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An update of the Japanese DNA register for large whales

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INTRODUCTION

The technical specifications and the status of the Japanese DNA register for large whales was presented and discussed during the 2005 International Whaling Commission (IWC SC) meeting (IWC, 2006). Since then, the number of genetic samples and the number of individuals analyzed and registered have been reported to the IWC SC annual meetings. The annual reports have included information of whales taken by former special scientific permits in the North Pacific (JARPN/JARPNII and NEWREP-NP) and Antarctic (JARPA/JARPAII and NEWREP-A), the commercial whaling in the North Pacific, and bycatches.

It should be noted that the special scientific permit takes under NEWREP-A and NEWREP-NP programs were terminated in June 2019 as an effect of the withdrawal of Japan from the International Convention for the Regulation of Whaling (ICRW) on 30 June 2019. From 1 July 2019, commercial whaling within Japan's Exclusive Economic Zone (EEZ) was started, and samples taken have been registered in the Japanese DNA register. The Japanese regulation on bycatches of large whales (established from 1 July 2001) requires that all animals should be registered with a DNA profile before any products derived from a bycaught animal are sold in the market.

The most recent full description of the protocol used by the Institute of Cetacean Research for the genetic analyses in the context of the IWC guidelines was presented by Kanda *et al.* (2014).

The update of the Japanese DNA register for large whales till 2021 is shown in Table 1.

Table 1. The update of the Japanese DNA register for large whales till 2021.

footnote #	1	2	3	4	5	6	7	8	9	10	11	12
Species/Year	type	# whales	# duplicate	# missing	# lab problem	# mtDNA	% mtDNA	# msat	% msat	sex analyzed	% sexed	note
NP minke whale												
1994-2019	SP	3057	0	0	8	3049	99.7	3049	99.7	3057	100	
2019-2020	CW	139	0	0	0	139	100	139	100	139	100	
2021	CW	91	0	0	0	91	100	91	100	91	100	
2001-2020	BC	2434	0	26	2	2434	100	2406	98.8	2404	98.8	
2021	BC	80	0	0	0	80	100	80	100	80	100	
NP sei whale												
2002-2018	SP	1622	0	0	4	1618	99.8	1622	100	1622	100	
2019-2020	CW	50	0	0	0	50	100	50	100	50	100	
2021	CW	25	0	0	0	25	100	25	100	25	100	
2001-2020	BC	1	0	0	0	1	100	1	100	1	100	
2021	BC	1	0	0	0	1	100	1	100	1	100	
NP Bryde's whale												
2000-2017	SP	730	0	0	3	727	99.6	730	100	730	100	
2019-2020	CW	374	0	0	0	374	100	374	100	374	100	
2021	CW	187	0	0	0	187	100	187	100	187	100	
2001-2020	BC	5	0	0	0	5	100	4	80	4	80	Include three Omura's whale and one from the East China Sea stock
2021	BC	0	0	0	0	0	0	0	0	0	0	No BC.
NP humpback whale												
2001-2020	BC	72	0	0	0	72	100	72	100	72	100	
2021	BC	0	0	0	0	0	0	0	0	0	0	No BC.
NP right whale												
2001-2020	BC	4	0	1	0	4	100	3	75	3	75	One is missing by the 2011 tsunami, no microsats.
2021	BC	0	0	0	0	0	0	0	0	0	0	No BC.
NP fin whale												
2001-2020	BC	12	0	0	0	12	100	12	100	12	100	
2021	BC	2	0	0	0	2	100	2	100	2	100	
NP sperm whale												
2000-2017	SP	56	0	0	0	56	100	56	100	56	100	
2001-2020	BC	2	0	0	0	2	100	2	100	2	100	
2021	BC	0	0	0	0	0	0	0	0	0	0	No BC.
Ant. minke whale												
1987/88-2004/05	SP	6794	0	10	0	1118	16.5	6271	92.3	6794	100	Incl. dwarf; 87/88-88/89. no microsats.
2005/06-2018/19	SP	5216	0	549	162	3977	76.2	4505	86.4	5216	100	Some missing by the 3/11 tsunami in 2011.
Ant. fin whale												
2005/06-2011/12	SP	18	0	0	0	18	100	18	100	18	100	

- key to sample types: SP=special permit catch, CW=commercial catch, BC=bycatch.
- number of whales that potentially entered by the previous years and enters (new year) the markets
- number of occurrences (tissues) sample switching on board the vessels as detected by comparison of genetic profiles.
- number of individuals for which tissue samples are missing for other reasons than sample switching.
- genetic laboratory not able to obtain microsatellite profiles mtDNA haplotypes from tissue samples.
- number of samples analyzed for mitochondrial control region
- % of total samples analyzed for mitochondrial control region
- number of samples analyzed for microsatellites
- % of total samples analyzed for microsatellites
- number of samples analyzed for sex
- % of total samples analyzed for sex
- other problems or information

REFERENCES

- International Whaling Commission. 2006. Report of the Working Group on DNA testing. *J. Cetacean Res. Manage. (Supple.)* 8: 252-258.
- Kanda, N., Goto, M., Oikawa, H. and Pastene, L.A. 2014. Update of note on sampling and laboratory procedure protocols of the genetic work at the Institute of Cetacean Research (SC/65b/J27Rev). Paper SC/65b/DNA01 presented to the IWC Scientific Committee, May 2014 (unpublished). 6pp.