SUMMARY OF 2008 COLLECTION ACTIVITIES RELATED TO "STINKY" GRAY WHALES IN CHUKOTKA, RUSSIA

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[1]C. Rosa, [2]T. Rowles, [3]V. Ilyashenko, [4]R.Borodin and [5]A.Ottoy
[1] Department of Wildlife Management, North Slope Borough, Box 69, Barrow, AK 99723 USA
[2] NOAA, National Marine Fisheries Service, Office of Protected Resources, Silver Spring, MD, USA
[3] Institute of Ecology and Evolution, Russian Academy of Science, Moscow, Russian Federation
[4] All Russian Scientific Research Institute of Fisheries and Oceanography (VNIRO), Moscow, Russian Federation
[5] MUP "Keper", Lorino village, Chukotka, Russian Federation

Background

Over the last forty years, Chukotkan Native subsistence hunters have occasionally noticed a peculiar smell associated with exhalations and tissues from eastern North Pacific gray whales. Over the last ten years, the number of "stinky" whales (as they have been termed) appears to be rising, though the increase is somewhat difficult to assess and the number of affected whales varies from year to year. Affected whales have been reported between the months of May and October. Often, these whales are malodorous enough to allow hunters to avoid them via the detection of the exhaled odor from their blow if the conditions are favorable (e.g. wind direction) and the hunters are experienced. When detected, hunters avoid striking those whales, but in some cases stinky whales are still inadvertently taken. Hunters report that sometimes the stinky whale odor appears only during butchering whales or cooking whale meat. The smell has been described as "medicinal". People who have eaten tissues from these whales have described numbness/tingling in their oral cavity and physiological reactions such as skin rashes or stomach aches. Tissues from these stinky whales are considered inedible and public health concerns have been raised related to their consumption. No actual evaluation by public health officials has been done on the clinical symptoms reported by hunters. In all cases of the above mentioned symptoms, the person recovered with no reported long term medical consequences. It will be important for health care professionals to evaluate the signs and symptoms reported. Hunters have also noticed a similar odor in walruses, ringed seals, bearded seals, seabird eggs and some species of fish. When encountered, these subsistence foods are considered abnormal and are not eaten.

Investigative approach

At the 58th session of the IWC, an investigation team of scientists from Russia, USA, Norway, Mexico, and Japan was established to research the "stinky" whale phenomena. Multiple gray whales taken in the Chukotkan subsistence hunt were investigated. Some of these samples were analyzed for contaminants in the U.S., while others, taken from subsequent years, were analyzed in Russia. These samples and analyses are summarized in the 2007 IWC gray whale summary paper to the Conservation Committee (IWC/59/CC 15). In short, the cause of the stinky whale odor has not been determined. Sample quality and preservation were noted as having a negative effect on analyses, as the samples from earlier years had undergone several freeze-thaw cycles, an extended shipment period in a non-frozen state and a significant period of time had elapsed between sample collection and analysis. Several recommendations were made for improving future collections which we have tried to incorporate into our current efforts.

2008 Results

There were officially a total of ten stinky whales reported in Chukotka in 2008. Samples were collected from eight of these whales and collection efforts were made by two groups: the US/Russian cooperative group (NSB-DWM/ChukotTINRO) and researchers from MUP "Keper". Representatives from ChukotTINRO (S.Blokhin) were eventually able to reach the field site and collected samples from four subadult whales: two of these were considered normal and two were considered inedible (stinky) (Table 1). An additional seven stinky whales were sampled via an alternate research effort completed by A. Ottoy. Samples collected by both research groups (n=10) are combined and summarized in **Table 1**. No formalinized samples were obtained in 2008, though formalin was shipped to the field site and will be available for future sample preservation.

Based on discussions at IWC/60 regarding the evaluation of flame retardants in gray whale samples, blubber samples collected during the 1994 and 2001 subsistence harvests and archived in the U.S. are currently being analyzed by the U.S. National Marine Fisheries Service laboratory for polybrominated diphenyl ether (PBDE) flame retardants and other classes of persistent organic pollutants that were not measured previously in these samples and for which new techniques have been developed. These results will be available at IWC/62

The North Slope Borough Department of Wildlife Management (NSB-DWM) will continue to support field research efforts in 2009, and funding has been obtained for additional Chukotkan marine mammal work in 2010 and 2011. This research will be a collaborative effort between NSB-DWM, ChukotTINRO, ATMMHC, Chukotkan Science Support Group, VNIRO and several local Chukotkan Native groups. As with 2008, samples from eastern North Pacific gray whales will be collected for histopathology, chemical contaminant analyses, biotoxin analyses, nutritional analyses, and prey identification. Morphometric measurements will be taken, including information on body condition (i.e., girths, blubber thickness) and skin lesions. Additionally, samples from other local subsistence foods exhibiting a similar smell (i.e., seal, walrus, fish, seabird eggs) will be collected on an opportunistic basis. Samples will be collected in triplicate, stored in Russia until permits are obtained and will then be split between Russian, Japan and US laboratories. Local field assistants will receive training in proper sample collection, processing, and storage techniques and will receive sampling supplies and storage equipment, in hopes of encouraging additional sample collections and improving sample quality. Analyses and publications will be a cooperative effort between Russia, Japan and the United States.

The Russian researchers have indicated interest in having toxicology and other chemical analyses performed at Moscow State University and genetic analyses done by the researchers at VNIRO. The specific U.S. and Japanese laboratories for the analyses have not been determined, as funding for the analytical work has not been secured. A similar funding situation exists in Russia. It is our hope that the sample analyses and interpretation will continue collaboratively between the field collection teams and the analytical teams in the three countries when funding becomes available for analyses. In addition to the concerns about the stinky whale condition, the IWC workshop on Whales and Climate Change has recommended studies on Eastern North Pacific gray whales as one of three species critical to understanding impacts of climate change in the Arctic (SC/61/Rep4). We hope that collaboration between the scientific teams will develop and work towards a greater understanding of this population.

Table 1. Samples collected in Lorino village, Chukotka, Russia during the summer of 2008.

#	Date	Sex	Length (m)	Condition	Blubber Depth (cm)	Specimens collected 2008											
						Blubber/skin	Stomach cont	mus	liver	kidney	Eye	Skin/ spleen	Blood	Feces	Baleen	Brain	Collector
1	20-7	M	9.39	normal	9.3	●	●	●	●	●	● R	●	●	●		●	S.Blokhin
2	23-7	F	8.99	normal	9.0	●	●		●	●	● L	●	●	●	●	●	S.Blokhin
3	12-8	F	12.40	Stinky		●											S.Blokhin
4	06-8	M	8.05	Stinky	10.5	●	●	●	●	●	● L	●	●	●		●	S.Blokhin, A.Ottoy
5	31-7	M	8.10	Stinky		●		●	●								A.Ottoy
6	07-8	M	8.90	Stinky	8.0	●		●	●								A.Ottoy
7	29-8	F	12.00	Stinky		●		●	●								A.Ottoy
8	3-9	M	11.05	Stinky		●		●	●								A.Ottoy
9	4-9	F	12.30	Stinky		●											A.Ottoy
10	16-9	F	13.40	Stinky		●											A.Ottoy