

Technical Report-Note (not peer reviewed)

A summary of the genetic samples of large whales collected by the Institute of Cetacean Research

Mutsuo GOTO*, Mioko TAGUCHI and Hiroyuki OIKAWA

Institute of Cetacean Research, Toyomi-cho 4–5, Chuo-ku, Tokyo 104–0055, Japan

*Contact e-mail: goto@cetacean.jp

Biological samples of whales for genetic analyses are collected through different kinds of surveys conducted by the Institute of Cetacean Research (ICR) as well as from by-caught and stranded animals and from past commercial whaling samples. The objective of this note is to summarize the number of samples/data collected to date.

The sources of samples are the following:

- Skin samples from whales taken under special permit scientific whaling. See details in GOJ (2015; 2017).
- Skin samples obtained by biopsy sampling under the non-lethal component of the special permit scientific programs. See details in Mogoe *et al.* (2017).
- Skin samples obtained by biopsy sampling during dedicated sighting surveys (national and international). See details in Isoda *et al.* (2017) and Matsuoka *et al.* (2017).
- Skin and muscle samples obtained from by-caught whales (such samples are provided to ICR from 1 July 2001 following a national-established protocol). See details in the link: http://www.jfa.maff.go.jp/j/whale/w_document/pdf/041012tsuuchi.pdf.
- Skin and muscle samples obtained from stranded whales. Systematic record and sampling from stranding are conducted by ICR since 2004. See details in the link: http://www.jfa.maff.go.jp/j/whale/w_document/pdf/manyuaru2012kaisei.pdf.
- Historical samples from past commercial and special permit scientific whaling (e.g., baleen and blood samples).

Table 1 summarizes the genetic samples available in ICR, which were collected from the above described sources. This data set is one of the largest and most comprehensive in the world. Samples are used mainly for genetic analyses on population structure and phylogeny of baleen whales, and to a lesser extent, for analyses on pollutants and feeding ecology.

Several genetic studies based on these samples have

been presented to international meetings (e.g., Pastene *et al.* 2016; Taguchi *et al.* 2017), and others have been published in peer-reviewed journals (e.g., Pastene and Goto, 2016; Malde *et al.* 2017).

Samples and data in Table 1 are available for cooperative studies under established ICR protocol for data access and collaboration. See details in the following link: <http://www.icrwhale.org/pdf/appendix2.pdf>.

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Table 1
Number of genetic samples of several cetacean species available at the ICR. The numbers on the left and right sides in parenthesis indicate the available microsatellite and mtDNA data, respectively.

Species	A	B	C	D	E	F	G	Period
Antarctic								
Antarctic minke whale	11,011 (9,777: 4,096)				—	—		1987/88–2015/16
Blue whale		35 (0: 35)	10 (0: 10)		—	—		1994/95–2015/16
Fin whale	18 (18: 18)	54 (39: 42)	16 (16: 16)		—	—		1998/99–2015/16
Sei whale		3 (3: 3)			—	—		2000/2001
Humpback whale		488 (483: 488)	20 (20: 20)	115 (115: 113)	—	—		1993/94–2015/16
Southern right whale		73 (73: 73)	40 (40: 40)	61 (61: 61)	—	—		1993/94–2015/16
North Pacific								
Common minke whale	2,680 (2,672: 2,672)	9 (5: 9)			2,008 (1,980: 2,008)			1994–2016
Blue whale		17 (0: 17)	4 (0: 4)	9 (0: 1)				2001–2015
Fin whale		10 (10: 10)	5 (5: 5)	27 (2: 2)	11 (11: 11)	5 (3: 5)		1997–2016
Sei whale	1,354 (1,354: 1,350)	55 (55: 55)		82 (82: 82)			303 (302: 303)	1972–2016
Bryde's whale	730 (730: 727)	87 (87: 87)	58 (58: 58)	84 (84: 84)	1 (1: 1)		323 (323: 287)	1977–2016
Humpback whale		15 (9: 15)	9 (9: 9)	1 (0: 0)	63 (63: 63)	18 (0: 18)		1997–2016
Right whale		8 (3: 8)	14 (14: 14)		3 (2: 3)	4 (0: 4)	5 (0: 5)	1958–2016
Sperm whale	56 (56: 56)	20 (18: 20)			2 (2: 2)			2000–2010
Killer whale		2 (0: 2)						2016

A: Samples from recent special permit scientific whaling. Tissue samples collected before the 2011 tsunami in Japan are not available. B: Biopsy samples obtained from sighting/sampling vessels of the surveys under recent special permit scientific whaling. C: Biopsy samples obtained from Japanese dedicated sighting surveys (conducted under or outside the special permit scientific whaling). D: Biopsy samples obtained from international dedicated sighting surveys e.g., IWC IDCR/SOWER in the Antarctic and IWC POWER in the North Pacific. E: Samples from by-catches. Tissue samples collected before the 2011 tsunami in Japan are not available. F: Samples from stranding. G: Historical samples from past commercial whaling in the North Pacific (sei whale), past special permit scientific whaling in the North Pacific (right whales); past commercial whaling in the western North Pacific and eastern South Pacific, and past special permit scientific whaling in other oceanic basins (Bryde's whale).