

**Relationship between Bryde's whales to be surveyed and harvested in the western North Pacific and those in Southern Hemisphere stock**

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**INTRODUCTION**

Annotations of the draft agenda for the intersessional workshop for North Pacific Bryde's whales encouraged papers on the relationships between the whales to be surveyed and harvested and those in Southern Hemisphere Stock. Discussions on this topic conducted at the Scientific Committee meetings are summarized.

**RELEVANT ISSUES DISCUSSED AT  
SCIENTIFIC COMMITTEE MEETINGS**

- A paper was presented in 1995 that summarized relevant information on distribution of Bryde's whales based on sighting data collected during 37 cruises conducted in August and September, 1988-1994 (SC/47/NP9). During the discussion of that paper it was suggested that the apparent equatorial concentration of whales during the austral winter may include some whales from Southern Hemisphere populations.

Mark-recapture analyses conducted for Western North Pacific Stock of Bryde's whales strongly indicate an annual north-south migration between northern summer grounds and southern wintering grounds (SC/47/NP10; SC/50/RMP18). Some whales marked in winter at 1°S were recovered in the summer whaling ground (see details in For Info 14). An analysis that compared Japanese Bryde's whale catches and fishing effort data with the corresponding sightings information (SC/51/RMP14) confirmed a seasonal south to north migration beginning in February and the return southward beginning in October.

By analogy a similar pattern of movement can be postulated for Bryde's whales of the Western South Pacific Stock. Therefore mixing of animals from the two stocks are minimized because of the complementary north-south migrations in the two hemispheres. The winter ranges of northern and southern hemispheres stocks may, however, extend a few degrees into the other hemisphere, respectively.

To deal with this situation, southern boundary of sub-area 1 in the trial specifications has been set at 10°N so that harvest and surveys are assumed to occur north of 10°N.

- In 1998 a genetic paper based on mtDNA control region sequences was presented (SC/50/RMP9). While no significant genetic differences were found among two longitudinal sectors in the western North Pacific, striking differences were found

between Western North Pacific and Western South Pacific (represented by whales from the Fiji Islands) Stocks (SC/50/RMP9). In discussion of this paper it was suggested the possibility of trans-equatorial movement because the two stocks shared some haplotypes. During the 2004 Committee meeting this possibility was reiterated and the reason given was that some Bryde`s whales sampled in markets in Japan shared the same haplotypes with Bryde`s whales found off New Zealand.

DNA analyses based on both mtDNA and microsatellite have shown striking genetic differences between whales from the Western North Pacific and Western South Pacific (SC/50/RMP9; SC/54/O17 Appendix 10). These differences should not be so striking if some degree of mixing occurs. Whales from the two stocks share some few mtDNA haplotypes. However shared haplotypes is insufficient to form conclusions on movement between hemispheres. Time of divergence could not be large enough to accumulate unique genetic characters in these populations.

- Other current restriction on whaling in the North Pacific includes an IWC restriction on whaling south of 20°N to protect the breeding area (JCRM 2, pp89). This would restrict harvest south of 20°N, but surveys for assessment should account for regions from 10°N to the north.

## **CONCLUSION**

Given these biological and technical aspects, it is considered that no further specifications to account for concerns on movement/mixing of whales from the two hemispheres are necessary in the trials.