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MEDIA BRIEFING NOTE

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- The Antarctic minke whale (*Balaenoptera bonaerensis*) spends winter in tropical waters and migrates to the Antarctic waters in summer for food. The whale intensively feeds there in the summer feeding season and stores energy as fat for long-distance migration and to cope with less prey availability in tropical waters. In the Antarctic waters, many predators, such as large baleen whales (including the Antarctic minke whale), penguins, seals and sea birds depend on krill (*Euphausia superba*) for food.
- The Antarctic ecosystem sustains this abundant biomass with rich nutrients. This energy- rich environment is connected to sea ice. Recent global warming affects the Antarctic ecosystem, as many animal species such as krill, penguins and seals may be affected by this change.

Konishi *et al*. 2008. Decline in energy storage in the Antarctic minke whale (*Balaenoptera bonaerensis*) in the Southern Ocean. Published: ***Polar Biology***. DOI:10.1007/s00300-008-0491-3

Summary

This study assessed the long-term trend in energy storage in Antarctic minke whales sampled in JARPA. The multiple regression analyses demonstrated that the blubber thickness, girth and blubber weight all declined for 18 years. In these analyses, other factors, such as date, body length, body weight, age, etc. were included as parameters. The analyses showed a 0.02cm (17kg) blubber decline per year, resulting in a 9% decline for 18 years. This study concluded that the reason or reasons for this long term decline could be either the population decline of krill, competition among other krill feeding whale species, or could be both.

- The paper (Konishi *et al*. 2008) is significant because a long-term trend in energy storage in the large biomass minke whale was for the first time reported in a peer-reviewed scientific publication. The energy-trend study is important to show what change is occurring in the Antarctic ecosystem as well as in the population of minke whales. The population change and food web are related with energy flow, and energy stock is one of the important indices. This paper also discussed the new results from JARPA and IDCR-SOWER that showed the recovery of humpback population that may cause competition with the minke whale for their ecological niche.

ICR Comment

Anti-whaling scientists and NGO activists are not experts on all of the wide range of subjects relating to whales, whaling and whale research. In order to ensure their articles inform readers of the facts, journalists and editors of non-peer-reviewed newspapers and magazines have a far greater responsibility than those in the peer-reviewed journals to filter out distortions and misrepresentation by people with an agenda. It is troubling that some journalists and editors present views opposing whale research that are biased or tendentious as if they were widely-accepted scientific truths. The general public is unable to perceive the difference between a scientific finding and pure demagoguery intended to create controversy. Helping to spread such misrepresentation damages not only the public perception and respect of science but also the credibility of journalism.

One of the best things about science is that it is a self-correcting discipline. We believe that any self-respecting scientist should prevent themselves from dedicating time and efforts to publicly discrediting other scientists' work without ever producing any scientific results or producing reports from the methods they propagandize as the solution to systematically obtaining all scientific data, that is non-lethal research. Thus, the only way to deny someone's scientific results is to produce other results and publish them in a peer-reviewed journal.

- **Responses prepared by Dr. Kenji Konishi to questions by The Guardian (UK). (The Guardian chose to publish two news articles on the subject before receiving our responses.)**

GUARDIAN: What is the implication for the health of the whales?
KONISHI: Our work clearly showed that the Antarctic minke whale reduced its stocked energy in the feeding summer season. However, solely from these results we cannot say how this energy decline means for the Antarctic minke whale health.
GUARDIAN: Would they find it harder to survive the winters?
Survival from starvation is the most serious problem for any animal species. However, starvation is an extreme phenomenon. The data from our survey do not suggest that the Antarctic minke whale is undergoing starvation, because they still stock energy during their feeding period.
GUARDIAN: Could they be less successful at breeding?
To know the effects of energy decline, we would also need to refer to pregnancy rate, because reproduction is firstly affected by the lack of energy. If the decline continues further for a long period, the minke whale will be less successful at breeding.
GUARDIAN: A 9% decrease in fat weight over 18 years seems a large change. Why has nobody reported it before now?
Dr. Seiji Ohsumi has already reported the energy decline for the IWC' scientific report with a simple analysis in 1997. But the meeting required further refinement and consideration.

GUARDIAN: Many people have criticised the Japanese scientific whaling program. Do you think this vindicates the research?
Sorry, I can't find any relevant connection to our article in your question.
GUARDIAN: Could this work have been done without killing the whales?
I'm sure that without our research program we would have not been able to become aware and report on the energy decline in the Antarctic minke whale.
GUARDIAN: What needs to be done now to monitor the situation further into the future?
To monitor and grasp the situation further into the future of the Antarctic minke whale, other animal species related and their ecosystem changes, a continuous, long-term and systematic research such as the Japanese whale research program is necessary.

- **Responses given in writing by Dr. Kenji Konishi to questions by National Geographic**

NATIONAL GEOGRAPHIC: If your interest is determining how the physical environment and predator consumption affects krill demography, couldn't you just measure krill abundance directly? Why did you have to look at minke whale blubber?
KONISHI: We are a cetacean research organization so our major focus is naturally with whales. Our interest is not limited to how the physical environment and predator consumption affects krill demography. And, our result is a part of JARPA program, which is a long-term study of cetaceans in the Antarctic.
NATIONAL GEOGRAPHIC: Other scientists I have spoken to argue that there are nonlethal ways of obtaining similar data. For example, skin biopsies could be taken. What is your response to this?
KONISHI: These data could only be obtained using lethal research. The measurement (sampling) position on the whale body must be same, whereas biopsy samples are not from same position of body. No scientists could obtain the results from the chemical or measurement energy analyses using samples from different part of body and depth of blubber.
NATIONAL GEOGRAPHIC: Your team hypothesizes in the paper that a possible reason for the minke whales' reduction in blubber thickness is due to competition from other baleen whales. You mention a computer model that supports the idea that different whale species can interact and compete with one another. Is there any real world evidence for this? Is this something JARPA scientists are planning to investigate?
KONISHI: The ecosystem model which I cited in our paper is also published in a peer reviewed journal, CCAMLR Science. This paper used real data of historical catch, sighting survey and stomach contents data obtained from JARPA survey. This ecosystem model matched to the real present data which many scientists have already contributed for a long time. So this hypothesis is consistent with other research.
NATIONAL GEOGRAPHIC: In your analysis, did you consider how the distance from sea ice where the whales were captured might affect their blubber thickness? I understand this was a recommendation by the IWC to JARPA in 2006.

KONISHI: Yes, we considered the capture position with ice. In our analyses, we included latitude, which is also covering the distance to permanent ice, as an independent parameter. Pack ice and minke whales are quite mobile, so the distance to pack ice is not a good parameter in the energy analysis.
NATIONAL GEOGRAPHIC: Your data suggests that minke whales have gotten progressively leaner as a result of decreased krill. Some people might argue this is evidence that minke whales are not fit to be commercially hunted again any time soon. Do you have any thoughts on this?
KONISHI: I do not think such an argument can be made based on our study because the marine ecosystem is very complex and there are many factors that need to be considered, such as abundance and the age range of the stock. As we wrote on the paper on Polar Biology, krill decrease and the increase of humpback have to be considered equally.
NATIONAL GEOGRAPHIC: Can you translate the .36 centimeter reduction in minke whale blubber to a percentage loss of krill in the oceans? In other words, how much less krill must there be in the ocean for the minke whale to lose that much blubber?
KONISHI: This calculation is not included within the scope of our paper.