Additional analyses on the effects on J-stock of future JARPN II common minke whale catches

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ABSTRACT

One of the tasks of the JARPN II review workshop was to review the effects of any catches on the relevant stocks. Regarding common minke whales some of the calculations on the effect of the catches on the J-stock based on conservative assumptions e.g., lower 90% confidence limit for abundance and MSYR (1+)=1%, showed a decline in the abundance. The review workshop recommended additional HITTER calculations considering the option of JARPN II catches=0. This short paper presents the results of these additional calculations. It was concluded that the effect of future JARPN II catches have a negligible effect on future population trajectory of the J stock.

INTRODUCTION

The International Whaling Commission's Scientific Committee (IWC SC) carried out a Workshop to review the progress made in the research conducted under the Japanese Whale Research Programme under Special Permit in the North Pacific-Phase II (JARPN II) in its first six years (2002-2007). The review was carried out by an Independent Expert Panel (IEP) who examined primary papers related with the research objectives of JARPN II. One of the tasks of the workshop was to review the effects of any catches on the relevant stocks.

Hakamada (2009) examined the effects on the stocks of JARPN II catches on common minke, Bryde's and sei whales using HITTER methodology and current assessment information derived from JARPN II and other sources.

Some of the calculations on the effect of the catches on the J-stock based on conservative assumptions e.g., lower 90% confidence limit for abundance and MSYR (1+)=1%, showed a decline in the abundance of this stock. The IEP recommended that 'for comparison, results should be provided for model runs in which research catches are equal to zero. This is particularly relevant to cases where there is other anthropogenic mortality (e.g. bycatches), as is the case for western North Pacific minke whales' (IWC, 2009). In response to this recommendation a new analysis on the effect of the catches on the J-stock was conducted considering JARPN II catches=0.

MATERIALS AND METHODS

Assumptions for the calculation are the same as in Hakamada (2009) (SC/J09/JR36). Two scenarios are assumed for future JARPN II catches. One scenario is continuing the current numbers of research catches (base case) of 13 male and 10 female J-stock whales, and the other scenario is JARPN II=0.

RESULTS AND DISCUSSION

Table 1 shows the depletion level of the J-stock for the base case scenario (same as Table 16 in Hakamada, 2009). Table 2 shows the depletion level in the case of JARPN II=0 catches. Figure 1 compares the population trajectories in *MSYR*(1+)=1% and 4% (abundance of J-stock is 22,373 in 2004) for the scenarios with and without JARPN II catches. Figure 2 is the same but for the lower bound of abundance estimate (13,024 in 2004).

These comparisons suggested that the effect of future JARPN II catches have a negligible effect on the population trajectory of the J stock.

REFERENCES

Hakamada, T. 2009. Examination of the effects on whale stocks of future JARPN II catches. Paper SC/J09/JR36 presented to the JARPN II Review Workshop, Tokyo, January 2009 (unpublished). 51 pp.

International Whaling Commission. 2009. The Report of the Expert Workshop to review the ongoing JARPN II Programme. Document SC/61/xx presented to this meeting.

Table 1. The effect of the future JARPN II catches in J stock including incidental catches for base case.
a) Hit 2004 total (1+) population of 22,737 (best estimate)

Statistic	MSYR (1+) (%)				
	1	2	3	4	5
K (1+)	41,335	34,271	29,878	27,105	25,434
Depletion - 2009	50.3%	60.1%	68.7%	75.8%	81.1%
Depletion - 2015	50.7%	63.0%	72.9%	79.9%	84.2%
Depletion - 2021	51.0%	65.7%	76.4%	82.8%	86.2%
Depletion - 2029	51.4%	69.1%	80.1%	85.3%	87.7%
RY - 2009	206	317	350	328	286
MSY (+1)	248	411	538	651	763

b) Hit 2004 total (1+) population of 13,024 (lower limit of 90%CI)

Statistic	MSYR (1+) (%)				
	1	2	3	4	5
K (1+)	33,789	27,764	23,783	20,949	18,846
Depletion - 2009	33.2%	39.8%	45.8%	51.6%	57.0%
Depletion - 2015	32.2%	41.4%	50.2%	58.3%	65.3%
Depletion - 2021	31.2%	43.1%	54.8%	64.7%	72.1%
Depletion - 2029	29.7%	45.7%	60.8%	71.9%	78.2%
RY - 2009	145	249	329	376	390
MSY (+1)	203	333	428	503	565

Table 2. The effect on the J stock under the scenario JARPN II catch=0.
a) Hit 2004 total (1+) population of 22,737 (best estimate)

Statistic	MSYR (1+) (%)				
	1	2	3	4	5
K (1+)	41,335	34,271	29,878	27,105	25,434
Depletion - 2009	50.3%	60.1%	68.7%	75.8%	81.1%
Depletion - 2015	51.0%	63.3%	73.3%	80.4%	84.7%
Depletion - 2021	51.6%	66.4%	77.2%	83.6%	87.0%
Depletion - 2029	52.4%	70.2%	81.1%	86.3%	88.6%
RY - 2009	206	317	350	328	286
MSY (+1)	248	411	538	651	763

b) Hit 2004 total (1+) population of 13,024 (lower limit of 90%CI)

Statistic	MSYR (1+) (%)				
	1	2	3	4	5
K (1+)	33,789	27,764	23,783	20,949	18,846
Depletion - 2009	33.2%	39.8%	45.8%	51.6%	57.0%
Depletion - 2015	32.6%	41.9%	50.8%	59.0%	66.0%
Depletion - 2021	31.9%	44.0%	55.8%	65.8%	73.2%
Depletion - 2029	30.9%	47.1%	62.4%	73.4%	79.7%
RY - 2009	145	249	329	376	390
MSY (+1)	203	333	428	503	565

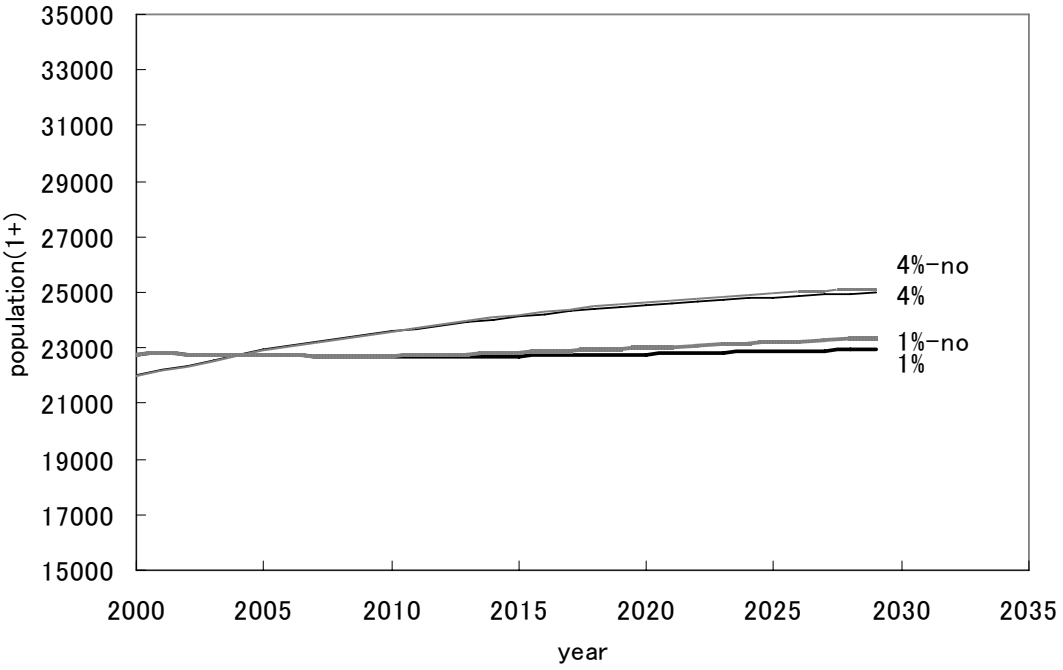

Figure 1. Population trajectory of the J stock assuming total population is 22,373 in 2004 and *MSYR*(1+)= 1% and 4% in base case (1% and 4%) and zero catch in JARPN II (1%-no and 4%-no).

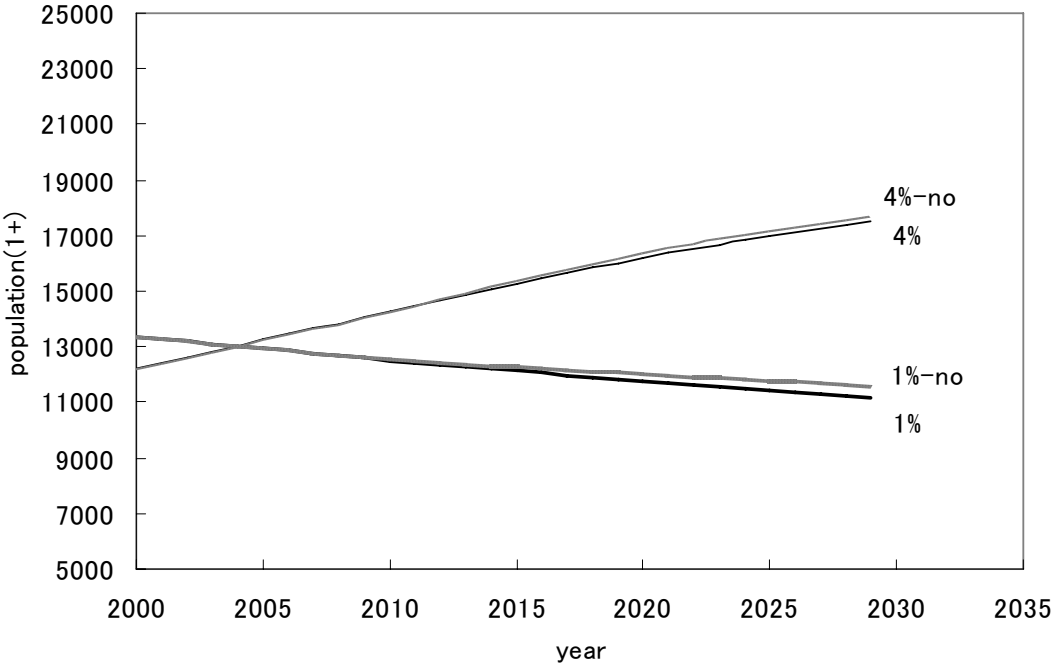

Figure 2. Population trajectory of the J stock assuming total population is 13,024 in 2004 and *MSYR*(1+)= 1% and 4% in base case (1% and 4%) and zero catch in JARPN II (1%-no and 4%-no).