UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

THE DIRECTOR

Susan Childs
Regulatory Affairs Manager, Alaska Venture
Shell Exploration and Production
3601 C Street, Suite 1000
Anchorage, Alaska 99503

JUN 23 2010

Dear Ms. Childs:

On December 24, 2009, Shell submitted an application to the National Marine Fisheries Service (NMFS) for the taking, by harassment, of marine mammals incidental to several marine surveys designed to gather data relative to site clearance and shallow hazards, ice gouge, and strudel scour in selected areas of the U.S. Beaufort Sea and ice gouge in the U.S. Chukchi Sea. Shell intends to conduct these marine surveys during the 2010 Arctic open-water season (July through October).

Before NMFS can issue an Incidental Harassment Authorization (IHA), the Marine Mammal Protection Act (MMPA) requires that monitoring plans be independently peer reviewed "where the proposed activity may affect the availability of a species or stock for taking for subsistence uses" (16 U.S.C. 1371(a)(5)(D)(ii)(III)). Regarding this requirement, NMFS' implementing regulations state, "Upon receipt of a complete monitoring plan, and at its discretion, [NMFS] will either submit the plan to members of a peer review panel for review or within 60 days of receipt of the proposed monitoring plan, schedule a workshop to review the plan" (50 CFR 216.108(d)).

NMFS convened an independent peer review panel to review Shell's Marine Mammal Monitoring and Mitigation Plan (4MP) for the Open Water Marine Survey Program in the Beaufort and Chukchi Seas, Alaska, during 2010. The panel met on March 25 and 26, 2010, and provided their final report to NMFS on April 22, 2010. NMFS has reviewed the report and evaluated all recommendations made by the panel. NMFS has determined that there are several measures that Shell can incorporate into its 2010 Open Water Marine Survey Program 4MP to improve it. Additionally, there are other recommendations that NMFS has determined would also result in better data collection, and could potentially be implemented by oil and gas industry applicants, but which likely could not be implemented for the 2010 open-water season. While it may not be possible to implement those changes this year, NMFS believes that they are worthwhile and appropriate suggestions that may require a bit more time to implement, and Shell should consider incorporating them into future monitoring plans should Shell decide to apply for IHAs in the future.

The attachment to this letter clearly lays out the measures that NMFS recommends for implementation as part of the 2010 Open Water Marine Survey Program 4MP and those that are recommended for future programs. Additionally, there were some recommendations which NMFS believed required clarification before a final decision could be made as to whether or not

they could be put forth to the applicants. Upon receiving this clarification, NMFS will make a final determination about whether or not to recommend it for future monitoring plans. A copy of the panel's full report is enclosed for your information. Section 3 of the report contains recommendations that the panel members felt were applicable to all of the monitoring plans that they reviewed this year. Section 4.4 of the report contains recommendations specific to Shell's Open Water Marine Survey Program 4MP.

NMFS intends to send a separate letter at a later date regarding the panel members' recommendations concerning Shell's Beaufort and Chukchi Seas exploratory drilling programs. Although exploratory drilling will not be conducted this year, Shell should consider incorporating the recommended measures into future monitoring plans should Shell decide to apply for IHAs in the future.

Once you have had a chance to review the recommendations, we would like to schedule a conference call with you to discuss implementation. If you have any questions or concerns, please contact Shane Guan at 301-713-2289 ext. 137 or Shane.Guan@noaa.gov, Candace Nachman at 301-713-2289 ext. 156 or Candace.Nachman@noaa.gov, or Jolie Harrison at 301-713-2289 ext. 166 or Jolie.Harrison@noaa.gov.

Sincerely,

James H. Lecky
Director
Office of Protected Resources

Enclosures

Attachment

Recommendations for Inclusion in the 2010 4MP and IHA

- Section 3.3 of the report contains several recommendations regarding marine mammal observers (MMOs). NMFS agrees that Shell should incorporate these recommendations into the 4MP, which are listed below and can also be found on pages 5-6 of the report. With regard to MMOs, NMFS recommends:
    - Observers should be trained using visual aids (e.g., videos, photos), to help them identify the species that they are likely to encounter in the conditions under which the animals will likely be seen.
    - Observers should understand the importance of classifying marine mammals as "unknown" or "unidentified" if they cannot identify the animals to species with confidence. In those cases, they should note any information that might aid in the identification of the marine mammal sighted. For example, for an unidentified mysticete whale, the observers should record whether the animal had a dorsal fin.
    - Observers should attempt to maximize the time spent looking at the water and guarding the safety radii. They should avoid the tendency to spend too much time evaluating animal behavior or entering data on forms, both of which detract from their primary purpose of monitoring the safety zone.
    - Big eye' binoculars (e.g., 25 x 150 power) should be used from high perches on large, stable platforms. They are most useful for monitoring impact zones that extend beyond the effective line of sight. With two or three observers on watch, the use of big eyes should be paired with searching by naked eye, the latter allowing visual coverage of nearby areas to detect marine mammals. When a single observer is on duty, the observer should follow a regular schedule of shifting between searching by naked-eye, low-power binoculars, and big-eye binoculars based on the activity, the environmental conditions, and the marine mammals of concern.
    - Observers should use the best possible positions for observing (e.g., outside and as high on the vessel as possible), taking into account weather and other working conditions.
    - Whenever possible, new observers should be paired with experienced observers to avoid situations where lack of experience impairs the quality of observations. If there are Alaska Native MMOs, the MMO training that is conducted prior to the start of the survey activities should be conducted with both Alaska Native MMOs and biologist MMOs being trained at the same time in the same room. There should not be separate training courses for the different MMOs.
- In Section 3.4, panelists recommend collecting some additional data to help verify the utility of the "ramp-up" requirement commonly contained in IHAs. To help evaluate the utility of ramp-up procedures, the Service should require observers to record and report their observations during any ramp-up period. An analysis of what these observations allow us to conclude regarding the effectiveness of ramp-up should be included in the monitoring report. The Service also should support specific studies using multiple types of monitoring (visual, acoustic, tagging) to evaluate how marine mammals respond to increasing received sound levels. Such information should provide useful evidence as to whether ramp-up procedures are an effective form of mitigation" (page 7).

- Among other things, Section 3.5 recommends recording visibility data because of the concern that the line-of-sight distance for observing marine mammals is reduced under certain conditions. MMOs should "carefully document visibility during observation periods so that total estimates of take can be corrected accordingly" (page 8).
- Section 4.4 of the report contains recommendations specific to Shell's Open Water Marine Survey Program 4MP. Of the recommendations presented in this section, NMFS has determined that the following should be implemented for the 2010 season (page 21):
    - Summarize observation effort and conditions, the number of animals seen by species, the location and time of each sighting, position relative to the survey vessel, the company's activity at the time, each animal's response, and any adjustments made to operating procedures. Provide all spatial data on charts (always including vessel location).
    - Make all data available in the report or (preferably) electronically for integration with data from other companies.
    - Accommodate specific requests for raw data, including tracks of all vessels and aircraft associated with the operation and activity logs documenting when and what types of sounds are introduced into the environment by the operation.

Recommendations for Inclusion in Future Monitoring Plans

- Section 3.5 of the report recommends methods for conducting comprehensive monitoring of a large-scale seismic operation. One method for conducting this monitoring recommended by panel members is the use of passive acoustic devices (page 8). Additionally, Section 3.2 of the report (page 4) encourages the use of such systems if aerial surveys will not be used for real-time mitigation monitoring. NMFS acknowledges that there are challenges involved in using this technology to detect bowhead whale vocalizations in conjunction with seismic airguns in this environment, especially in real time. However, NMFS recommends that Shell work to help develop and improve this type of technology for use in the Arctic (and use it once it is available and effective), as it could be valuable both for real-time mitigation implementation, as well as archival data collection.
- Section 3.5 of the report recommends methods for conducting comprehensive monitoring of a large-scale seismic operation. The panelists recommend adding a tagging component to monitoring plans. "Tagging of animals expected to be in the area where the survey is planned also may provide valuable information on the location of potentially affected animals and their behavioral responses to industrial activities. Although the panel recognized that such comprehensive monitoring might be difficult and expensive, such an effort (or set of efforts) reflects the complex nature of the challenge of conducting reliable, comprehensive monitoring for seismic or other relatively-intense industrial operations that ensonify large areas of ocean" (page 8). While this particular recommendation is not feasible for implementation in 2010, NMFS recommends that Shell consider adding a tagging component to future seismic survey monitoring plans should Shell decide to conduct such activities in future years.
- To the extent possible, NMFS recommends implementing the recommendation contained in the fourth bullet of section 4.4.6 on page 21 for the 2010 season: "Integrate all observer data with information from tagging and acoustic studies to provide a more comprehensive description of the acoustic environment during its survey." However,

NMFS recognizes that this integration process may take time to implement. Therefore, Shell should begin considering methods for the integration of the observer data now if Shell intends to apply for IHAs in the future.

- In Section 3.4, panelists recommend collecting data to evaluate the efficacy of using forward-looking infrared devices (FLIR) vs. night-vision binoculars. The panelists note that while both of these devices may increase detection capabilities by MMOs of marine mammals, the reliability of these technologies should be tested under appropriate conditions and their efficacy evaluated. NMFS recommends that Shell design a study to using both FLIR and night-vision binoculars and collect data on levels of detection of marine mammals using each type of device (page 7 of the report).