

Annex D

Data Produced by JARPA II that were Available for the Review Workshop

Abundance estimate several species¹

	Seasons	Sample size
1. Angle and distance experiments	2005/06-2010/11	2,617 tests
2. Ice edge line	2005/06-2010/11	4,234 points
3. Effort data	2005/06-2010/11	43,161 activities
4. Weather data	2005/06-2010/11	34,694 records
5. Sighting Antarctic minke whale	2005/06-2010/11	7,344 sch.
6. Sighting fin whale	2005/06-2010/11	605 sch.
7. Sighting humpback whale	2005/06-2010/11	4,570 sch.
8. Sighting blue whale	2005/06-2010/11	146 sch.
9. Sighting southern right whale	2005/06-2010/11	150 sch.
10. Sighting sperm whale	2005/06-2010/11	894 sch.
11. Sighting S bottlenose whale	2005/06-2010/11	310 sch.
12. Sighting killer whale	2005/06-2010/11	352 sch.

Ecological data (oceanographic, marine debris, krill)

	Seasons	Sample size
13. Temperature (XBT)	2005/06-2010/11	18 stations
14. Temp. salin. (XCTD)	2005/06-2010/11	347 stations
15. Temp. salin. (CTD)	2005/06-2010/11	361 stations
16. Temp. salin. (EPCS)	2005/06-2010/11	482 days
17. Marine debris (stomach) ²	2005/06-2010/11	3,280 whales
18. Marine debris (sea surface)	2005/06-2010/11	88 cases of debris obs.
19. Echo sound (krill abund./dist.)	2007/08, 2008/09	326 days
20. IKMT net	2007/08, 2008/09	68 stations
21. Body length krill	2007/08-2008/09	68 stations

Antarctic minke whale (biological, feeding ecology, pollutants, stock structure data)

	Seasons	Sample size
Biological data		
22. Catching date	2005/06-2010/11	3,264 whales
23. Catching location	2005/06-2010/11	3,264 whales
24. Sex	2005/06-2010/11	3,264 whales
25. Body length	2005/06-2010/11	3,264 whales
26. Age (earplug) ³	2005/06-2010/11	3,264 whales
27. Age (racemization) ⁴	2005/06-2010/11	38 whales
28. Transition phase ⁵	2005/06-2010/11	3,264 whales
29. Presence/absence of corpora ⁶	2005/06-2010/11	1,701 whales
30. Testis weight ⁷	2005/06-2010/11	1,563 whales
31. Fetus length	2005/06-2010/11	1,127 whales
32. Fetus weight	2005/06-2010/11	1,127 whales
33. Fetus number ⁸	2005/06-2010/11	1,701 whales
34. Fetus sex	2005/06-2010/11	1,127 whales
35. Lactation condition	2005/06-2010/11	1,701 whales
Feeding ecology/energetics		
36. Blubber thickness (two points)	2005/06-2010/11	3,264 whales
37. Body weight	2005/06-2010/11	1,597 whales
38. Freshness stom. contents	2005/06-2010/11	1,925 whales
39. Main prey	2005/06-2010/11	332 whales
40. Organ weight incl. fat weight	2005/06-2010/11	82 whales
41. Girth (two points)	2005/06-2010/11	3,264 whales
42. Stom. content (IWS)	2005/06-2010/11	3,264 whales
43. Stom. content weight	2005/06-2010/11	2,953 whales
44. Lipid content in blubber	2005/06-2010/11	20 whales
Pollutants/health⁹		
45. Heavy metals (whale)	2005/06-2010/11	212 whales
46. Organochlorine (whale)	2005/06-2010/11	5 whales
47. Heavy metal (prey)	2005/06-2010/11	30 prey
48. Gross pathological observations of internal organs ¹⁰	2005/06-2010/11	3,264 whales
Stock structure		
49. Body proportion (8 measurements)	2005/06-2010/11	3,264 whales
50. mtDNA (sequences) (from catches)	2005/06-2010/11	2,278 whales
51. mtDNA (RFLP) (from catches)	2005/06	764 whales
52. Microsatellite DNA (from catches)	2005/06-2010/11	2,551 whales

Antarctic fin whale (biological, feeding ecology, pollutants, stock structure data)

	Seasons	Sample size
Biological data		
53. Catching date	2005/06-2010/11	17 whales
54. Catching location	2005/06-2010/11	17 whales
55. Sex	2005/06-2010/11	17 whales
56. Body length	2005/06-2010/11	16 whales
57. Age (earplug) ³	2005/06-2010/11	16 whales
58. Transition phase ⁵	2005/06-2010/11	0 whales
59. Presence/absence of corpora ⁶	2005/06-2010/11	8 whales
60. Testis weight ⁷	2005/06-2010/11	8 whales
61. Foetus length	2005/06-2010/11	3 whales
62. Foetus weight	2005/06-2010/11	3 whales
63. Foetus number ⁸	2005/06-2010/11	8 whales
64. Foetus sex	2005/06-2010/11	3 whales
65. Lactation condition	2005/06-2010/11	8 whales
Feeding ecology/energetics		
66. Blubber thickness (14 points)	2005/06-2010/11	16 whales
67. Body weight	2005/06-2010/11	15 whales
68. Freshness stom. contents	2005/06-2010/11	14 whales
69. Main prey	2005/06-2010/11	15 whales
70. Organ weight including fat weight	2005/06-2010/11	15 whales
71. Girth (three points)	2005/06-2010/11	16 whales
72. Stomach content (IWS)	2005/06-2010/11	16 whales
73. Stomach content weight	2005/06-2010/11	15 whales
74. Lipid content in blubber	2005/06-2010/11	10 whales
Pollutants/health⁹		
75. Heavy metals (whale)	2005/06-2010/11	16 whales
76. Organochlorine (whale)	2005/06-2010/11	2 whales
77. Gross pathological observations of internal organs ¹⁰	2005/06-2010/11	16 whales
Stock structure		
78. External measurements (41)	2005/06-2010/11	16 whales
79. mtDNA (sequences) (catches/biopsy)	2005/06-2010/11	C:17; B:13
80. Microsatellite DNA (catches/biopsy)	2005/06-2010/11	C:17; B:13
Stock structure other species		
	Seasons	Sample size
Humpback whale		
81. mtDNA (sequences) (biopsy)	2005/06-2009/10	121 whales
82. Microsatellite DNA (biopsy)	2005/06-2009/10	127 whales
83. Photo-identification data	2005/06-2010/11	1,201 pictures
Blue whale		
84. mtDNA (sequences) (biopsy)	2005/06-2010/11	11 whales
85. Photo-identification data	2005/06-2010/11	376 pictures
Southern right whale		
86. mtDNA (sequences) (biopsy)	2005/06-2010/11	33 whales
87. Microsatellite DNA (biopsy)	2005/06-2010/11	33 whales
88. Photo-identification data	2005/06-2010/11	671 pictures

Annotations

¹Standard Line Transect data. It should be noted that in some JARPA II surveys some areas could not be covered due to external interferences and sabotages from anti-whaling groups, and that some kind of extrapolation will be necessary.

²The figure given corresponds to the total number of stomachs examined.

³JARPA II age data of Antarctic minke whale were obtained by a new reader with expertise and training enough for this kind of work. The figure given here are the total number of earplugs examined. Age information could be obtained for 81.8% of the total samples. An ageing calibration exercise was carried out (Kitakado *et al.*, 2013). In the case of the fin whales age information could be obtained for 100% of the samples.

⁴This sample size corresponds to the results of a pilot study to investigate the feasibility of the racemization method for ageing purposes. At this stage these data were not produced for the purpose of biological parameters estimates but for examining the feasibility of the technique.

⁵The figure given corresponds to the total earplugs examined. Transition Phase information in the Antarctic minke whales could be obtained for approximately 42.1% of the total samples (mature+immature).

⁶Ovary samples were lost as an effect of the 2011 earthquake and tsunami so information on the number of corpora is not available. Information on the presence/absence of corpora (information necessary for determining sexual maturity in females) is based on examination of the ovaries conducted at the field.

⁷While in JARPA both testis weight and histological approaches were used for determining sexual maturity in males, in JARPA II maturity of males was determined only by the testis weight criterion (due to 'man-power' limitation and economical considerations).

⁸The figure given corresponds to the total females examined.

⁹The 2011 earthquake and tsunami affected heavily the samples collected for pollutant studies. This explains the particular smaller samples size for this item.

¹⁰This figure corresponds to the total number of whales examined for abnormal tissues or organs in gross pathology.

The data listed here do not necessarily match the numbers for those items indicated in the cruise reports of the JARPA II for the period 2005/06-2010/11. This is due to the fact that a substantial number of samples for some items were lost due to the earthquake and tsunami that affected Japan on 11 March 2011 (IWC, 2012). These tables shows the actual number of data by each item. Data for those items obtained during the JARPA surveys were also available for the review Workshop.

REFERENCES

- International Whaling Commission. 2012. Report of the Scientific Committee. *J. Cetacean Res. Manage. (Suppl.)* 13:1-74.
- Kitakado, T., Lockyer, C. and Punt, A.E. 2013. A statistical model for quantifying age-reading errors and its application to the Antarctic minke whales. Paper SC/65a/IA04 presented to the IWC Scientific Committee, June 2013, Jeju Island, Republic of Korea (unpublished). 18pp. [Paper available from the Office of this Journal].