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**Preliminary results of the NGO monitoring of seismic geophysical explorations at the
Lebedinskoye field, July-September 2010**

Submitted by: NGOs

WWF – IFAW Russia - Pacific Environment Sakhalin - Environment Watch
November 2010

Report to Western Gray Whales Advisory Panel (GWAP-IUCN)
Preliminary results from the monitoring of seismic geophysical explorations in the Lebedinskoye area between July and September 2010, and the impacts on Western North Pacific Gray whales.

In the period of August-November 2010, the “Rosneft” branch company (“Rosneft-Shelf-FarEast” (RNSFE)) conducted a geophysical survey involving marine geoseismic acquisition (seismic survey) in the Lebedinskoye license area. This survey had the potential to threaten the critically endangered Western North Pacific Gray Whale (WGW), and was conducted despite a concerted international appeal urging both Rosneft and the Russian state regulators to postpone seismic survey until 2011. The license area is located nearshore of Sakhalin Island, within the feeding area of the WGW. A substantial number of governments, international conservation organizations and scientists had expressed grave concerns that the planned seismic survey may compromise the survival of WGW and petitioned RNSFE to reschedule the acquisition so that it was conducted during a period when whales are not present in the area.

RNSFE had developed and publically announced specific measures to mitigate the impact of the seismic survey on whales. These measures included safety buffer zones, ramp-up procedures (the step by step increase in the power of the airgun array,) and shut down criteria, i.e. RNSFE had confirmed that no seismic acquisition would occur during poor visibility or at night. The mitigation measures also included real time acoustic monitoring of the area to reduce the impact of industrial noise on WGWs.

An NGO coalition including WWF Russia, IFAW Russia, Pacific Environment and Sakhalin Environment Watch collaboratively sponsored and conducted monitoring of the seismic survey to document its potential impact on WGWs, and to evaluate RNSFE’s compliance with its own mitigation measures. The field team of NGO observers was led by Anna Kaminskaya.

Objectives

- Conduct shore based observations of WGW abundance, behavior and spatial distribution during marine geoseismic acquisition in the Lebedinskoye license area;
- Document compliance of RNSFE with its own mitigation measures and assess their efficiency in reducing the impact of the operation on WGWs.

Study area

The seismic survey in the Lebedinskoye license area was to be conducted within the coordinates listed in Table 1 (also shown in figures 1 and 2). Recently, RNSFE reported that during the acquisition the scope was changed and the actual survey area may differ from one planned originally. The final geographical scope of the survey remains unknown during preparation of this preliminary report.

Table 1. Coordinates (planned) of the seismic survey area in the “Lebedinskoye” license area

	North	East
1	53°15'27.23”	143°13'39.57”
2	53°16'14.45”	143°15'26.57”
3	53°14'05.00”	143°16'33.00”
4	53°11'18.71”	143°17'57.44”
5	53°11'22.03”	143°15'05.68”

The marine part of the Lebediskoye license area is located in the near shore waters with depths ranging from 0 to 15 m. The length of the area from North to South is approximately 9.5 km with the width about 3 km. (Figure 1).

For most of the ice-free period (June- November) this area is a part of the only known feeding ground of the critically endangered WGW. The area is located in the northern third of the “inshore” WGW feeding area and is actively utilized by whales throughout the feeding period. Nearshore waters of the feeding area are a critical habitat for females with calves, which remain within first two kilometers offshore for most of the feeding period. Survival of the yearlings largely depends on availability of nearshore prey sources.

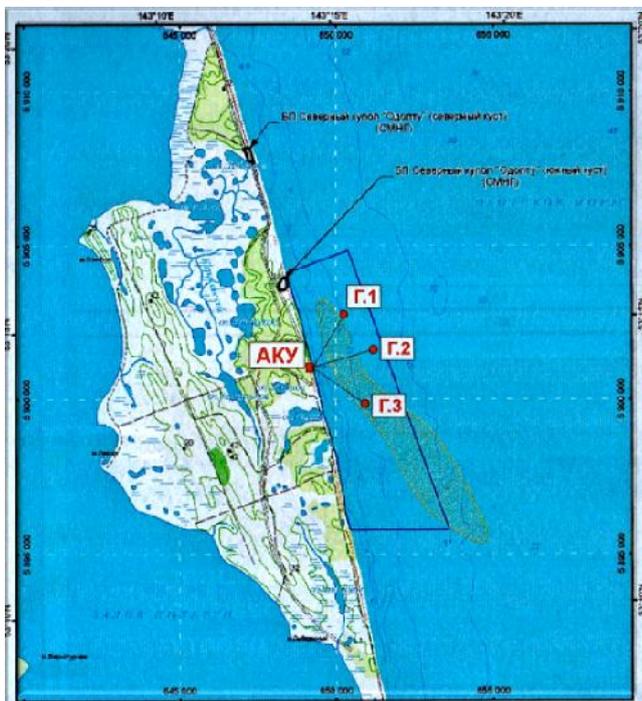


Figure 1. Schematic map of the northern Piltun spit and the area of marine seismic survey area at “Lebedinskoye” (blue line); red dots represent shore based acoustic monitoring station and 3 monitoring hydrophones).

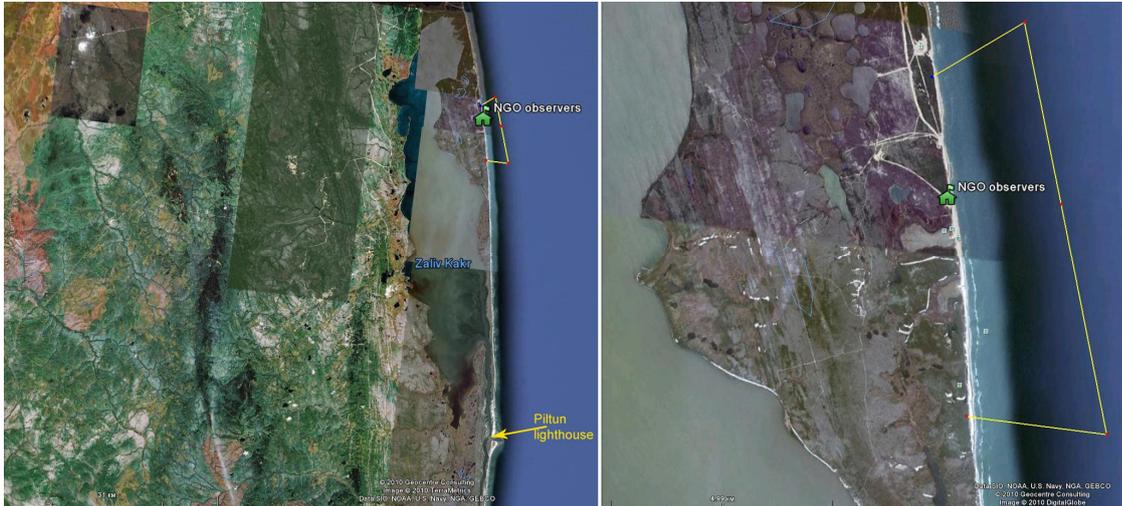


Figure 2. The green mark indicates the location of the NGO observation station. The yellow contour represents the area of marine seismic survey area at “Lebedinskoye”.

Methods

Observations were conducted from fixed observation stations. Due to the small data set collected, only data collected from the primary station indicated in Figure 2 were used for the purposes of this report. This observation point was located approximately in the middle of the seismic survey area (53°13,931'N 143°14,263'E). The observation station height was 18m (figure 2).

The monitoring team consisted of 3 observers, two of which had extensive multi-year experience in shore based whale observations. In the beginning the observations were conducted only by the observers with previous experience until the skills and capabilities of the third observer were verified in the field.

Observations (scans) were conducted using hand held 8x50 binoculars; distant pod composition was occasionally verified using 22 power binoculars. Observations were conducted every third hour given good weather conditions in accordance with standard protocol. Each scan lasted 30 minutes and was conducted by two observers scanning the study area from the sides to the centre, so each observer scanned half of the study area within the 30 minute time frame. The third member of the team was responsible for recording the data.

Observations of whale distribution and behavior as well as on the activity of the “seismic” vessels were conducted daily (weather permitting) during daylight hours. The data was collected under standard weather conditions permitting appropriate data collection: i.e. visibility ≥ 3 km, Beaufort scale ≤ 4 . For each WGW pod, data on bearing, distance, number of whales, behavior, and direction of movement were recorded along with the date, time and weather conditions. Unfortunately observers did not have access to distance measuring tools, therefore the distance of whales to shore was estimated based on observer experience. Observers conducted “self adjustment” training prior to the commencement of the

study, using the opportunity to calibrate distance estimations using the theodolite of the neighboring team. The post training tests indicated a margin of error in distance from shore estimates ranging from 150-250m.

Observations were conducted in accordance with standard protocols regardless of the presence of vessels within the sight range and regardless of the activities of those vessels.

Whenever possible, observers recorded information on time, duration and types of maritime activities within the study area, as well as on measures RNSFE was undertaking to mitigate the impact of its seismic survey on WGW.

Results

1. Field effort.

Observations were conducted in two periods: 16 July-30 August and September 17-25. Due logistical issues, no observations were conducted in first 16 days of September. In total monitoring effort lasted 55 days: 16 days in July, 30 days in August and 8 days in September. At least one scan was conducted on 35 of the 55 days, including 5 days when changing weather conditions (fog) prevented full completion of the scans. A total of 176 scans were conducted under acceptable weather conditions.

2. Industrial activity

Seismic vessels first arrived in the study/seismic area on the 11th August. Vessels were active in the area from this date onwards, including in the immediate feeding area of the first 3-4 km from shore. The authors have no information about the specific activities of these vessels, and the underwater noise that may have resulted.

Sesimic shooting was first detected on the 20th August at 21:15, lasting until 01:50 on the 21st August. This was a 'test' shooting, and was followed by a long pause in shooting to allow for various adjustments. Some seismic shooting may have occurred between 20th August and 20th September but this was not observed by the field team.

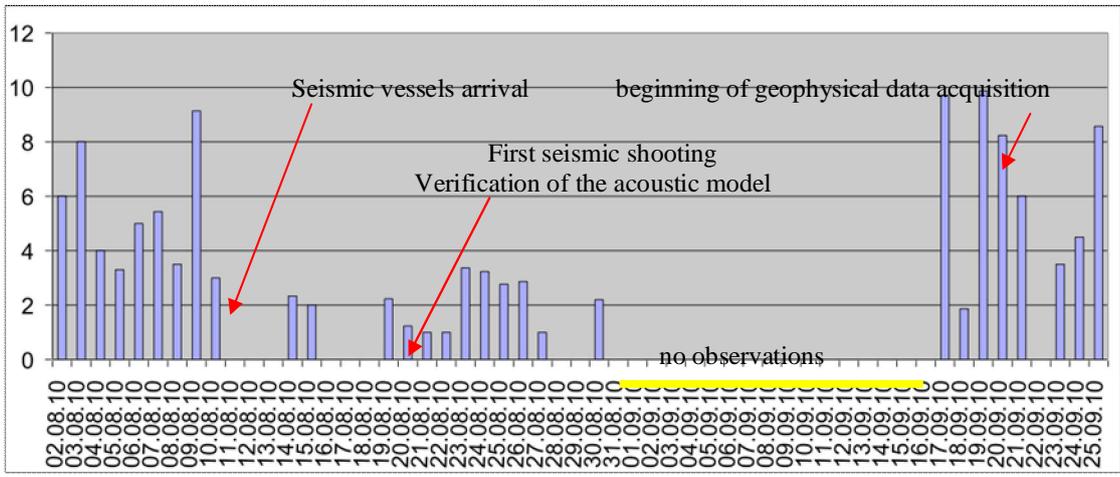
The seismic survey proper commenced on the 20th September and was planned to continue until 20th November.

An independent analysis of the airguns that were to be used during the survey revealed that the potential acoustic impact of the airguns was likely to be greater than RNSFE had previously stated.

3. Whale abundance.

Throughout the period of observation the number of whales in the study area ranged from 0 to 15 animals per scan. The average number of whales per scan for each day of observation is represented in Figure 3. Throughout the period of observation there was no instance when whales were not sighted in the study area for the whole day. Blank space on the graph indicates no observations either due weather or absence of the team on site.

Figure 3 Daily average number of whales per scan



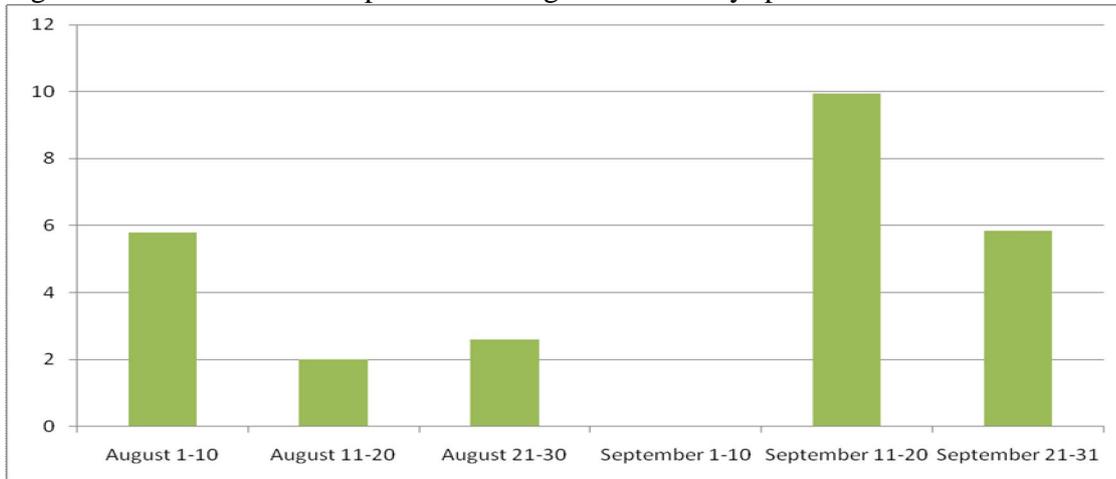
Figures 3 and 4 show that in the second 10 day period (from 10-20th August) the number of whales in the area decreased to almost half the number of whales observed during the first 10 days of August. This decrease in number of whales coincided with the arrival of seismic vessels in the area (11th August) and RNSFE’s preparations for seismic acquisition. In the absence of acoustic data and detailed information on the activities undertaken by vessels in the area, it is not possible to conclude that the observed changes in whale abundance were caused by the increased anthropogenic disturbance in the area. Nonetheless, it could be hypothesized that WGW avoidance of the area was in response to increased vessel traffic.

On the 20th August, observers recorded loud noise pulses at sea during the night. RNSFE clarified during a meeting with the Ministry in November that they were verifying the seismic equipment during this period. No such activity was recorded on the following days, however the number of whales notably decreased relative to the previous period and remained low for next two days, despite no additional shooting occurring (Figure 3).

Lack of the information on time, duration and type of anthropogenic activity conducted within the area means that it is difficult to explain the low numbers of whales during August 20-22. However it is possible that the decrease could have been caused by the seismic acquisition within the whales feeding area which occurred on 20th – 21st August. The subsequent increase in the number of whales which started on August 23rd could represents a return of the whales to their preferred feeding areas following a “seismic free” period.

A similar trend was observed during the second monitoring period (17 – 25th September). On the 20th September observers recorded another seismic shooting activity, which was identified by audible acoustic pulses. For unknown reasons, no seismic shooting was conducted on following days (21-25th September). Following the shooting on the 20th September the number of whales decreased for few days and then started to return to pre-seismic September levels. The average number of whales during the “pre-seismic” September period (17-20th September) was almost twice higher than during the “post seismic” period (9,98 and 5,85 respectively). Unfortunately, the small sample size does not allow for an assessment of the statistical significance of these findings.

Figure 4. Number of whales per scan averaged over 10 days period.



4. Compliance of RNSFE with its mitigation measures.

One of the objectives of this monitoring study was to document the compliance of RNSFE with its own “whale safety” mitigation measures during seismic testing and associated activities.

According to public announcements made by RNSFE, the key mitigation measures were to include:

- a. No seismic acquisition during poor visibility or at night;
- b. Seismic acquisition should be preceded by scanning the area for at least 30 minutes to detect any WGW in the area, and following ramp-up procedures (i.e. “step by step” start up of the airgun array);
- c. Delay and/or shut down of seismic acquisition would occur if a WGW is sighted at a distance of $\leq 2500\text{m}$ from the vessel;
- d. Deviation from course or full stop of large ships (including shut down of airguns) and support vessels would occur if a WGW is located within a 1000m safety radius

Despite these (and some other) mitigation measures, observers repeatedly recorded support vessels cruising at full speed in direct vicinity (150-300m) of WGWs, which caused disruption of WGW behavior and triggered a departure of WGW from the area. On several occasions support vessels cruising too close to WGWs caused repeated breaching and an immediate avoidance reaction (i.e. WGW leaving the area at speed), resulting in disruption of feeding. Detailed analysis of WGW behavioral data collected by the observers is currently underway.

RNSFE noncompliance with their own “whale safety” mitigation measures include seismic shooting conducted during the night, when it would be impossible to detect whether WGW were within the “safety radius”. The continuation of seismic testing after daylight hours was also reported by the Rosprirodnadzor inspection, which was motivated by a joint WWF/SEW appeal (see attachment 1, Rosprirodnadzor letter).

Conclusion

Unfortunately, a lack of detailed information on the time, duration and type of industrial activities which were conducted by RNSFE during the seismic geophysical acquisition does not permit appropriate analysis of the data collected in this study to evaluate the impact RNSFE's industrial activities on WGW. Nonetheless, observations conducted in July-September 2010 indicated that an increase in industrial disturbance (vessel traffic, seismic shooting) coincided with a decrease in whale numbers within the study/seismic area. Whilst the dataset is too small to derive a statistically significant change, it can be hypothesized that these industrial activities may have led to the displacement of whales from their preferred feeding area. In September, it was also observed that the numbers of WGW in the study/seismic area increased a few days after industrial disturbances were reduced (ie seismic acquisition was no longer being undertaken.)

Due logistic difficulties, observers were not able to remain on site after 25th September. The full scale RNSFE seismic survey started on the 20th September and was planned to last until 20th November. This study therefore only covers the preliminary stages of the seismic survey – the impacts of the seismic survey past 25th September are unknown.

It must be noted that despite the public announcement of RNSFE that it would adopt “whale safety” mitigation measures, RNSFE repeatedly violated mitigation measures listed in the Company's “Plan of measures to reduce the effects [of the seismic survey] on marine mammals”. These violations include acquisition of geophysical data at night.

Results presented here are of preliminary nature and may be verified and/or supplemented as a result of further analysis.

ATTACHMENT 1

FEDERAL SERVICE FOR OVERSIGHT OF
NATURAL RESOURCE USE
**FAR EASTERN FEDERAL DISTRICT
DEPARTMENT OF THE FEDERAL
SERVICE FOR OVERSIGHT OF
NATURAL RESOURCE USE**
(Far Eastern Federal District Department of
Rosprirodnadzor)

TO:
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13.10.2010 No. 8-12/3794

No. _____ from _____

Dear Evgeny Arkadievich,

The Far Eastern Federal District Department of Rosprirodnadzor reviewed your letter No. 277, dated 24.08.2010, regarding the impacts to the Western Pacific Grey Whale population from seismic testing conducted by the company CJSC “RN-Shelf-Dalny Vostok”. The Far Eastern Federal District Department conducted an unscheduled review of CJSC “RN-Shelf-Dalny Vostok” project documents for correspondence to the documentation for conducting seismic testing activities at the Lebedinskoe field in the Sea of Okhotsk.

During the review, it was determined that CJSC “RN-Shelf-Dalny Vostok” is conducting its seismic testing activities at the Lebedinskoe field in the Sea of Okhotsk per license No. ShOM 14145 NP, dated 04.07.2007, and in accordance with the seismic testing program approved via a State Expert Environmental Review for a 1-year period, which was validated with Rosprirodnadzor decree No. 396, dated 19.05.2010. The company has on-site a copy of the “Program for Monitoring and Reducing Impacts to Marine Mammals While Conducting Seismic Testing Activities at Lebedinskoe Field in 2010”. The company CJSC “RN-Shelf-Dalny Vostok” developed a protocol to prevent and reduce noise impacts to marine mammals, which incorporates Russian Federation Research Institute of Fishery and Oceanography specifications and Joint Nature Conservation Committee (JNCC) recommendations for reducing disturbances and harm to marine mammals when conducting offshore seismic testing.

It is true that in certain instances, when the air guns were employed during daylight hours and, as prescribed by the program, continued to emit signals after dark in order to complete the testing cycle. At these times, all recommendations prescribed by the Program for Monitoring and Reducing Impacts to Marine Mammals While Conducting Seismic Testing were observed. During seismic testing activities, qualified biologists were onboard the testing ships to

implement the monitoring program; also onboard was a coordinating specialist that coordinated the activities of the visual and the acoustic monitoring teams with the head of the seismic testing team if whales were sighted. Seismic testing equipment was silenced 8 times between 19.08 and 10.09.2010 by order of the monitoring program coordinator, because of the possibility that marine mammals had crossed the boundaries of the safety zone.

There were no recorded instances of negative impacts to the Western Pacific Grey Whale population.

Department Director

A handwritten signature in black ink, appearing to be 'P.F. Titkov', written in a cursive style.

P.F. Titkov