

migration period of humpback whales. Although humpback whales are sighted near the ice edge, they are much more abundant in the open waters. The abundance estimate was 8,000 individuals in the southern strata but 23,000 individuals in the northern strata. Also, we conducted biopsy sampling (130 samples), and there was no re-sampling of whales in the same season.

Bias related to less effort being spent in areas of high whale density as sighting surveys are interrupted for closing with and catching whales and when vessels are required to steam off effort to gain the starting point for the next day

This bias has already been addressed by using two correction factors in the analysis (see Hakamada *et al.*, 2005). One is a correction factor to eliminate the bias due to sampling activity. The other is a correction factor to eliminate the bias due to closing. For humpback whales, no such effect between research modes was detected as mentioned above.

Issues raised in Appendix 2 are merely reiterations of discussions of the IA and SH sub-committees, which have mainly been taken into account in our current analysis. Because issues relating abundance estimation of Antarctic minke whale which are raised in Appendix 2 have already been discussed, we are against reopening discussions regarding these issues.

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Appendix 4

COMPARISON OF SOWER CPIII ABUNDANCE ESTIMATES FOR HUMPBACK WHALES IN AREA IV WITH JARPA ABUNDANCE ESTIMATES

T.A. Branch

Estimates of abundance for humpback whales from IDCR/SOWER surveys have been provided up to and including the 1997/98 survey (Branch and Butterworth, 2001). These surveys did not cover the majority of Area IV. Data on humpback whales in Area IV were extracted from DESS for the IDCR/SOWER surveys in CPIII. Two surveys were conducted in parts of this Area: 1994/95 from 40-80°E overlapping the 70-80°E section, and the 1998/99 survey from 80-130°E covering the remainder of Area IV. Estimates were obtained separately for these two surveys.

In the 1994/95 survey, the EN and ES strata covered 60-80°E, overlapping with Area IV from 70-80°E. The Prydz Bay stratum was entirely within Area IV. There were no humpback sightings in Prydz Bay. There were only four sightings in the eastern overlapping strata. Abundance estimates for EN and ES were 53 (CV=1.01) and 84

(CV=0.53) respectively. Assuming half of the abundance was in Area IV, the total abundance in Area IV would be 68 (CV=0.51).

The estimate for Area IV in 1998/99 was 11,353 (CV=0.17). There were 206 sightings of schools during primary effort. The southern strata were pooled for estimation of school size and search half-width because of low numbers of sightings.

The total estimated abundance in Area IV for CPIII is thus 11,421 (CV=0.17). This estimate would apply approximately to the year 1998/99, since the abundance and survey effort was weighted strongly toward the later survey. To compare with JARPA estimates (Matsuoka *et al.*, 2005) this estimate was projected forwards and backwards from 1988/89 to 2004/05 using increase rates of 8, 10 and 12%. The confidence levels for the 10% increase rate and for

JARPA are plotted. In comparison with the IDCR/SOWER estimates the JARPA estimates were anomalously low in 1993/94 and anomalously high in the two most recent surveys in Area IV in 2001/02 and 2003/04.

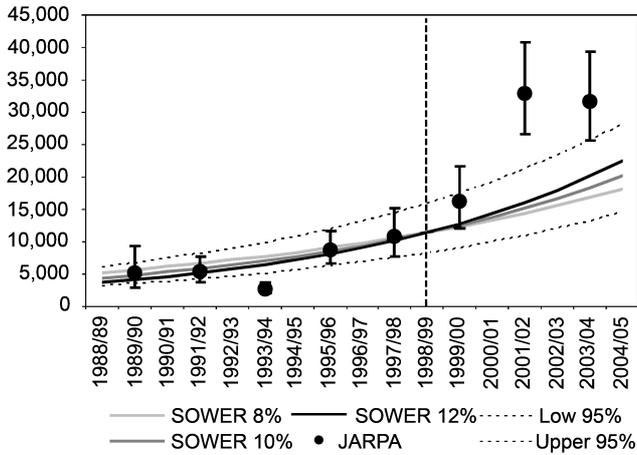


Fig. 1. Humpback whale abundance estimates from JARPA (Matsuoka *et al.*, 2005) in Area IV (round circles with 95% confidence intervals) compared to IDCR/SOWER in the same area (based largely on the 1998/99 survey) projected backwards and forwards assuming increase rates of 8, 10 and 12% (solid lines) and the 95% confidence intervals for the 10% increase rate case (dashed lines).

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Appendix 5

Scientific Committee members involved in gathering information on abundance estimates, rates of increase and stock structure for each Southern Hemisphere humpback whale breeding stock. Lead parties for each region are in **bold**.

Stock	Member of Sub-committee on Southern Hemisphere Whale Stocks
A	Zerbini and Engel
B	Best, Collins, and Rosenbaum
C	Findlay , Best and Rosenbaum
D	Bannister
E	Bannister
F	Clapham and Baker
G	Olavarria and Secchi
X	Minton and Collins

Appendix 6

REPORT OF THE INTERSESSIONAL WORKING GROUP ON SOUTHERN HEMISPHERE BLUE WHALES: WORK REQUIRED TO COMPLETE THE ASSESSMENT

Members: Bannister (Convenor), Best, Branch, Brownell, Butterworth, Carlson, Clapham, Donovan, Ensor, Findlay, Gill, Hucke-Gaete, Kato, Matsuoka, Nishiwaki, Rosenbaum, Zerbini.

At its 2004 meeting (IWC, 2005, p.29) the Committee agreed that the intersessional Working Group (IWG) on blue whales established in 2003 should continue its work and include any new information as it becomes available. The IWG’s original terms of reference were to:

- (1) summarise current knowledge by population or management area;

- (2) identify any major gaps in knowledge;
- (3) establish priorities for research to fill these gaps.

Under (1), the IWG’s remit was in effect to prepare a table similar to that already produced for Southern Hemisphere humpback whales (IWC, 2004).

The Convenor originally suggested dividing the task along the lines of that adopted for humpback whales, and recognising the need to differentiate between true and pygmy blue whales, as follows:

- (1) Antarctic waters: Branch, Butterworth, Ensor, Matsuoka and Nishiwaki;