

IWC SC RECOMMENDATIONS RELEVANT TO SOUTHERN OCEAN RESEARCH

RECOMMENDATIONS FROM SC 60 2008

	Recommendation	Citation	Species	Location
1	The Committee recommends the work plan [IWC Global database on ship strikes] outlined in Annex J involving the Secretariat and a Ship Strike Review Group (Q22).	SC 60, BC, 7.2.3, p. 20	All	Global
2	Therefore, the Committee recommends that a compilation of all available information that might clarify stock structure within breeding stock B is presented at the next year's meeting.	SC 60, SH, 10.2.1.1.1, p. 34	Humpback	Breeding stock B
3	After consideration of the stock structure for breeding stock B, the Committee recommends : (1) collection of genetic and photo-identification data from B2N; (2) the undertaking of a mixture modelling analysis to identify the proportion of animals from Antarctic feeding areas and B2S that could be allocated to B1 and neighbouring stocks; and (3) further analyses of photographic and genotypic recaptures between B2S and B1 using a subset of sampling related to catch histories and animals that have a higher recapture rate.	SC 60, SH, 10.2.1.1.1, p. 34	Humpback	Breeding stock B
4	The Committee recommends that within and between year resighting rates among sites within sub-stock B1 be presented at next year's meeting.	SC 60, SH, 10.2.1.1.2, p. 34	Humpback	Breeding stock B
5	The Committee also recommends that: (1) sex biases in photographic and genetic sampling be explored in order to evaluate possible biases on population estimates; and (2) analysis and inspection of genotype error rates, followed by reanalysis of abundance estimates, if required.	SC 60, SH, 10.2.1.1.2, p. 34	Humpback	Breeding stock B
6	The Committee recommends that future assessments: (1) account for the effects of 19 th century whaling of humpback whales including possible sex selectivity; (2) re-consider allocation of historical catches after the question of sub-divisions of breeding stocks is considered more carefully; (3) evaluate the degree to which Angolan catches need to be included in the assessments of B1; (4) take into account possible mixing of breeding stock B and breeding stock C in the feeding grounds when allocating catches.	SC 60, SH, 10.2.1.1.3, p. 35	Humpback	Breeding stock B
7	The Committee recommends that data that will further contribute to a better understanding of population structure of breeding stock C be collected and reported to the Committee.	SC 60, SH, 10.2.1.2.1, p. 36	Humpback	Breeding stock C
8	The Committee recommends that a haplotype assignment test, wherein Antarctic mixed genetic data (partitioned into longitudinal sections) is fitted to pure breeding stock data in B1, B2 and C1, C2 and C3, be conducted to estimate stock mixing. This could be performed in a variety of frameworks and would improve catch allocation because the proportion of each breeding stock in the feeding grounds would be more accurately described.	SC 60, SH, 10.2.1.2.1, p. 36	Humpback	Breeding stock C
9	The Committee recommends that such collaborative work [photo-ID comparisons] continued.	SC 60, SH, 10.2.2.2.1, p. 38	Humpback	Breeding stock A, G
10	The Committee recommends further research into this subject [Migratory allocation between breeding stocks and feeding grounds for assessment]	SC 60, SH, 10.2.2.2.1, p. 39	Humpback	Breeding stock D, E, F, G
11	The Committee welcomed this report and recommends the continuation of this important study on a geographically isolated population.	SC 60, SH, 10.2.2.2.1, p. 39	Humpback	Breeding stock X
12	The Committee thanks the authors for this work and recommend that it continues [Antarctic humpback whale catalogue] (see Item 22).	SC 60, SH, 10.2.2.2.4, p. 39	Humpback	Antarctic
13	The Committee recommends that all tagged whales be individually identified photographically; biopsy sampling of tagged	SC 60, SH,	Humpback	Southern

	whales would provide an alternative means of individual identification (via genotyping), as well as information on sex and data for genetic and other studies	10.2.2.2.5, p. 40		Hemisphere
14	The Committee also recommends that the design and dimension of the tags deployed should be included in all reported studies using satellite tagging and that further studies of the short-term impacts and responses of whales to tagging be conducted	SC 60, SH, 10.2.2.2.5, p. 40	Humpback	Southern Hemisphere
15	The Committee recommends that: (1) the IWC Secretariat make concentrated effort to locate the most important outstanding photographs taken during three recent cruises in Area V: 2001-02, 2002-03 and 2003-04, when 52 blue whales were photographed; (2) blue whale photographs collected by JARPA be incorporated into the collection of photographs described 41 in SC/60/SH29 ó Japanese scientists agreed to add JARPA photographs to the catalogue after archiving and examining these photographs; (3) analyses of the JARPA blue whale photographs be presented at the next IWC meeting; and (4) archiving photographs from the IDCR-SOWER cruises reported in SC/60/SH29 continues and that the resultant analysis	SC 60, SH, 10.3.1.2, p. 40	Blue	Southern Hemisphere
16	Photo-identification data are available to compute abundance estimates and the Committee recommends that these estimates [Chilean blue whales] provided at next year's meeting.	SC 60, SH, 10.3.1.2, p. 41	Blue	Chile
17	The Committee recommends that a full report of the boat based data and calibrations should be presented at next year's meeting.	SC 60, SH, 10.3.1.2, p. 41	Humpback, Blue, Sei	Chile
18	The Committee welcomed the presentation of this work [abundance estimation of Western Australian blue whales] and recommends that it continues.	SC 60, SH, 10.3.1.5, p. 41	Blue	Western Australia
19	However, it recommends that strong partnerships be developed between local and national governments, researchers and private stakeholders to increase detection capacity, decrease response time and ensure financial and logistical support for the long term continuation of this work. The Committee also recommends consistent monitoring of ocean water to detect harmful algal blooms and their associated biotoxins that may be ingested by whales. It also recommends that more work be performed on the lactational transfer of specific HAB-associated biotoxins.	SC 60, SH, 10.4.3, p. 42	Right	Western South Atlantic
20	The Committee recommends that (1) a study be conducted on a fresh stranded right whale to determine whether samples from different depths of the epidermis showed stratification of isotopic signatures; and (2) further analysis of haplotypes with the greatest level of isotopic variability be concluded.	SC 60, SH, 10.4.3, p. 43	Right	Western South Atlantic
21	After full consideration of the presented papers and results of the workshop, the Committee made the following recommendations : (1) to endorse further international cooperation among researchers; (2) to increase photo-identification and biopsy-sampling efforts on southern right whales; (3) to encourage research into protected areas for southern right whales; and (4) to conduct a revised assessment of southern right whales that would be focus on stock-specific variability in their recovery in historic and current breeding areas.	SC 60, SH, 10.4.3, p. 43	Right	Western South Atlantic
22	Due to high fuel costs and the fact that the Australian aerial survey will only be a limited pilot study, the Committee recommends that for the 2008/09 season, the IWC/SOWER cruise investigate temporal changes in the spatial distribution of minke whales in relationship to the ice recession in Area IV, and in the slightly longer term, continues its cooperative project with the Australian aerial survey programme with a possible collaborative survey in 2009/10.	SC 60, SH, 10.5.2, p. 44	Antarctic minke	Circumpolar
23	Recommended methods to conduct this survey [SOWER] are detailed in Annex G, Appendix 2.	SC 60, SH, 10.5.2, p. 44	Antarctic minke	Circumpolar
24	To advance research, the Committee recommends that long-term datasets [in South America] be evaluated for specific epidemiological outcomes and that whenever possible, tissue samples of lesions (including the borders of the lesions) be obtained and evaluated.	SC 60, SH, 12.1, p. 51	All species	South America
25	The Committee recommends that further surveys be conducted at regional and local scales to better quantify the abundance and distribution of small cetacean species in these areas.	SC 60, SM, 14.1.1, p. 56	Small cetaceans	South East Pacific
26	It recommends that surveys be conducted to obtain information on abundance, distribution and residency patterns of these	SC 60, SM,	Burmeister's	South East

	species [Burmeister's porpoise, Peale's dolphin, bottlenose dolphin and the Chilean dolphin].	14.1.1, p. 57	porpoise, Peale's dolphin, bottlenose dolphin, Chilean dolphin	Pacific
27	The Committee recommends that well-designed line transect surveys of the Chilean fjords and outer coast be conducted in order to estimate the species' [Chilean dolphin] abundance and assess its conservation status.	SC 60, SM, 14.1.1, p. 57	Chilean dolphin	South East Pacific
28	It recommends that morphometric and genetic analyses be extended to include data from as wide a study area as possible for all species in the Southeast Pacific region, but particularly for the more coastal species.	SC 60, SM, 14.1.2, p. 57	Small cetaceans	South East Pacific
29	The Committee recommends focussed research on the effects of human activities on the spread of diseases in cetaceans, particularly in near-shore populations that utilise highly degraded coastal habitats	SC 60, SM, 14.1.7, p. 59	Small cetaceans	South East Pacific
30	The Committee recommends that nations establish small cetacean bycatch monitoring programmes (using on board monitoring) as part of their regular fisheries monitoring and that they report bycatch information to relevant regional and international bodies (e.g. IWC, CPPS). Furthermore, the Committee recommends continuation of existing bycatch monitoring programmes, particularly in relation to mitigation efforts.	SC 60, SM, 14.1.8, p. 59	Small cetaceans	South East Pacific
31	The Committee recommends that the impacts of such removals [unregulated and undocumented directed takes] be assessed and that the status of affected populations be documented.	SC 60, SM, 14.1.8, p. 59	Small cetaceans	South East Pacific
32	The Committee recommends that particular attention should be given to small vulnerable populations of coastally distributed cetaceans, including Chilean dolphins, Burmeister's porpoises, pantropical spotted dolphins, Peale's dolphins and bottlenose dolphins.	SC 60, SM, 14.1.8, p. 59	Chilean dolphins, Burmeister's porpoises, pantropical spotted dolphins, Peale's dolphins and bottlenose dolphins.	South East Pacific
33	The Committee recommends that collaborative research projects with on-going or planned regional programmes consider the inclusion of small cetaceans as appropriate.	SC 60, SM, 14.1.8, p. 59	Small cetaceans	South East Pacific
	The following issues are high priority topics [for IA in 2009]: (1) produce agreed abundance estimates of Antarctic minke whales from IDCR/SOWER data (highest); (2) conduct an analysis of ageing errors that could be used in catch-at-age analyses of Antarctic minke whales; (3) continue development of the catch-at-age models of the Antarctic minke whales; (4) continue to examine the differences between minke abundance estimates from CPII and CPIII (these may be Area-specific differences), particularly the impact of sea ice conditions on the abundance estimates; and (5) develop recommendations for future SOWER cruises, both for the short- and long-term.	SC 60, IA, 20.1, p. 73	Antarctic minke	Southern Hemisphere
34	The following issues are high priority topics [for SH in 2009]: (1) humpback whales - complete the assessments of BSB and BSC and continue assessment of breeding stocks D, E and F; and (2) blue whales (with emphasis on non-Antarctic blue whales).	SC 60, SH, 20.1, p. 73	Humpback, blue whales	Southern Hemisphere
35	The following issues are high priority topics [for SM in 2009] : (1) review systematics, population structure and status of common dolphins;	SC 60, SM, 20.1, p. 74	Common dolphins	Global

RECOMMENDATIONS FROM SC 59 2007

	Recommendation	Citation	Species	Location
1	The CCAMLR-SC endorsed the recommendations of the Steering Committee for a joint CCAMLR-IWC Workshop on Antarctic Marine Ecosystems.	SC 59, Rep, 4.5, p. 6	All	Global
2	In the short-term and recognising the need to evaluate the extent and effect of measurement errors, the Committee recommends that the experiment [sighting times, range and bearing data recording system] be continued in a reduced form, perhaps using just the video component of the system (which would yield accurate ranges for a proportion of the sightings).	SC 59, IA, 10.1.2, p. 26	Antarctic minke	Southern Hemisphere
3	Therefore, it recommends that increasing efforts be made to sample the feeding areas associated with these two stocks {humpback breeding stocks B and C}.	SC 59, SH, 10.5.3.1, p. 33	Humpback	Breeding stocks B, C
4	However, given the concerns identified with the existing abundance estimates for stock B in the breeding grounds (10.5.3.2.2), the Committee recommends that an updated abundance estimate for sub-stock B1 be computed before the assessment is completed.	SC 59, SH, 10.5.3.2.4, p. 34	Humpback	Breeding stock B1
5	The Committee also recommends that genetic data from breeding grounds (Humpback B and C) be compared with genetic data from their associated feeding grounds in order to determine the levels of stock mixing on feeding grounds and to assist with allocation of catches.	SC 59, SH, 10.5.3.2.4, p. 34	Humpback	Breeding stock B
6	The Committee agrees that a more in-depth comparison between [Humpback breeding areas] C1 and C3 is required and strongly recommends that the degree of sub-stock interchange be investigated by photographic and genetic methods.	SC 59, SH, 10.5.3.3.1, p. 34	Humpback	Breeding stock C
7	Therefore, the Committee recommends that a new [abundance] estimate for [humpback] sub-stock C3 be computed.	SC 59, SH, 10.5.3.3.1, p. 35	Humpback	Breeding stock C3
8	Therefore, the Committee recommends that photographic and genetic comparisons between these two regions [humpback C1 and C3] be made.	SC 59, SH, 10.5.3.3.4, p. 35	Humpback	Breeding stock C1, C2
9	The Committee recommends that genetic data from breeding grounds B and C be compared with those from their associated feeding grounds in order to determine levels of stock mixing in high latitudes.	SC 59, SH, 10.5.3.3.4, p. 35	Humpback	Breeding stock B, C
10	The Committee welcomed the information presented and recommends that this work [Antarctic humpback whale catalogue] continues.	SC 59, SH, 10.5.4.2, p. 36	Humpback	Southern Hemisphere
11	The Committee welcomed the work [analysis of blue whale photo-ID data] presented and recommends its continuation in the future.	SC 59, SH, 10.6.6, p. 37	Blue	Southern Hemisphere
12	The Committee recommends that Phase II of the programme [POLLUTION 2000] begins as outlined in that report and in Appendix 3 of Annex K.	SC 59, E, 12.2, p. 44	All	Global
13	The JSG recommended that expert groups be identified to: (1) help compile metadata of the input data for their area of expertise; (2) to review the input data and their inherent levels of uncertainty as they might affect model results.	SC 59, EM, 13.1, p.47	All	Southern Hemisphere
14	It also noted that fisheries observers on longline vessels represent a potential source of data on killer whales in sub-Antarctic waters and recommends that the Secretariat contacts CCAMLR and requests a compilation of data on killer whale occurrence and fisheries interactions from their observer reports and supply those for consideration to the IWC.	SC 59, SM, 14.1.1, p. 50	Killer whales	Sub-Antarctic
15	Given the presence of at least three ecotypes in the Antarctic region, and the unresolved questions over the systematics of killer whales in this region, the Committee recommends that additional morphological and genetic studies be carried out on samples from this large area	SC 59, SM, 14.1.2, p. 51	Killer whales	Sub-Antarctic
16	The Committee concluded that this method [estimating age from fatty acids blubber] has important implications for cetacean research and recommends that further effort be made to develop, test and, if appropriate, apply it in demographic studies to other cetacean species, including of large whales.	SC 59, SM, 14.1.3, p. 51	All species	Global
17	It noted the potential importance of data collected from board platforms of opportunity (e.g., whale watching boats, cruise ships, ferries and other types of vessels) and recommends the documentation of cetacean sightings and behaviours via	SC 59, WW, 15.2, p. 58	All species	Global

	photography/video whenever possible.			
18	Further, the Committee recommends carefully designed studies to determine the effectiveness of the guidelines in minimizing disturbance responses in the target animals.	SC 59, WW, 15.3.4, p. 61	All species	Global
19	The following issues are high priority topics [for IA in 2008] : (1) produce agreed abundance estimates of Antarctic minke whales using SOWER data; (2) review reasons for (possibly area specific differences) between Antarctic minke whale abundance estimates from CPII and CPIII;	SC 59, IA, 21.1, p. 70	Antarctic minke	Southern hemisphere
20	The following issues are high priority topics [for SH in 2008] : (1) assessment of Southern Hemisphere humpback whales, Breeding Stocks B and C: (a) abundance from populations B1 and C3 using photographic and genetic data; (b) relationship between areas B1 and B2 and C1 and C3; (c) estimate proportional representation of B and C stocks on the feeding grounds; and (d) population assessment modelling.	SC 59, SC, 21.1, p. 70	Humpback whale	Southern hemisphere

RECOMMENDATIONS FROM SC 58 2006

	Recommendation	Citation	Species	Location
1	Given the potential value of the BT mode experiment in assisting in interpreting previous results [of minke whale abundance estimates], the Committee recommends that the BT mode experiment be continued.	SC 58, IA, 10.1.1.1, p. 23	Antarctic minke	Southern Hemisphere
2	The automatic data entry system was also found to be successful so the Committee recommends such a system be more fully developed and tested during the next cruise.	SC 58, IA, 10.1.1.1, p. 23	Antarctic minke	Southern Hemisphere
3	The Committee recommends that the relationship between abundance and distribution of Antarctic minke whales and the ice extent be examined using data from the 2002/03 and 2003/04 surveys, and those of JARPA, which covered similar areas.	SC 58, IA, 10.1.1.3, p. 24	Antarctic minke	Southern Hemisphere
4	The Committee welcomed them and recommends that these studies [abundance, rates of increase, stock structure of humpback whales] be continued in the future.	SC 58, SH, 10.3.1.3.1, p. 31	Humpback whale	Southern Hemisphere
5	The Committee welcomed the presentation of these papers and recommends that these studies [photo-ID studies of humpbacks in South America] be continued in future years.	SC 58, SH, 10.3.1.3.2, p. 31	Humpback whale	South America
6	The Committee welcomed the work presented and recommends that these studies [photo-ID studies of humpbacks in Africa] be continued in future years.	SC 58, SH, 10.3.1.3.3, p. 31	Humpback whale	Africa
7	The Committee welcomed the work presented and recommends that these studies [photo-ID studies of humpbacks in South Pacific] be continued in future years.	SC 58, SH, 10.3.1.3.4, p. 32	Humpback whale	South Pacific
8	It was noted that the IDCR/SOWER cruise was one of the very few contributors for Antarctic photographs outside of the Antarctic Peninsula, and the Committee recommends continued collection of photographs to establish ties between the feeding and breeding grounds. The Committee stressed the important contribution the catalogue makes to its work and recommends that it be continued.	SC 58, SH, 10.3.1.5, p. 32	Humpback whale	Southern Hemisphere
9	The Committee welcomed the work presented and recommends that these studies [photo-ID studies of blue whales in Chile] be continued in future years.	SC 58, SH, 10.3.2.1, p. 32	Blue whale	Chile
10	As it has in previous years, it recommends that this extensive programme [photo-ID studies of right whales in South Africa] be continued.	SC 58, SH, 10.4.3, p. 34	Right whale	South Africa
11	The Committee welcomed this report and recommends that this monitoring programme [aerial surveys of right whales in Australia] and other long-term monitoring programmes be continued.	SC 58, SH, 10.4.3, p. 34	Right whale	Australia
12	Last year, the Committee agreed that the objective of any future [SOWER] programme should be: to provide information to allow determination of the status of populations of large whales that feed in the Antarctic waters. The programme will primarily contribute information on abundance and trends in abundance (including of Antarctic minke whales), learning from both the successes of past IDCR-SOWER cruises and the difficulties in interpreting previous results	SC 58, IA, 10.5.1, p. 36	Antarctic minke, blue, fin, humpback, sei, right, and sperm	Southern Hemisphere

13	The Workshop agreed that the long-term goal for a future programme is to provide circumpolar estimates of abundance and trends in abundance for large whales that feed in Antarctic waters. It also agreed that the short term goal for a future programme is to undertake research on priority species including to: (a) undertake experimental surveys to provide information useful in developing optimal survey design and methodology and addressing problems with previous IDCR/SOWER surveys; and (b) provide estimates of abundance for smaller areas (in conjunction with stock structure studies), which will be potentially useful in investigating long term trends.	SC 58, IA, 10.5.1, p. 36	Antarctic minke, blue, fin, humpback, sei, right, and sperm	Southern Hemisphere
14	The workshop agreed that the following species priorities should be assigned in order from highest to lowest: (1) Antarctic minke and blue whales, (2) fin whales, (3) humpback whales, (4) sei and right whales; and (5) sperm whales. The Workshop recommended that the Scientific Committee should consider its report as a set of guidelines for the development of an initial proposal for a future programme and that Scientific Committee members should provide papers to allow for efficient progress to be made on the development of a proposal for the long term programme.	SC 58, IA, 10.5.1, p. 36	Antarctic minke, blue, fin, humpback, sei, right, and sperm whales	Southern Hemisphere
15	In addition, the Committee recommends that the sightings surveys, as conducted previously, should not immediately be continued, and that in the short term the goals of the cruises should address questions and problems that had arisen with the previous CP surveys and should investigate different data collection and analysis methodologies that could be used to collect abundance and trend data for the large whale species that feed in Antarctic waters.	SC 58, IA, 10.5.1, p. 36	Antarctic minke, blue, fin, humpback, sei, right, and sperm	Southern Hemisphere
16	The priority topics under this Agenda Item [IA for 2007] will thus be in priority order: (1) produce agreed abundance estimates of Antarctic minke whales; (4) develop recommendations for future SOWER cruises, both for the short- and long-term; (5) continue to examine and then attempt to agree on reasons for differences between minke abundance estimates from CPII and CPIII.	SC 58, IA, 10.7.1, p. 39	Antarctic minke	Southern Hemisphere
17	The Committee recommends the application of these tools [passive acoustic recorders, satellite tags, sea ice analytical tools] to future cetacean research in the Arctic and Antarctic and encourages researchers to continue the collaborative exchanges initiated at the symposium.	SC 58, E, 12.1, p. 42	All	Global
18	For these reasons, the Committee strongly recommends the integration of cetacean research into these two programmes [ICCED and IPY].	SC 58, E, 12.1, p. 43	All	Global
19	The Workshop also strongly recommended the continuation (and where necessary, initiation) of long-term studies, both of cetaceans as well as key biotic and abiotic features of the environment.	SC 58, E, 12.1, p. 43	All	Global
20	The Workshop also recognised the difficulties in developing (and measuring) suitable indices both of habitat quality and response in cetaceans. It recommended that further work be undertaken in this regard, particularly with respect to: (1) identifying key features of cetacean habitat; (2) reviewing methods used to assess cetacean nutritive status in both live and dead specimens, with a view to future standardisation of techniques; and (3) developing indices of cetacean response to various stressors.	SC 58, E, 12.1, p. 43	All	Global
21	It strongly recommends continuation of the programme [POLLUTION 2000+].	SC 58, E, 12.3.1, p. 44	All	Global
22	The Committee agrees that the following item will be given highest priority [for SH in 2007]: (1) completion of the Comprehensive Assessment of Southern Hemisphere humpback whales. It will also (2) initiate the Comprehensive Assessment of blue whales to the extent that time allows.	SC 58, SC, 19.2, p. 64	Humpback, blue	Southern Hemisphere

RECOMMENDATIONS FROM THE WORKSHOP ON THE COMPREHENSIVE ASSESSMENT OF SOUTHERN HEMISPHERE HUMPBACK WHALES 2006

	Recommendation	Citation	Species	Location
1	<p>The Workshop agrees the following longer term priority recommendations for Breeding Stock A (BSA):</p> <p>(1) Determine whether the northern coast of South America (north and west of 50S) and oceanic islands off the coast of eastern South America (Fernando de Noronha, São Pedro & São Paulo Archipelago and Trindade & Martin-Vaz) are areas of regular occurrence of humpback whales and determine their relationship (e.g. through photo-identification, genetic and/or satellite telemetry data) with the main population along the coast of Brazil;</p> <p>(2) Increase research effort to collect biopsy samples and photo-identification data in the wintering and feeding grounds and migration paths the following objectives:</p> <p>(a) Investigate whether sub-structuring of the population occurs in the wintering grounds;</p> <p>(b) Investigate the degree of interchange/isolation within and among wintering and feeding grounds;</p> <p>(c) Estimate demographic parameters (e.g. survival, birth rate, age at first parturition);</p> <p>(3) Satellite telemetry work should continue in the wintering grounds and be initiated in the feeding areas with the following purposes:</p> <p>(a) Investigate movement across current stock boundaries and possible interchange of individuals with other breeding populations;</p> <p>(b) Investigate alternative migratory routes and feeding-breeding ground connections;</p> <p>(c) Identify critical habitat;</p> <p>(d) Investigate movements, behaviour and habitat use in relation to oceanographic and biological variables (e.g. distribution and concentration of food),</p> <p>(4) Compare songs of whales from this breeding stock with others (especially B and G) to better understand the potential cultural connections between these stocks as suggested by preliminary studies (e.g. Darling and Sousa-Lima, 2005).</p>	SC/58/Rep5, Annex I, p. 72	Humpback	Breeding stock A
2	<p>The Workshop agrees to the following recommendations with respect to Breeding Stock B.</p> <p>(1) Available evidence (satellite tagging, photographic and genetic studies, other reports and whaling data) suggests a region wide presence during the breeding season. The prevailing data presented at the Workshop were restricted largely to the coastal waters of Gabon (B1) and along the west coast of South Africa (B2). The Workshop recommends additional systematic boat-based surveys that will yield information on estimates of abundance and occurrence of calves, as well as photo-identification data for life history information and collection of genetic samples from under-surveyed areas in B1 and B2. Specifically survey and collections should occur at: (a) West coast of South Africa and Namibia; (b) Angola; (c) Gabon out to Sao Tome and Principe; (d) Northern Gulf of Guinea and Bioko Island; and (e) Southern Coast of West Africa. The Workshop recommends that survey effort across these regions be concurrent. The relevance of such surveys to the Comprehensive Assessment includes both estimation of abundance from areas for which no abundance estimates are currently available and the strengthening of the understanding of alternative models of stock structure and number of breeding stocks within the Breeding Ground B region.</p> <p>(2) Genetic results are providing information on structure and interchanges within and between B sub-regions. These include evidence for clearer separation of B1 and B2, and number of breeding stocks within the B1 region. The Workshop recommends that the large scale genetic analyses be continued and expanded with new approaches to help resolve issues of relationships and population structure within this region, as well as connectivity to feeding grounds.</p> <p>(3) Small boat surveys at existing field sites are largely focused on the period of July-October (B1), but an out of- season presence is suspected. The Workshop recommends a greater degree of temporal coverage in survey effort.</p> <p>(4) Telemetry studies in B1 have informed stock structure, migratory routes and destinations for some B1 whales. The Workshop recommends that new satellite tagging studies be initiated to identify breeding destinations for whales observed feeding in B2. Tagging should be conducted off: (a) West South Africa in both early and late breeding seasons (on either end of migration); (b) Angola, southern boundary of B1; and (c) Upper and/or offshore Gulf of Guinea, northern area of B1</p>	SC/58/Rep5, Annex I, p. 72	Humpback	Breeding stock B

	<p>(5) Additional samples are needed from the Antarctic Feeding Grounds to help elucidate these high and low latitude connections as well as to discriminate among hypotheses concerning mixing on the Feeding grounds. The Workshop recommends that the genetic sampling of humpback whales remains a high priority of SOWER cruises. In order to facilitate this work, the Workshop recommends that samples from the 2006 SOWER cruise (Area III, $n=71$) be transferred as soon as possible to the WCS/AMNH Cetacean Conservation and Research Program for analysis and subsequent transfer back to SWFSC for storage</p> <p>(6) Large-scale line transect surveys have the potential to estimate density, abundance and distribution of animals and establish coverage for areas that are difficult to sample comprehensively from shore (i.e. offshore distributions and diverse archipelago systems with humpback whale concentrations). Thus far, no ship-based surveys have taken place in the B region. The Workshop recommends that efforts be made to undertake more extensive ship-based surveys throughout the B sub-regions to estimate densities and collect information from areas that are difficult to survey. These should include: (a) West coast of South Africa and Namibia; (b) Angola, (c) Gabon out to Sao Tome and Principe; (d) Northern Gulf of Guinea and Bioko Island; and (e) Southern Coast of West Africa. The relevance of such surveys to the Comprehensive Assessment is estimation of abundance from areas for which no abundance estimates are currently available and the strengthening of the understanding of overlap of the B1 and B2 sub-populations and number of breeding stocks, through co-incident genetic and natural mark sampling.</p> <p>(7) The Workshop recommends the involvement of scientists from relevant states in the region, and facilitation for future participation in IWC workshops or Scientific Committee meetings</p>			
3	<p>(1) Based on (i) un-surveyed areas of humpback whale concentration in northern C1, throughout C2 and in western and southern Madagascar, and (ii) identified C1, C2 and C3 connectivity (SC/A06/HW12), the Workshop recommends additional systematic boat-based survey that will yield information on estimates of abundance, as well as other life history information, and collection of genetic samples from under-surveyed areas in northern C1, C2 and in western and southern C3. Specifically survey and collections should occur at: (a) Grand Comoro Island, west side of C2; (b) Mayotte, east side of C2; (c) Toliara, SW coast of Madagascar, C3; (d) Nosy Be, NW coast of Madagascar, C3; (e) Fort Dauphin, SE coast of Madagascar, C3; (f) Mascarene Islands, (g) Pemba coast, northern Mozambique, C1 (initial surveys possibly to start in July 2006); (h) Mafia Island, Tanzania, C1; and (i) The workshop recommends that survey effort across these regions be concurrent. The relevance of such surveys to the Comprehensive Assessment includes both estimation of abundance from areas for which no abundance estimates are currently available and the strengthening of the understanding of overlap of the C1, C2 and C3 sub-populations.</p> <p>(2) Genetic results have yielded valuable information concerning population structure and interchanges within and between C sub-regions. The Workshop recommends that the large scale genetic analyses be continued and expanded with new approaches to help resolve issues of relationships and population structure within this region, as well as connectivity to feeding grounds.</p> <p>(3) Additional samples are needed from the Antarctic Feeding Grounds to help elucidate these high and low latitude connections as well as to discriminate among hypotheses concerning mixing on the Feeding grounds. The Workshop recommends that the genetic sampling of humpback whales remains a high priority of SOWER cruises. In order to facilitate this work for SC58 and SC59, the workshop recommends that samples from the 2006 SOWER cruise (Area III, $n=71$) be transferred directly to the WCS/AMNH Cetacean Conservation and Research Program for analysis and subsequent transfer to SWFSC.</p> <p>(4) The satellite telemetry studies in the South Atlantic have greatly helped to identify stock structure and migratory routes and destinations, the Workshop recommends that satellite tagging studies be initiated in as many components of the C sub-region as possible. Tagging sites and times should be chosen to best discern northern and southern migratory movements in C1, distribution and movements throughout C2 and around Madagascar in C3, and interconnections between the 3 sub-regions. Such studies provide relatively rapid and cost effective results to further the understanding of migratory movements within the C region.</p>	SC/58/Rep5, Annex I, p. 73	Humpback	Breeding stock C

	<p>(5) Line transect surveys have the potential to estimate densities of animals and establish coverage for areas that are difficult to sample comprehensively (i.e. offshore distributions and diverse archipelago systems with humpback whale concentrations). Thus far only ship-based surveys have taken place in the southern and central C1 sub-regions, although yacht based line transect survey has been undertaken across the southern Madagascar region. The Workshop recommends that efforts be made to undertake more extensive ship-based surveys throughout the C sub-regions to estimate densities and collect information from areas that are difficult to survey. These should include: (a) Northward up the coast of Mozambique to Tanzania; (b) West along the coast of Madagascar and into the Mozambique Channel; (c) Throughout the Comoros Islands; (d) South of Madagascar to Waltherø Shoal.</p> <p>(e) The relevance of such surveys to the Comprehensive Assessment is estimation of abundance from areas for which no abundance estimates are currently available and the strengthening of the understanding of overlap of the C1, C2 and C3 sub-populations, through co-incident genetic and natural mark sampling.</p> <p>(6) A comprehensive comparison of biological (photographic, genetic, and acoustic) data collected in Regions A, B, C, D and X is needed to evaluate the existing preliminary findings of differences and similarities between these regions. The Workshop recommends that this work be undertaken and completed in order to finish the Comprehensive Assessment with existing data and data that is to be collected.</p> <p>(7) Few estimates of population trends are available for Southern Hemisphere Humpback whales apart from those arising from the coasts of Australia. The Workshop recommends the immediate continuation of the shore - based surveys at Cape Vidal, South Africa to further the preliminary increase rate provided in SC/A06/HW16. Given the completed series of surveys, it is suggested that this be high priority.</p> <p>(8) The workshop recommends the involvement of scientists from relevant states in the region, and facilitation for future participation IWC workshops or Scientific Committee meetings</p>			
4	<p>Priority 1. Genetic analyses The Workshop noted that only limited genetic comparisons have been made between Breeding Stock D and other breeding areas, especially the Australian coastal areas of Breeding Stock E, despite the existence of relatively large numbers of samples. It strongly recommends that further genetic comparisons should be made between Western Australia and adjacent breeding areas, particularly coastal eastern Australia (within Breeding Stock E) as soon as possible; this is essential to providing the necessary information on stock structure for the completion of the assessment. Based on information in the metadata table available on the IWC website¹³ those involved should include Brasseur (Edith Cowan University, Western Australia) and Pastene (ICR) ó for samples from Breeding Stock D, both on the breeding and feeding grounds, and Anderson (Southern Cross University, New South Wales), Pastene (ICR), Olavarria (University of Auckland), and Paton (Southern Cross University) ó for samples from Australian coastal Breeding Stock E, on breeding and feeding grounds. Given his previous involvement, Baker (University of Auckland) should also participate.</p> <p>Priority 2. Photo-identification comparisons Again, the Workshop noted that despite large sample sizes, there has been no major comparison of photographs from western and eastern Australia. It therefore strongly recommends that such a comparison should be conducted as soon as practical, with a primary goal of examining connections between areas and estimating movement rates, both of which are extremely important to the completion of the assessment. From previous experience with comparison of large catalogues, it was agreed that rigorous fluke photo-quality grading be conducted prior to matching, in order to efficiently allocate research resources and to facilitate efficient matching. Further details are given in Annex H. Based on information in the metadata table available on the IWC website, those involved should include, for Breeding Stock D, Jenner (Centre for Whale Research, Western Australia), Burton (Western Whale Research, Western Australia) and Kaufmann (Pacific Whale Foundation), and for Breeding Stock E, at least Franklin (Southern Cross University), Kaufmann (Pacific Whale Foundation), Paton (Southern Cross University) and Pastene (ICR).</p>	SC/58/Rep5, Annex I, p. 75	Humpback	Breeding stock D
5	Priority 1. Genetic analyses	SC/58/Rep5,	Humpback	Breeding stocks

	<p>The Workshop noted that genetic comparisons have not been made between other breeding grounds and the migratory corridor of eastern Australia or the presumed breeding grounds of the Great Barrier Reef. It strongly recommends that genetic comparisons should be made between eastern Australia and the rest of Breeding Stocks E and F, as well as with western Australia (see Item 3.5.5); this is essential to providing the necessary information on stock structure for the completion of the assessment.</p> <p>Priority 2. Photo-identification comparisons</p> <p>Again, the Workshop noted that despite large sample sizes, there has been no major comparison of photographs from eastern Australia with those from western Australia and Oceania (and see Item 3.5.5). It therefore strongly recommends that such a comparison should be conducted as soon as practical, with a primary goal of examining connections between areas and estimating movement rates, both of which are extremely important to the completion of the assessment. From previous experience with comparison of large catalogues, it was agreed that rigorous fluke photo-quality grading be conducted prior to matching, in order to efficiently allocate research resources and to facilitate efficient matching. Further details are given in Annex H.</p> <p>Other recommended research includes:</p> <p>(1) Filling in gaps in known or suspected regions of known or suspected, past or present high density by vessel-based, aerial or acoustic surveys: (a) Great Barrier Reef, including connectivity to EA migratory corridor and Hervey Bay; and (b) Chesterfield Reef, including connectivity to EA migratory corridor and Hervey Bay</p> <p>(2) Maintain or initiate surveys intended for historical comparison to CPUE and model trajectories, particularly in regards to resolving apparent variability in recovery: (a) Point Lookout, EA; (b) Cook Strait; (c) Norfolk Island; and (d) Fiji</p> <p>(3) Continue surveys in key location of EA and Oceania, particularly in regards to evaluating trends in abundance for Oceania: (a) EA: Point Lookout/Byron Bay/Hervey Bay/Whitsundays/Eden; (b) New Caledonia; (c) Tonga; (d) Cook Islands; and (e) French Polynesia</p> <p>(4) Resolve degree of demographic and genetic interchange/isolation between EA migratory corridor and breeding grounds of Oceania by: (a) Photo-ID comparison of EA catalogues with Oceania (one component of which is planned by Garrigue and others for November 2006); (b) Analysis of genetic differentiation between EA and Oceania (migratory corridor and migratory destinations, if possible) using both mtDNA and microsatellites; and (c) Analysis of song exchange</p> <p>(5) Further resolve degree of demographic and genetic interchange/isolation between EA migratory corridor and breeding grounds of Oceania by (a) Improved Photo-ID analysis for primary regions of Oceania using multi-state, closed or open capture-recapture models; (b) Further analysis of genetic differentiation among Oceania using both mtDNA and microsatellites by sex and year; and (c) Analysis of song exchange</p> <p>(6) Further investigation of Discovery marking and recovery: (a) Investigate effort distribution as failing to take this into account can bias perceptions of proportions of whales moving between regions; and (b) Exclude short period recoveries from analysis of returns</p> <p>(7) Initiate satellite tagging to address key questions of migratory destinations: (a) In New Zealand to track northward migration to breeding grounds destinations (Fiji?); (b) In French Polynesia to track southward migration to feeding area destination (Area VI?); and (c) In EA to track northward migration to breeding ground destinations (GBR)</p> <p>(8) Further analysis of sex bias to: (a) To correct (if necessary) shore-based counts from EA; and (b) To correct (if necessary) for multi-year sighting-resighting analysis</p> <p>(9) Further analysis of migratory connections to feeding grounds (areas) by (a) Directed photo-ID comparison of EA and Oceania to IDCR/SOWER, JARPA and other studies (one component of which is under proposal to DAG by Garrigue); and (b) mtDNA and microsatellite assignment and analysis of differentiation for breeding ground and feeding area samples from IDCR/SOWER</p>	Annex I, p. 75		E, F
6	The Workshop recommends that it is a high priority that existing catalogues from Panama, Costa Rica, Columbia, and Ecuador be fully reconciled and compared to catalogues from Antarctica and the Magellan Strait.	SC/58/Rep5, Annex I, p. 76	Humpback	Breeding stock G

7	the Workshop strongly recommends that high priority be given to the following work that can be undertaken using existing samples/catalogues from the breeding grounds: (1) genetic and photo-identification catalogue (see Items 3.5.5. and 3.6.5) comparisons amongst samples/catalogues from western Australia, eastern Australia and Oceania and comparisons with samples/catalogues from the feeding grounds.	SC/58/Rep5, Annex I, p. 47	Humpback	Breeding stock D, E, F and feeding grounds IV, V
8	The Workshop therefore recommends that: (1) biopsy sampling and photo-identification of humpback whales remains a high priority for future SOWER cruises; (2) samples from the 2006 SOWER cruise (Area III, $n=71$) are transferred as soon as possible to the WCS/AMNH Cetacean Conservation and Research Program for analysis and subsequent transfer back to SWFSC for storage; and (3) photographs from SOWER cruises continue to be sent to the Antarctic catalogue hosted by the College of the Atlantic; (4) the existing protocols for access to SOWER biopsy samples and photographs be reviewed to see if modifications are required; (5) national programmes (e.g. JARPA II, Broke) and international programmes (e.g. SO GLOBEC, CCAMLR) operating in the Antarctic wherever possible, allocate time to the collection of photographs and biopsy samples and that all photographs are submitted to the Antarctic catalogue.	SC/58/Rep5, Annex I, p. 47	Humpback	All feeding grounds
9	It recommends that every effort be made for scientists to share data and carry out such analyses [genetic comparisons between breeding and feeding grounds].	SC/58/Rep5, Annex I, p. 47	Humpback	All feeding grounds

RECOMMENDATIONS FROM SC 57 2005: SOWER

	Recommendation	Citation	Species	Location
1	The Workshop agreed that the long-term goal for a future programme is to provide circumpolar estimates of abundance and trends in abundance for large whales that feed in Antarctic waters. It also agreed that the short term goal for a future programme is to undertake research on priority species including to: (a) undertake experimental surveys to provide information useful in developing optimal survey design and methodology and addressing problems with previous IDCR/SOWER surveys; and (b) provide estimates of abundance for smaller areas (in conjunction with stock structure studies), which will be potentially useful in investigating long term trends.	SC 57, IA, 10.5.1, p. 36	Large whales	Antarctic waters
2	The workshop agreed that the following species priorities should be assigned in order from highest to lowest: (1) Antarctic minke and blue whales, (2) fin whales, (3) humpback whales, (4) sei and right whales; and (5) sperm whales. The Workshop recommended that the Scientific Committee should consider its report as a set of guidelines for the development of an initial proposal for a future programme and that Scientific Committee members should provide papers to allow for efficient progress to be made on the development of a proposal for the long term programme.	SC 57, IA, 10.5.1, p. 36	Antarctic minke, blue, fin, humpback, sei, right, and sperm	Antarctic waters

RECOMMENDATIONS FROM THE PLANNING MEETING FOR THE 2007/08 IWC/SOWER CRUISE AND FUTURE CRUISES 2007

	Recommendation	Citation	Species	Location
1	The long-term objective of any future SOWER programme as agreed by the Scientific Committee at its 2004 meeting is to provide information to allow determination of the status of populations of large whales that feed in the Antarctic waters. The programme will primarily contribute information on abundance and trends in abundance (including of Antarctic minke whales), learning from both the successes of past IDCR-SOWER cruises and the difficulties in interpreting previous results (IWC, 2004: 35). Sub-objectives are: to consider methodological developments and improvements in abundance estimation and its interpretation; stock structure; abundance estimates and trends in abundance.	SC/60/Rep7, B1, p. 18	Large whales	Antarctic waters
2	Short term priorities:	SC/60/Rep7, B2,	Large whales	Antarctic waters

<p>Priority item 1: Determining the proportion of Antarctic minke whales in the ice</p> <p>Priority item 2: Determining the best way of estimating $g(0)$ and school size</p> <p>Priority item 3: Collecting data necessary to understand stock structure</p> <p>Priority Item 4: Development of telemetry techniques</p> <p>Priority Item 4: Development of survey techniques</p> <p>Priority item 6: Development of methods to integrate acoustics with sightings surveys</p>	p. 18		
--	-------	--	--

RECOMMENDATIONS FROM SC 56 2004: SOUTHERN OCEAN SANCTUARY REVIEW

	Recommendation	Citation	Species	Location
1	<p>The Committee endorses them and they are given below.</p> <p>(1) The purpose(s) of the SOS (and other IWC Sanctuaries) should be better articulated through a set of refined overall objectives (e.g. preserving species biodiversity; promoting recovery of depleted stocks; increasing whaling yield). In particular, the relationships between the RMP and the Sanctuary programme should be articulated.</p> <p>(2) Appropriate performance measures both for Sanctuaries in general, and the SOS in particular, should be developed. These performance measures should link the refined objectives of the SOS with monitoring programmes in the field.</p> <p>(3) Systematic inventory and research programmes should be established or further developed so as to build the required information base for a Sanctuary management plan and subsequent monitoring programmes.</p> <p>(4) A Sanctuary management plan should clearly outline the broad strategies and specific actions needed to achieve Sanctuary objectives (e.g. how to protect $x\%$ of a given feeding area for stock y).</p> <p>(5) A monitoring strategy that measures progress toward achieving the Sanctuary objectives should be developed and subsequently implemented. A key component of this monitoring strategy would be the development of tangible indicators to monitor progress.</p> <p>(6) Review criteria that reflect the goals and objectives of the Sanctuary (as described above) should be established.</p> <p>(7) The Sanctuary management plan should be refined periodically to account for ecological, oceanographic and possible other changes in an adaptive fashion.</p>	SC/56/REP2, 5.1.2, p. 9	Large whales	Southern Ocean

REPORT OF WORKSHOP ON THE COMPREHENSIVE ASSESSMENT OF RIGHT WHALES: A WORLDWIDE COMPARISON 1998

	Recommendation	Citation	Species	Location
1	TO BE ADDED			

REPORT OF JOINT IWC/CCAMLR WORKSHOP ON SOUTHERN OCEAN ECOSYSTEMS MODELLING 2008

	Recommendation	Citation	Species	Location
1	TO BE ADDED			

REPORT OF WORKSHOP ON CLIMATE CHANGE AND WHALES 2009

	Recommendation	Citation	Species	Location
1	TO BE ADDED			