

Japan's Scientific Progress report on Small Cetaceans in the fiscal year 2019 (April 2019 to March 2020), with statistical data for the *calendar year* 2019

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This report summarizes statistical data on small cetacean fisheries in 2019 (calendar year) as well as research conducted during the fiscal year 2019 (April 2019 to March 2020) 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 organizations concerned. This report covers information on small cetaceans which is not included in the “Scientific Progress Report on Large Cetaceans”, <http://www.jfa.maff.go.jp/j/whale/attach/pdf/research-25.pdf> (notified to the IWC/SC/68b 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, Japan Sea, and Okhotsk Sea	2.1.1, 3.1.3, 3.2, 5.1, 5.2.2, 5.3
Finless porpoise	<i>Neophocaena asiaeorientalis</i>	Coastal waters of Japan	5.2.2, 8.1
Pacific white-sided dolphin	<i>Lagenorhynchus obliquidens</i>	Off Pacific coast, and Japan Sea	2.1.1, 2.1.2, 4.2, 5.1, 5.2.2, 5.3
Striped dolphin	<i>Stenella coeruleoalba</i>	Off Pacific coast	2.1.2, 4.2, 4.4, 5.1, 5.3
Pantropical spotted dolphin	<i>Stenella attenuate</i>	Off Pacific coast	2.1.1, 2.1.2, 4.2, 5.1
Bottlenose dolphin	<i>Tursiops truncatus</i>	Off Pacific coast, and East China Sea	2.1.1, 2.1.2, 3.1.1, 3.1.2, 3.1.3, 3.2, 4.2, 4.4, 5.1, 5.3, 8.2
Rough-toothed dolphin	<i>Steno bredanensis</i>	Off Pacific coast	2.1.1, 5.1, 5.3
Melon-headed whale	<i>Peponocephala electra</i>	Off Pacific coast	2.1.1, 4.2, 4.4, 5.1, 5.3
Risso's dolphin	<i>Grampus griseus</i>	Off Pacific coast, Japan Sea	2.1.1, 2.1.2, 2.2, 4.2, 4.4, 5.1, 5.3, 8.2
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>	Western North Pacific, and East China Sea	2.1.1, 2.1.2, 4.2, 4.4, 5.1, 5.3, 8.2
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	2.1.1, 8.1
Baird's beaked whale	<i>Berardius bairdii</i>	Off Pacific coast, Japan Sea and Okhotsk Sea	2.1.1, 2.1.2, 4.2, 5.1, 5.3, 8.1
Additional species	-	Around Japan, others	5.2.2, 5.3

2. SIGHTINGS DATA

* National Research Institute of Far Seas Fisheries (NRIFSF) was reorganized into Fisheries Resources Institute (FRI) in July 2020.

2.1 Field work

2.1.1 Systematic

The NRIFSF and FAJ conducted a dedicated shipboard sighting survey in the North Pacific, using a research vessel with a top barrel. During the survey, the following small cetaceans were sighted. Sightings of large cetaceans were provided in the Scientific Progress Report on Large Cetaceans notified to the IWC/SC/68b meeting.

Table 1. Small cetaceans sighted in the dedicated shipboard survey conducted during the fiscal year 2019 (April 2019 to March 2020).

Species	Date	Area	No. of sightings	Contact institute
Baird's beaked whale	21/05/19-08/07/19	North Pacific coast	37	NRIFSF
Rough-toothed whale	21/05/19-08/07/19	North Pacific	2	
Bottlenose dolphin	21/05/19-08/07/19	North Pacific	1	
Spotted dolphin	21/05/19-08/07/19	North Pacific	9	
Pacific white-sided dolphin	21/05/19-08/07/19	North Pacific coast	38	
Risso's dolphin	21/05/19-08/07/19	North Pacific	10	
Short-finned pilot whale	21/05/19-08/07/19	North Pacific	17	
Melon-headed whale	21/05/19-08/07/19	North Pacific	1	
Killer whale	21/05/19-08/07/19	North Pacific coast	1	
Dall's porpoise	21/05/19-08/07/19	North Pacific coast	9	

"No. of sightings" indicates the numbers of schools sighted. These sightings were made during the sighting survey for small cetacean conducted in the North Pacific, from 21 May to 8 July 2019, using the research vessel Kaiyo-maru No.7.

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 at the fishing grounds (e.g. the Baird's beaked whale, the short-finned pilot whale, and the Risso's, bottlenose, striped, spotted and Pacific white-sided dolphin).

During the NEWREP-NP coastal component off Abashiri, northeast Japan, conducted in June 2019, sightings of 15 schools (58 animals) of the Baird's beaked whale were obtained by sampling vessels.

2.2 Analyses/development of techniques

Kanaji and Maeda compiled fishermen's logbook data for the preparation of stock assessment and population dynamics modelling.

Kanaji analysed shipboard sighting survey data collected in 2006, 2007 and 2014 based on the species distribution model (SDM) to estimate distributional patterns of Risso's dolphins off the Pacific coast of Japan and those seasonal and long-term variations. SDM also provided information on long-term trend in abundance of Risso's dolphins off Japan. Kanaji and Sasaki analysed aerial sighting survey data from 2014-2016 to estimate abundances of Dall's porpoises migrating into the coastal waters off north-eastern Hokkaido using conventional distance sampling approach. Sasaki and Kanaji have continued to analyse shipboard sighting survey data in 2008, 2009, 2015, and 2017 to estimate abundance of Baird's beaked whales.

3. MARKING DATA

3.1 Field work

3.1.1 Natural marking data

Natural marking data were not collected.

3.1.2 Artificial marking data

With the cooperation of the Taiji Whale Museum and the Mie University, NRIFSFS attached plastic tags to 27 bottlenose dolphins caught by the Taiji dolphin drive fishery from September 2019 to February 2020, and dolphins were released to the sea soon after the tagging. A new project to attach dart tags on free-ranging dolphins from small fishing boat was launched in this fiscal year.

3.1.3 Telemetry data

With the cooperation of the Taiji fishermen cooperative and the Mie University, NRIFSFS attached smart position and temperature transmitting tags (SPOT tags, Wildlife Computers) to the dorsal fin of three bottlenose dolphins caught by the dolphin drive fishery in Taiji and released them soon after the tagging. These surveys were conducted from September 2019 to January 2020. The lengths of tagging period were from 27 to 32 days. They also released eight Dall's porpoise deploying pop-up archival transmitting (PAT) tag (miniPAT, Wildlife Computers) on their body or SPLASH tag (SPLASH-10, Wildlife Computers) on the dorsal fin in Jun - July 2019, under the collaborative research with Tokyo University of Agriculture. These animals were incidentally caught by stationary uncovered pound nets. Data were available from four of the five miniPAT and two of the three SPLASH. Lengths of tagging period of them were 1 and 112 days, respectively.

Table 2.1. PAT data of small cetaceans collected during the period from April 2018 to March 2019.

Species	Tag type	No. deployed	No. data available	No. popped up	No. retrieved	Contact institute
Bottlenose dolphin	SPOT	3	3	0	0	NRIFSFS
Dall's porpoise	miniPAT	5	4	5	2	NRIFSFS
Dall's porpoise	SPLASH	3	2	0	0	NRIFSFS

3.2 Analyses/development of techniques

Kanaji and Sasaki has been continuing the analysis of the SPOT, SPLASH and miniPAT tags data, from three bottlenose dolphins and six Dall's porpoises.

4. TISSUE/BIOLOGICAL SAMPLES COLLECTED

4.1 Biopsy samples

The NRIFSFS collected no biopsy samples from small cetaceans during the fiscal year 2019 (April 2019 to March 2020).

4.2 Samples from directed catches or bycatches

Samples collected from small cetaceans caught by the small-type whaling and the drive fishery at Taiji during the period of April 2019 to March 2020 are shown in Table 4.

The national quota of Baird's beaked whales for the mentioned period was 67 animals for small-type whaling (includes an animal carryover from the last year's quota). Whaling operation was conducted from 13 July to 27 August, from 1 to 6 October, and from 16 to 21 November at the land station in Wadoura on the Pacific coast, from 13 July to 27 August and 30 September to 22 November at the land station in Ayukawa on the Pacific coast, and from 1 to 23 August and from 27 September to 18 November at the land station in Abashiri on the Okhotsk coast. The operation at the land station in Hakodate at the Sea of Japan coast was not conducted. A total of 47 Baird's beaked whales (one off Abashiri, 46 off the Pacific coast) were taken by five catcher boats (*Seiwa-maru*, *Kohei-maru* #8, *Taisho-maru* #3, *Katsu-maru* #7, and *Sumitomo-maru* #51). All the animals were examined and biological samples were taken by seven researchers.

The national quota of northern form short-finned pilot whales for small-type whaling was 36 animals. The six animals were taken in November at the Pacific coast off north eastern Japan. Two researchers conducted biological examination and sampling for the animals at the Ayukawa station. The national quota of 33 southern form short-finned pilot whales was set for the small-type whaling at the Taiji and Wadoura land stations. But, there was no operation at the Taiji station and no catch in the Wadoura operation. The national quota of 20 false killer whales was set for small-type whaling at the Taiji station, but no animal was caught.

The surveys for animals caught by the drive fishery at Taiji were conducted to collect data and samples for life history and genetic studies, by 6 researchers during the periods from 1 September to 29 September 2019, from 10 November to 25 December 2019, and from 5 January to 29 February 2020. They examined 47 southern form short-finned pilot whales, 120 melon-headed whales, and 386 striped, 18 pantropical spotted, 103 Risso's, one bottlenose, and one Pacific white-sided dolphins.

Ohizumi (Tokai University) collected stomach contents of 149 animals including Risso's dolphins, melon-headed whales, striped dolphins, and spotted dolphins from November 2019 to February 2020, caught by drive fishery at Taiji for the feeding habit study.

Okinawa Prefectural Government requested fishermen to collect teeth and skin samples as a part of supervision of the fishery, from small cetaceans caught by hand harpoon fishery (crossbow fishery) in Okinawa. Samples collected at 2018-2019 fishery seasons were sent to NRIFSF for age determination and genetic examinations.

Sample collection of small cetaceans from bycatches by the NRIFSF was not conducted during the period from April 2019 to March 2020.

Table 4. Samples collected from small cetaceans caught by the small-type whaling and driven fishery during the fiscal year 2019 (April 2019 to March 2020).

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	46	Y	NRIFSF
	Okhotsk Sea	To, Te, E, V, and Sk	1	Y	
Northern form short-finned pilot whale	Western North Pacific	To, Te, E, V, and Sk	6	Y	
Southern form short-finned pilot whale	Western North Pacific	To, Ma, O, U, Te, and sk	47	Y	
Bottlenose dolphin	Western North Pacific	To, Te., and sk	1	Y	
Risso's dolphin	Western North Pacific	To, Ma, O, U, Te, C, and sk	103	Y	
Striped dolphin	Western North Pacific	To, Ma, O, U, Te, C, and sk	386	Y	
Pantropical spotted dolphin	Western North Pacific	To, Ma, O, U, Te, C, and sk	18	Y	
Melon-headed whale	Western North Pacific	To, Ma, O, U, Te, C, and sk	120	Y	
Pacific white-sided dolphin	Western North Pacific	To, Te, and sk	1	Y	

E: epididymis, Ma: mammary gland, O: ovaries, Sk: skin, Te: testis, To: tooth, U: uterine horn, V: vertebral epiphysis, C: crystalline lens.

4.3 Samples from stranded animals

Sample collection from stranded small cetaceans by the NRIFSF was not conducted during the fiscal year 2019 (April 2019 to March 2020).

4.4 Analyses/development of techniques

Maeda determined ages of a total of 152 animals (southern form short-finned pilot and melon-headed whales, and bottlenose, Risso's and striped dolphins) taken by the drive fishery at Taiji. Maeda also examined ovaries of 92 animals (southern form short-finned pilot and melon-headed whales and bottlenose, Risso's and striped dolphins) caught by the drive fishery and investigated histological samples of testis, mammary gland, and uterine horn of a total of 130 animals (Melon-headed whales and bottlenose and Risso's dolphins) taken by drive fishery at Taiji, for studies on sexual maturity.

Maeda measured the racemization rate of aspartic acid in the ocular lens of 71 Risso's dolphin to examine a method for age estimation using aspartic acid racemization.

Yoshida accumulated SNPs data from 199 animals, to advance the stock structure study of small cetaceans around Japan.

5. STATISTICS FOR SMALL CETACEANS

5.1 For the calendar year 2019

Target species, fishing season, quota, catcher boats and actual catches for the small type whaling are provided in section 4.2.

Regarding the dolphin fisheries, management season has been set from 1 August to 31 July of the following year for Dall's porpoise fisheries, and from 1 October to 30 September of the following year for other species, since 1996. The management season for fisheries in Wakayama Prefecture has been set from 1 September to 31 August of the following year. The statistics on dolphin fisheries covers catches of the calendar year (1 January to 31 December), while FAJ manages dolphin fisheries by their own fishing season aforementioned. Thus, in some cases, catches aggregated by calendar year may exceed the seasonal (fishing yearly) catch in appearance, but the actual seasonal catch is below the allocated catch quota. Direct small cetacean catches are given in Table 5 in this section by prefecture and by 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 2019/2020 season was 4,137 animals for *dalli*-type Dall's porpoises, 4,398 for *truei*-type Dall's porpoises, 398 for Risso's dolphins, 374 for bottlenose dolphins, 329 for pantropical spotted dolphins, 521 for striped dolphins, 160 for southern form short-finned pilot whales (including 33 transferred from quota of the small-type whaling), 91 for false killer whales, 260 for Pacific white-sided dolphins, 30 for rough-toothed dolphins, and 363 for melon-headed whales.

Corresponding operational months by prefecture in 2019 were as follows: hand harpoon fishery was permitted for nine months (1 January to 31 August and 1-31 December) in Okinawa prefecture, for eight months (1 January to 31 August) in Wakayama, for six months (1 January to 30 April and 1 November to 31 December) in Aomori, Miyagi, Iwate, and Chiba, and for 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 2019.

Species	Type of fishery	Prefecture ¹⁾	Total landed ²⁾
Baird's beaked whale	Small-type whaling	Hokkaido	1
		Miyagi	24
		Chiba	22
<i>truei</i> -type Dall's porpoise	Hand harpoon	Iwate	818
		Miyagi	8
Pacific white-sided dolphin	Drive	Wakayama	8
Striped dolphin	Drive	Wakayama	343
Bottlenose dolphin	Hand harpoon	Wakayama	24

	Drive		133
Pantropical spotted dolphin	Drive	Wakayama	18
Rough-toothed dolphin	Drive	Wakayama	15
Melon-headed whale	Drive	Wakayama	203
Risso's dolphin	Drive	Wakayama	191
Northern form short-finned pilot whale	Small-type whaling	Miyagi	6
Southern form short-finned pilot whale	Drive	Wakayama	63
	Hand harpoon	Okinawa	9
False killer whale	Hand harpoon	Okinawa	1

1) Catches by the small-type whaling and the drive fishery were recorded at the place of landing of products. Catches by the hand harpoon fishery were recorded at the place of registration of vessels.

2) Statistics of small-type whaling are based on reports of researchers 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 fishermen cooperatives (other prefectures).

5.2 Non-natural mortality for the calendar year 2019

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 2019, 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 fishermen cooperatives.

Table 6. Fishery bycatch of small cetaceans in 2019.

Species	No. of animals	Location ¹⁾	Fate ²⁾	Gear ³⁾	Target fish species ⁴⁾	Source or contact
<i>dalli</i> -type Dall's porpoise	11	Hokkaido	K	FPN	NA	FAJ
Harbor porpoise	9	Hokkaido	K	FPN		
	1		R			
	1		K	GNS		
Pacific white-sided dolphin	1	Hokkaido	K	FPN		
	1	Hyogo	R	FPN		
Finless porpoise	2	Mie	K	GNS		
	6	Osaka	K	GNS		
	1	Okayama	K	UN		
	1	Hiroshima	D	GNS		
	1	Yamaguchi	R	GNS		
	1	Ehime	K	GNS		
	1	Fukuoka	K	FPN		
1	K		GNS			

	3	Oita	K	GNS		
	1	Saga	D	UN		
	1	Nagasaki	K	FPN		
	1		K	GNS		
	2	Kumamoto	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 2019, are shown in Table 7. Species and figures are based on reports of prefecture governments to the FAJ, which compile information from individual fishermen, fishermen cooperatives or the general public. Number of postmortems in Table 7 indicate the numbers of dead animals when they stranded.

Table 7. Strandings of small cetaceans in 2019.

Species	No. strandings	No. post mortems	Contact person(s)/ Institute(s)
<i>dalli</i> -type Dall's porpoise	19	19	FAJ
Harbor porpoise	15	15	
Finless porpoise	190	190	
Pacific white-sided dolphin	19	19	
Striped dolphin	68	68	
Long-beaked common dolphin	1	1	
Bottlenose dolphin	7	7	
Rough-toothed dolphin	2	2	
Indo-Pacific bottlenose dolphin	2	2	
Risso's dolphin	7	7	
Short-finned pilot whale	3	3	
False killer whale	1	1	
Melon-headed whale	1	1	
Fraser's dolphin	2	2	
Cuvier's beaked whale	4	4	
Baird's beaked whale	1	1	
Stejneger's beaked whale	2	2	
Blainville's beaked whale	2	1	
Dwarf sperm whale	2	2	
Pygmy sperm whale	3	3	
Unidentified small cetaceans	38	33	

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 changes in earlier years' statistics.

6. OTHER STUDIES AND ANALYSES

No other study nor analysis on small cetaceans was conducted during the fiscal year 2019 (April 2019 to March 2020).

7. LITERATURE CITED

8. PUBLICATION ON SMALL CETACEANS

8.1 Published or In Press' papers only

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8.2 Unpublished literature

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