

# Japan. Progress report on small cetacean research, April 2016 to March 2017, with statistical data for the *calendar year 2016*

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This report summarizes statistical data on small cetacean fisheries in 2016 (calendar year) as well as researches conducted during the period from April 2016 to March 2017 by the National Research Institute of Far Seas Fisheries (hereafter NRIFSF) of the Japan Fisheries Research and Education Agency (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 “National Progress report”, <https://portal.iwc.int/progressreportspublic> (submitted to the IWC/SC/67a meeting). The Government of Japan considers management of small cetaceans is outside the competence of the International Convention for the Regulation of Whaling.

## 1. SPECIES AND STOCKS STUDIED

Common name	Scientific name	Area/stock(s)	Items referred to
Dall’s porpoise	<i>Phocoenoides dalli</i>	Off Pacific coast, Sea of Japan, and Okhotsk Sea	2.1.1, 5.1, 5.2.2, 5.3, 8.1
Finless porpoise	<i>Neophocaena phocaenoides</i>	Coastal waters of Japan	2.1.1, 2.2, 5.2.2, 5.3, 8.1
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>	Off Pacific coast, and Sea of Japan	2.1.1, 4.2, 5.1, 5.2.2, 5.3, 8.2
Striped dolphin	<i>Stenella coeruleoalba</i>	Off Pacific coast	2.1.1, 4.2, 4.4, 5.1, 5.2.2, 5.3
Pantropical spotted dolphin	<i>Stenella attenuate</i>	Off Pacific coast	3.1.3, 4.2, 4.4, 5.1
Bottlenose dolphin	<i>Tursiops truncatus</i>	Off Pacific coast, and East China Sea	2.1.1, 3.1.2, 3.1.3, 3.2, 4.2, 4.4, 5.1, 5.2.2, 5.3
Risso’s dolphin	<i>Grampus griseus</i>	Off Pacific coast	2.1.1, 4.2, 4.4, 5.1, 5.2.2, 5.3
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	Western North Pacific, and East China Sea	3.1.2, 4.2, 4.4, 5.1, 5.3
False killer whale	<i>Pseudorca crassidens</i>	Off Pacific coast	4.2, 5.1, 5.3
Killer whale	<i>Orcinus orca</i>	Off Pacific coast	2.1.2, 5.3, 8.1
Baird’s beaked whale	<i>Berardius bairdii</i>	Off Pacific coast, Sea of Japan and Okhotsk Sea	2.1.1, 2.1.2, 2.2, 4.2, 4.4, 5.1, 8.1, 8.2
Additional species	-	Around Japan	2.1.1, 4.4, 5.2.2, 5.3

## 2. SIGHTINGS DATA

### 2.1 Field work

#### 2.1.1 Systematic

The NRIFSF and FAJ conducted a dedicated shipboard sighting survey in the North Pacific, using the research vessel with a top barrel. During the cruise, the following small cetaceans were sighted. The sightings of large cetaceans were described in the National Progress Report submitted to the IWC/SC/67a meeting.

Table 1. Sightings of small cetaceans by dedicated shipboard survey conducted during the period from April 2016 to March 2017.

Species	Date	Area	No. of sightings	Contact institute
Bottlenose dolphin	11/04/16-28/04/16	western North Pacific	11	NRIFSF
Striped dolphin	11/04/16-28/04/16	western North Pacific	1	
Pacific white-sided dolphin	11/04/16-28/04/16	western North Pacific	4	
Risso's dolphin	11/04/16-28/04/16	western North Pacific	6	

No. of sightings indicates number of schools sighted. These sightings were made during a dedicated sighting survey, using the research vessel *Shunyo-maru*, from 11 April to 28 April 2016.

Two aerial sighting surveys were conducted to obtain information on distribution and abundance of cetaceans inhabiting Japanese coastal waters. During the period from 16 to 20 May 2016, Hideyoshi Yoshida, Hiroto Murase, and Hikari Maeda (NRIFSF) conducted the sighting survey at waters off Pacific coast of Eastern Japan, from a small plane (twin engines, bubble window) flying at 135 knots and 700 feet in altitude. They searched 1,589 nautical miles and encountered a school (5 animals) of the Baird's beaked whale, a school (three animals) of the Dall's porpoise, a school (two animals) of the finless porpoise, three schools (18 animals) of like Risso's dolphin, a school (two animals) of like Pacific white-sided dolphin. Coastal waters off Kushiro was surveyed from 4 to 7 August 2017. Yoshida, Yu Kanaji, and Hiroko Sasaki (NRIFSF) searched the sea surface for cetaceans, from the same plane mentioned above flying at the same speed and altitude. They searched 1,441 nautical miles and got sightings of three schools (26 animals) of the Baird's beaked whale, two schools (9 animals) of the Risso's dolphin, a school (two animals) of the beluga whale, 36 schools (489 individuals) of the Dall's porpoise, and a school (three animals) of the harbor porpoise.

### 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. Baird's beaked whales, southern form short-finned pilot and false killer whales, Risso's, bottlenose, striped, spotted and Pacific white-sided dolphins).

During the JARPN II coastal component off Kushiro, northeast Japan conducted in September and October 2016, sightings of 5 schools (18 animals) of the Baird's beaked whale and of 22 schools (138 animals) of the killer whale were obtained by the sampling vessels.

## 2.2 Analyses/development of techniques

Kanaji estimated abundance of six species of small odontocetes by analysing the sighting data from surveys conducted in 2014 and 2015 which were designed for small cetaceans and re-analysing previous sighting data. Kanaji and Sasaki compiled the sighting dataset of Baird's beaked whales toward stock assessment of the species.

Yoshida conducted abundance estimation of finless porpoises in the Ise Bay and Mikawa Bay, from data of aerial sighting surveys conducted in 2002, 2003, and 2014, with Natsuko Ogawa, Hidehiro Kato, and Gen Nakamura (Tokyo University of Marine Science and Technology).

## 3. MARKING DATA

### 3.1 Field work

#### 3.1.1 Natural marking data

Natural marking was not applied.

### 3.1.2 Artificial marking data

Under the cooperation between the NRIFSF and the Taiji Whale Museum- Sylpheed Ltd., 65 bottlenose dolphins and an individual of the southern form short-finned pilot whale caught by the Taiji dolphin drive fishery during the period from September 2016 to January 2017 were released to the ocean, with the small plastic tags attached on their dorsal fin.

### 3.1.3 Telemetry data

Shingo Minamikawa (NRIFSF) deployed pop-up archival transmitting (PAT) tag (miniPAT, Wildlife Computers) on a bottlenose dolphin swimming in the western North Pacific (coastal area of Japan) in April. The lengths of tagging period were 17days.

Table 2.1. PAT data of small cetaceans collected during the period from April 2016 to March 2017.

Species	Tag type	No. deployed	No. popped up	No. retrieved	Contact institute
Bottlenose dolphin	miniPAT	1	1	0	NRIFSF

## 3.2 Analyses/development of techniques

Minamikawa proceeded the analysis of the PAT tag data of a bottlenose dolphin.

## 4. TISSUE/BIOLOGICAL SAMPLES COLLECTED

### 4.1 Biopsy samples

The NRIFSF collected no biopsy samples from small cetaceans during the period from April 2016 to March 2017.

### 4.2 Samples from directed catches or bycatches

Samples of small cetaceans from commercial catches collected during the period from April 2016 to March 2017 are shown in Table 4.

The national quota of Baird's beaked whales for the mentioned period was 73 animals for small-type whaling (includes 7 animals carryover from the last year's quota). Whaling operation was conducted from 25 May to 8 July at the land station in Hakodate on the Sea of Japan coast, from 20 June to 22 August at the land station in Wadoura on the Pacific coast, from 1 June to 27 August and from 7 to 21 November at the land station in Ayukawa on the Pacific coast, 1 to 6 August at the land station in Abashiri on the Okhotsk coast. A total of 61 animals (ten off Hakodate, two off Abashiri, 49 off the Pacific coast) were taken by five catcher boats (*Seiwa-maru*, *Kohei-maru* #8, *Taisho-maru* #28 (replaced by *Taisho-maru* #3 during the operation), *Katsu-maru* #7, and *Sumitomo-maru* #51). All the catches were examined and biological samples were taken by six researchers.

The national quota of northern form short-finned pilot whales for small-type whaling was 36 animals. Fishing season was set for two boats (*Kohei-maru* #8 and *Taisho-maru* #28/*Taisho-maru* #3) in the same periods of the operations for Baird's beaked whales, but operation was not conducted for the pilot whales.

The national quota of southern form short-finned pilot whales for small-type whaling was 36 animals. From 5 May to 22 August 2016, 2 animals were taken by *Seiwa-maru* at the Taiji land station and three animals were taken by *Sumitomo-maru* #51 at the Wadoura land station. In addition, a national quota of twenty false killer whales for small-type whaling in Taiji was set in the same periods of the operations for southern form short-finned pilot whales, but no false killer whales were encountered during the period. All the catch animals were examined and biological samples were taken by the researchers.

The surveys for animals caught by the drive fisheries at Taiji was conducted to collect data and samples for life history and genetic studies, by 10 researchers during the periods from 10 November to 25 December 2016, and 5 January to 28 February 2017. They examined 25 southern form short-finned pilot whales and 300 striped, 5 pantropical spotted, 10 bottlenose, 140 Risso's, and a Pacific white-sided dolphins.

Okinawa Prefectural Government requested fishermen to collect teeth and skin samples as a part of supervision of the fishery, from southern form short-finned pilot whales, and bottlenose dolphins which were caught by hand harpoon fishery (crossbow fishery) in Okinawa in 2016 season. Those samples will be sent to NRIFSFS for age determination and genetic examinations.

Sample collection of small cetaceans from bycatches by the NRIFSFS was not conducted during the period from April 2016 to March 2017.

Table 4. Samples of small cetaceans from direct catches collected during the period from April 2016 to March 2017.

Species	Area	Tissue type(s)	No. Collected	Archived (Y/N)	Contact Institute
Baird's beaked whale	Western North Pacific	To, Ma, O, U, Te, E, V, and Sk	49	Y	NRIFSFS
	Okhotsk Sea	To, Ma, O, U, Te, E, V, and Sk	2	Y	
	Sea of Japan	To, Ma, O, U, Te, E, V, and Sk	10	Y	
Southern form short-finned pilot whale	Western North Pacific	To, Ma, O, U, Te, E, V, Sk, and St	30	Y	
Risso's dolphin	Western North Pacific	To, Ma, O, U, Te, sk, and St	140	Y	
Bottlenose dolphin	Western North Pacific	To, Ma, O, U, Te, sk, and St	10	Y	
Striped dolphin	Western North Pacific	To, Ma, O, U, Te, sk, and St	300	Y	
Pantropical spotted dolphin	Western North Pacific	To, Ma, O, U, Te, sk, and St	5	Y	
Pacific white-sided dolphin	Western North Pacific	To, Ma, O, U, Te, and sk	1	Y	

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

### 4.3 Samples from stranded animals

Sample collection from stranded small cetaceans by the NRIFSFS was not conducted during the period from April 2016 to March 2017.

### 4.4 Analyses/development of techniques

Maeda determined ages of a total of 237 animals (bottlenose and Risso's dolphins) taken by drive fishery in Taiji. Maeda also examined ovaries samples of 32 animals (southern form short-finned pilot whales bottlenose dolphins) and histological samples of testis, mammary gland, and uterine horn of a total of 170 animals (southern form short-finned pilot whales, bottlenose dolphins, and Risso's dolphins) taken by drive fishery in Taiji for determination of the sexual maturity.

Yoshida carried forward the mtDNA sequence analysis in order to accumulate information on stock structure of small cetaceans around Japan, using tissue samples from 288 animals.

Hiroshi Ohizumi (Tokai University) conducted feeding habits analysis from 38 striped dolphins caught in 1999-2015 and 49 bottlenose dolphins taken in 2002-2015, by the hand harpoon fishery at Taiji.

Kanaji analysed carbon and nitrogen isotope ratio ( $^{13}\text{C}/^{12}\text{C}$  and  $^{15}\text{N}/^{14}\text{N}$ ) of several small odontocetes using skin biopsy samples collected from ship-based surveys, and tested niche overlapping among striped, common bottlenose, pantropical spotted, and short-beaked common dolphins.

## 5. STATISTICS FOR SMALL CETACEANS

### 5.1 For the calendar year 2016

For small-type whaling, the target species, fishing season, quota, catcher boats and actual catches are the same as shown in section 4.2.

For dolphin fisheries, management season has been started on 1 August and closed on 31 July for Dall's porpoise fisheries, and from 1 October to 30 September for other species, since 1996. The management season for fisheries in Wakayama Prefecture has been started on 1 September and closed on 31 August. As has been the case in previous years, the statistics, following the guideline for IWC national progress report, cover catches from 1 January to 31 December 2016, 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 International Affairs Division of the FAJ based on reports from the prefectural governments.

Catch quota for dolphin fisheries for the 2016/2017 season was revised from the last season, that is, 5,900 *dalli*-type Dall's porpoise, 5,900 *truei*-type Dall's porpoises, 460 Risso's dolphins, 500 bottlenose dolphins, 470 pantropical spotted dolphins, 550 striped dolphins, and 166 southern form short-finned pilot whales. Catch quota for false killer whales (100 animals) and Pacific white-sided dolphins (360 animals) remained constant since 2007/2008 season.

Corresponding operational months by prefecture in 2016 were as follows: hand harpoon fishery for porpoises and dolphins 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 nine months in Wakayama (1 January to 31 May and 1 September to 31 December) and for seven months in Shizuoka (1 January to 31 March and 1 September to 31 December).

Table 5. Direct catch of small cetacean in 2016.

Species	Type of fishery	Prefecture <sup>1)</sup>	Total landed <sup>2)</sup>
Baird's beaked whale	Small-type whaling	Hokkaido	12
		Miyagi	25
		Chiba	24
<i>dalli</i> -type Dall's porpoise	Hand harpoon	Iwate <sup>3)</sup>	1
<i>truei</i> -type Dall's porpoise		Iwate	1,057
		Miyagi	1
Pacific white-sided dolphin	Driving	Wakayama	6
Striped dolphin	Hand harpoon	Wakayama	10
	Driving		625
Pantropical spotted dolphin	Hand harpoon	Wakayama	2
	Driving		20
Bottlenose dolphin	Hand harpoon	Wakayama	11
	Driving		147
		Hand harpoon	Okinawa
Risso's dolphin	Hand harpoon	Wakayama	1
	Driving		232
Southern form short-finned pilot whale	Small-type whaling	Wakayama	2
		Chiba	3
	Driving	Wakayama	41

	Hand harpoon	Okinawa	21
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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).

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.

## 5.2 Non-natural mortality for the calendar year 2016

### 5.2.1 Observed or reported ship strikes

We do not have data collecting system for ship strike incidence of small cetaceans.

### 5.2.2 Fishery bycatch

Provisional figures for incidental mortality of small cetaceans (bycatch) by Japanese fisheries, by Prefecture in January-December 2016, are shown in Table 6. Species and figures are based on the reports of prefecture governments to the FAJ, which are reports from individual fishermen or fishery cooperative unions.

Table 6. Fishery bycatch of small cetaceans in 2016.

Species	No. of animals	Location <sup>1)</sup>	Fate <sup>2)</sup>	Gear <sup>3)</sup>	Target fish species <sup>4)</sup>	Source or contact
<i>dalli</i> -type	2	Hokkaido	K	FPN	NA	FAJ
Dall's porpoise	6		R	FPN		
Harbour porpoise	8	Hokkaido	K	GNS		
	3		R	FPN		
	1		K	FPN		
Risso's dolphin	2	Shizuoka	K	FPN		
Bottlenose dolphin	1	Hyogo	K(alive)	FPN		
Striped dolphin	1	Hokkaido	K	GNS		
Pacific white-sided Dolphin	1	Aomori	R	FPN		
Finless porpoise	1	Miyagi	K	GNS		
	1	Kanagawa	R	GNS		
	2	Mie	K	FPN		
	18			GNS		
	1			MIS		
	4	Osaka	K	GNS		
	1	Okayama	K	MIS		
	1	Yamaguchi	K	GNS		
	1		K(alive)	MIS		
	2	Nagasaki	K	GNS		
	1		K	MIS		
	1	Kumamoto	K	FPN		
	1	Oita	K	GNS		

1) Recorded at the place of fishing gears.

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

- 3) Described using “FAO FISHING DESCRIPTION AND CODES”, that is, stationary uncovered pound nets (FPN), set gillnets (GNS) and miscellaneous gear (MIS).
- 4) Target fish species: NA = not available

### 5.3 Strandings of small cetaceans

Provisional figures for strandings of small cetaceans in Japan, for the period January-December 2016, are shown in Table 7. Species and figures are based on reports of prefecture governments to the FAJ, which are reports from individual fishermen, fishery cooperative associations or the general public. No. of post mortems in Table 7 indicated the number of dead animals when they stranded.

Table 7. Strandings of small cetaceans in 2016.

Species	No. strandings	No. post mortems	Contact person(s)/ Institute(s)
<i>dalli</i> -type Dall’s porpoise	1	1	FAJ
Harbor porpoise	3	3	
Finless porpoise	172	172	
Pacific white-sided dolphin	17	17	
Striped dolphin	20	20	
Long-beaked common dolphin	1	1	
Short-beaked common dolphin	1	1	
Bottlenose dolphin	8	8	
Risso’s dolphin	16	16	
Short-finned pilot whale	1	1	
False killer whale	3	3	
Melon-headed whale	1	1	
Killer whale	3	3	
Cuvier’s beaked whale	3	3	
Hubbs’ beaked whale	1	1	
Stejneger’s beaked whale	3	3	
Ginkgo-toothed Beaked Whale	1	1	
Dwarf sperm whale	5	5	
Pygmy sperm whale	5	5	
Unidentified cetaceans	12	12	

In addition, the Institute of Cetacean Research (4-5 Toyomi, Chuo-ku, Tokyo 104-0055, Japan), and the National Science Museum (4-1-1, Amakubo, tsukuba, Ibaragi 305-0005, Japan) voluntarily collected relevant information on strandings.

### 5.4 Earlier years’ statistics

There are no corrections in earlier years’ statistics.

## 6. OTHER STUDIES AND ANALYSES

No other studies or analyses on small cetaceans were conducted during the period from April 2016 to March 2017.

## 7. LITERATURE CITED

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## 8. PUBLICATION ON SMALL CETACEANS (全員)

### 8.1 Published or In Press' papers only

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### 8.2 Unpublished literature

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- Kanaji, Y., Yoshida, H. and Okazaki, M. 2016. Spatio-temporal variations in the stable carbon and nitrogen isotopic compositions of Delphinidae species in the western North Pacific. *The North Pacific Marine Science Organization (PICES) 2016 Annual Meeting. PICES 2016 Book of Abstracts*. p. 102.
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