Initial comments on paper by Baker *et al*. 'Stock structure of western North Pacific minke whales based on mtDNA haplogroups from bycatch and scientific whaling' (SC/62/NPM20)

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SC/62/NPM20 presented an analysis of 4 mtDNA haplogroups in the western North Pacific common minke whale. Three of these haplogroups are informative (but not diagnostic) of the J stock, and one is informative of the O stock. Analyses are based on 237 samples obtained in the Korean market and 2,551 samples obtained from Japanese bycatches and scientific whaling (JARPN and JARPN II). Pairwise tests of differentiation for mtDNA haplogroups were conducted for sub-areas and sample sources, using both the randomized chi-square and Fst. Based on the results of these analyses the authors reached four main conclusions, which are listed in page 4 of the their paper. Here we provide some initial comments on the samples, analyses and conclusions of NPM20

Market samples
- Interpretation of results of market samples is difficult as the date and location of the samples are unknown, and the dynamic of the whale products in the market is undocumented. For this reason the IWC SC has not agreed yet on the use of market samples for management purposes. I am afraid why the authors did not make use of Korean bycatch data of known origin, made available under Procedure A.

Quality control
- Quality control of market DNA samples are according to Morin *et al*. (2010). It seems to me that the guidelines agreed by the IWC Scientific Committee should be followed.

Haplogroups
- 4 haplogroups are identified, one is informative of the O stock and three are informative of the J stock. As noted by the authors these markers are not diagnostic of these stocks, e.g. the haplogroup identifying the O stock also occur in the J stock although in smaller proportion, and the haplogroups identifying the J stock also occur in the O stock although in smaller proportion. It should be noted that haplogroup AA in Table 2 (informative of the J stock according to the authors) occur in higher frequencies in the samples of the O stock in coastal and offshore samples. It seems that this haplogroup can not be considered informative of the J stock.
- There was a good concordance between the haplogroups and individual assignment by microsatellite (Kanda *et al*., 2009) (93% agreement in the total samples). This just confirm that several of the 'sub-areas' and 'source' used in the pairwise comparisons of Table 3 are composed by samples with different proportions of J and O stocks.

Hypothesis test
- As noted above several statistical comparisons are made for strata where J and O stock animals mix in different proportions. Then it is not surprising that significant differences are found when these strata are compared. For example mixing rate of J stock is different among BC7, 7W and 7E, and consequently haplogroup composition changes correspondingly. This is the reason for the

significant differences. In the same line it is not surprising that in comparisons among strata where only one stock is suspected no significant differences are found (e.g. between sub-areas 8 and 9 and between BC6 and Korean market).

On the conclusions
- The authors criticize the lack of consistent sampling across strata, which make difficult conclusions on stock structure. The important point is that no data set is perfect and that hypotheses should be defined based on the best available data, not on the perfect set of data. For comparison the authors could refer to other data sets used by the IWC SC for the assessment of other whale species.
- Conclusion 1) by the authors is reasonable as the strata BC6 and Korean market are composed of only J stock animals. However the genetic data from the Korean market are uninformative of the possibility of a second J stock in the Yellow Sea as speculated by the authors.
- To our view the author's interpretation of results leading to conclusions 2), 3) and 4) are not correct. For a better interpretation of the genetic results:
a) Statistical tests comparing strata and source could be carried out separately for O and J stock samples (as defined by the haplogroups), and results could be compared with those of the microsatellite analyses.
b) Seasonal changes along the Japanese coast could be better studied in the context of a hypothesis on the migration pattern and segregation of the stocks.
c) Seasonal changes of stocks along the Japanese coast could be compared with the information provided by Kanda *et al*. (2009) for microsatellites.

Regarding the Pacific side of Japan the authors provided two explanations for their results: a) complex seasonal mixing of two stocks (e.g. O and J) and b) whales in sub-area 7W represent a third stock (e.g. Ow). They considered explanation b) more plausible however they do not provide any evidence for assigning such plausibility. To our view their results provided no evidence on the occurrence of an Ow stock.