dolphin	Western N.Pacific	To, Ma, O, U, Te, E, V, Sk, Mu and L	184	Y	NRIFSF
southern form short-finned pilot whale	Western N.Pacific	To, Ma, O, U, Te, E, V, Sk, Mu and L	26	Y	NRIFSF
	E. China Sea	To, Sk and Mu	29	Y	NRIFSF
Pacific white-sided dolphin	Western N.Pacific	To, Ma, O, U, Sk and Mu	24	Y	NRIFSF
Baird's beaked whale	Western N.Pacific	To, Ma, O, U, Te, E, V, Sk, Mu and L	52	Y	NRIFSF
	Okhotsk Sea	To, Ma, O, U, Te, E, V, Sk, Mu and L	4	Y	NRIFSF
	Sea of Japan	To, Ma, O, U, Te, E, V, Sk, Mu, L and St	10	Y	NRIFSF

E: epididymis, L: liver, Ma: mammary gland, Mu: muscle, O: ovaries, Sk: skin, St: stomach content, Te: testis, To: tooth, U: uterine horn, V: vertebral epiphysis.

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, 20 June to 31 August for land stations in Ayukawa and Wadoura on the Pacific coast, and 20 to 31 August for land station in Abashiri on the Okhotsk coast. A total of 66 whales (ten off Hakodate, four off Abashiri, 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 were taken by the following five biologists: Kishiro, K. Wakabayashi (FAJ), N. Funasaka (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. Fishing season was set for two boats (*Kohei-maru* #75 and *Taisho-maru* #28) from the station in Ayukawa in the same periods of the operations for Baird's beaked whales (20 June to 31 August), but no whales were taken. The national quota of southern form short-finned pilot whales for small-type whaling was 36 whales with a fishing season from 1 May to 30 September. A total of 26 whales were taken by three catcher boats (*Katsu-maru* #7, and *Seiwa-maru*) operating from one land station (Taiji). All of the catches were examined and samples were taken by T. Sumiya(FAJ), and Hara. The FAJ also set a national catch quota of twenty false killer whales for small-type whaling in Taiji from 1 May to 30 September, but no whales were taken. In Taiji during May-August 2010, the researchers also collected samples from hand harpoon catches when they had the opportunity, including 29 bottlenose, 93 Risso's, 28 striped, and seven spotted dolphins.

T. Hara (FRA) and M.Susuki (FRA) collected samples for life history and genetic studies from catches of drive and hand harpoon fisheries in Taiji during operations through 1-30 September 2010 and 7 January to 28 February 2011. They examined a total of 549 animals composed of 260 striped, 109 bottlenose, 91 Risso's and 65 Pantropical spotted and 24 Pacific white-sided dolphins.

Under contract with FRA and supervised by NRIFSF, sample collection for life history and genetic studies of dolphin fisheries was performed in Iwate prefecture. K.Niisato of Iwate Fisheries Technology Center (hereafter IFTC) and his colleagues, T. Goto (IFTC), Y. Hara (IFTC) and T. Sato (IFTC) recorded color type, sex and body length of 165 truei-type and 26 *dalli*-type Dall's porpoises landed at the Kamaishi Fish Market and collected DNA samples from 24

dalli-types during April 2010 through March 2011.

In January 2011, Okinawa Prefectural Government sent to NRIFSF samples for age determination and genetic studies from 29 southern form short-finned pilot whales and one bottlenose dolphin which were taken by hand harpoon fishery (crossbow fishery) in Okinawa during December 2009 to August 2010. Okinawa Prefectural government collected those samples as a part of supervision of the fishery.

4.3 Samples from stranded animals

Skin sample of a Pacific white-sided dolphin stranded in Kanagawa was sent to NRIFSF from H. Taru of Kanagawa Prefectural Museum of Natural History.

4.4 Analyses/development of techniques

In order to examine the biological parameters of Baird's beaked whales in the coastal waters off Japan, Kishiro and Iioka (Tokyo University of Marine Science and Technology, hereafter TUMST) examine the body length at sexual maturity and physical maturity of Baird's beaked whales taken by small-type whaling in the Sea of Japan, Okhotsk Sea, and off the Pacific coast of Japan in 1991 to 2010.

Iwasaki determined ages of 88 southern form short-finned pilot and four false killer whales, which were taken in Taiji or Okinawa.

Ohizumi (Tokai University) developed a simple method for monitoring of stomach contents of Baird's beaked whale caught in Hakodate coastal whaling station to detect possible prey shift from present primary prey, *Gonatopsis makko*, to another species.

Ohizumi reviewed food habits of small cetacean species commercially hunted by the Japanese fisheries.

Yoshida and Ito (TUMST) carried forward the mtDNA sequence analysis in order to obtain further information on southern form short-finned pilot whale stock structure around Japan, using tissue samples of 93 animals taken by driving and hand harpoon fisheries. Yoshida also conducted stock structure analysis of Pacific white-sided dolphins, using mtDNA sequences obtained from 43 individuals (biopsy samples from 42 animals and tissue sample from a stranded dolphin).

5. Statistics for small cetaceans

5.1 For the calendar year 2010

Table 5. Direct catch of small cetacean in 2010.

Species	Type of fishery	Prefecture ¹⁾	Total landed ²⁾
<i>dalli</i> -type Dall's p.	Hand harpoon	Hokkaido ³⁾	116
		Iwate ³⁾	1,140
<i>truei</i> -type Dall's p.	Hand harpoon	Hokkaido	2
	Hand harpoon	Iwate	3,532
	Hand harpoon	Miyagi	129
Striped dolphin	Hand harpoon	Wakayama	100
	Driving	Wakayama	458(2)
Pantropical spotted d.	Hand harpoon	Wakayama	7
	Driving	Wakayama	125(16)
Bottlenose dolphin	Hand harpoon	Wakayama	38
	Driving	Wakayama	395 (168)
	Hand harpoon	Okinawa	1
Risso's dolphin	Hand harpoon	Wakayama	126
	Driving	Wakayama	271(10)
southern form short-finned p.w.	Small-type whaling	Wakayama	10
	Hand harpoon	Okinawa	34
Pacific white-sided d.	Driving	Wakayama	27(17)
Baird's beaked whale	Small-type whaling	Hokkaido	14
		Miyagi	26
		Chiba	26

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 parentheses are numbers 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.

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 IWC 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. In 2006, FAJ modified above management season from 1 September to August 31 only for fisheries in Wakayama Prefecture because September was added as fishing season for drive fishery. 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 2008, 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 5 in this section by prefecture and type of fisheries. The data have been collected by the Far Seas Division of the FAJ based on reports from the prefectural governments.

Catch quota for dolphin fisheries for the 2010/2011 season was revised from the last season, that is, 7,772 *dalli*-type Dall's porpoise, 7,412 *truei*-type Dall's porpoises, 514 Risso's dolphins, 845 bottlenose dolphins, 742 spotted dolphins, 640 striped dolphins, 276 southern form short-finned pilot and 100 false killer whales and 360 Pacific white-sided dolphins (quota of false killer whales and Pacific white-sided dolphins remained constant since 2007/2008 season).

Corresponding operational months by prefecture in 2010 were as follows: Japanese hand harpoon fishery for porpoises was permitted for nine months (1 January to 31 August and 1-31 December) in Okinawa prefecture; eight months (1 January to 31 August) 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 eight months in Wakayama (1 January to 30 April and 1 September to 31 December) and for seven months in Shizuoka (1 January to 31 March and 1 September to 31 December).

5.2 Non-natural mortality for the calendar year 2009

5.2.1 OBSERVED OR REPORTED SHIP STRIKES

We have no data collecting system for ship strike incidence of small cetaceans.

5.2.2 FISHERY BYCATCH

Table 6. Fishery bycatch of small cetaceans in 2010.

Species	No. of animals	Location ¹⁾	Fate	Target fish species	Cause ²⁾
<i>dalli</i> -type Dall's porpoise	16	Hokkaido	K	NA	FPN
<i>dalli</i> -type Dall's porpoise	1	Hokkaido	K	NA	MIS
Harbor porpoise	3	Hokkaido	K	NA	FPN
Harbor porpoise	2	Hokkaido	K	NA	GNS
Harbor porpoise	1	Hokkaido	D	NA	MIS
Finless porpoise	2	Aichi	K	NA	MIS
Finless porpoise	2	Yamaguchi	K(alive)	NA	GNS
Finless porpoise	1	Yamaguchi	K	NA	GNS
Finless porpoise	2	Fukuoka	K	NA	FPN
Finless porpoise	1	Fukuoka	K	NA	MIS
Finless porpoise	2	Nagasaki	K	NA	FPN
Finless porpoise	4	Nagasaki	K	NA	GNS
Pacific white-sided d.	1	Aomori	K(alive)	NA	FPN
Pacific white-sided d.	7	Ishikawa	K(alive)	NA	FPN
Pacific white-sided d.	1	Ishikawa	K	NA	FPN
Pacific white-sided d.	2	Shizuoka	R	NA	FPN
Pacific white-sided d.	1	Shizuoka	K(alive)	NA	FPN
Pacific white-sided d.	2	Kyoto	K(alive)	NA	FPN
Risso's dolphin	1	Ishikawa	D	NA	GNS
Bottlenose dolphin	1	Oita	K	NA	FPN

Melon-headed whale	1	Kochi	K	NA	FPN
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1) Recorded at the place of fishing gears.

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

Target fish species : NA=not available

Fate of whale: R = released alive, D = discarded dead or seriously injured, K = kept for sale or specimen

FAO FISHING GEAR CATEGORIES:		FALLING GEAR	
SURROUNDING NETS		Cast nets	FCN
With purse lines	PS	Falling gear (not specified)	FG
One-boat operated purse seines	PS1	GILLNETS AND ENTANGLING GEAR	
Two-boat operated purse seines	PS2	Set gillnets (anchored)	GNS
Without purse lines (lampara)	LA	Driftnets	GND
SEINE NETS		Encircling gillnets	GNC
Beach seines	SB	Fixed gillnets (on stakes)	GNF
Boat seines	SV	Trammel nets	GTR
Danish seines	SDN	Combined gillnet-trammel nets	GTN
Scottish seines	SSC	Gillnets and entangling gillnets (not specified)	GEN
Pair seines	SPR	Gillnets (not specified)	GN
Seine nets (not specified)	SX	TRAPS	
TRAWLS		Stationary uncovered pounds nets	FPN
Bottom trawls	TBB	Pots	FPO
Beam trawl	OTB	Fyke nets	FYK
Otter trawls (side or stern)	PTB	Stow nets	FSN
Pair trawls	TBN	Barriers, fences, weirs, etc	FWR
Nephrops trawls	TBS	Aerial traps	FAR
Shrimp trawls (not specified)	TM	Traps (not specified)	FIX
Midwater trawls		HOOKS AND LINES	
Otter trawls (side or stern)	OTM	Handlines and pole-lines (hand operated)	LHP
Pair trawls	PTM	Handlines and pole-lines (mechanised)	LHM
Shrimp trawls	TMS	Set longlines	LLS
Midwater trawls (not specified)	TM	Drifting longlines	LLD
Otter twin trawls	OTT	Longlines (not specified)	LL
Otter trawls (not specified)	OT	Trolling lines	LTL
Pair trawls (not specified)	PT	Hooks and lines (not specified)	LX
Other trawls (not specified)	TX	GRAPPLING AND WOUNDING	
DREDGES		Harpoons	HAR
Boat dredges	DRB	HARVESTING MACHINES	
Hand dredges	DRH	Pumps	HMP
LIFT NETS		Mechanised dredges	HMD
Portable lift nets	LPN	Harvesting machines (not specified)	HMX
Boat-operated lift nets	LNB	MISCELLANEOUS GEAR	MIS
Shore operated stationary lift nets	LNS	RECREATIONAL FISHING GEAR	RG
Lift nets (not specified)	LN	GEAR NOT KNOWN OR NOT SPECIFIED	NK
		SHARK CONTROL NETS	NSC
		DERELICT FISHING GEAR	

5.3 Strandings of small cetaceans

Table 7. Strandings of small cetaceans in 2010.

Species and stocks	No. strandings	No. postmortems	Contact person(s)/ Institute(s)
Dall's porpoise(<i>dalli</i> -type)	4	4	FAJ
Harbor porpoise	11	9	FAJ
Finless porpoise	146	145	FAJ
Pacific white-sided d.	14	14	FAJ
Striped dolphin	10	8	FAJ
Bottlenose dolphin	8	7	FAJ
Indo-Pacific bottlenose dolphin	1	1	FAJ
Risso's dolphin	8	7	FAJ
Rough-toothed dolphin	2	1	FAJ
southern form short-finned p.w.	2	1	FAJ
False killer whale	1	1	FAJ
Killer whale	3	3	FAJ
Pantropical spotted d.	1	1	FAJ
Pygmy killer whale	2	1	FAJ
Melon-headed whale	6	1	FAJ
Fraser's dolphin	2	2	FAJ
Spinner dolphin	1	1	FAJ
Baird's beaked w.	5	5	FAJ
Cuvier's beaked w.	3	3	FAJ
Stejneger's beaked w.	7	7	FAJ
Gingko-toothed beaked whale	1	1	FAJ
Blainville's beaked whale	1	1	FAJ
Lomgman's beaked whale	1	1	FAJ
Pygmy sperm whale	13	11	FAJ
Dwarf sperm whale	7	5	FAJ
Unidentified cetaceans	10	9	FAJ

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 (Table 7). In addition, the Institute of Cetacean Research, (4-5 Toyomi, Chuo-ku, Tokyo 104-0055, Japan) and Dr. T. Yamada (National Science Museum, Hyakunin-cho, Shinjuku-ku, Tokyo 169-0073, Japan) voluntarily collected relevant information on the strandings.

5.4 Earlier years' statistics

There are no changes in earlier years' statistics.

6. Other studies and analyses

No other studies or analyses on small cetaceans were conducted during the period from April 2010 to March 2011.

7. Literature cited

Shikawa, 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

8. Publications on small cetaceans

8.1 Published or In Press'papers only

- Iwasaki, T. 2011. Fisheries and research on small cetaceans (review) *In* Hashimoto, Y. (ed) The Current status of international fishery stocks. Fisheries Agency and Fisheries Research Agency. http://kokushi.job.affrc.go.jp/H22/H22_45.pdf (in Japanese)
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