WESTERN GRAY WHALE ADVISORY PANEL **WGWAP-13**

13th Meeting **15-17 May 2013**

Tokyo, Japan

REPORT OF THE WESTERN GRAY WHALE ADVISORY PANEL AT ITS THIRTEENTH MEETING

Note: This is the report of the Panel based on discussions at the 13th WGWAP meeting and not simply a report of the public section of the meeting. The Panel meeting comprises public and private sessions. While this report provides a summary of the public sessions, the report and its recommendations are developed by the Panel during its private sessions and after the meeting by correspondence. The report may contain information and recommendations that were not discussed during the public sessions. The Panel sends a first draft of its report to Sakhalin Energy to ensure that no factual errors are included (a 'fact check') but the report in its final form is the sole responsibility of the Panel.

CONVENED BY THE INTERNATIONAL UNION FOR CONSERVATION OF NATURE

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ACRONYMS

AIC	Akaike Information Criterion
AUAR	Autonomous Underwater Acoustic Recorder
CIS	Commonwealth of Independent States
CMP	Conservation Management Plan
Company	Sakhalin Energy Investment Company
DDT	Dichlorodiphenyltrichloroethane
EIA	Environmental Impact Assessment
EMTF	Environmental Monitoring Task Force
ENL	Exxon Neftegas Limited
FRC	Fast Response Cutter (with jet drive)
GBS	Gravity-based structure
GEF	Global Environment Facility
HCH	Hexachlorocyclohexane
HSE	Health, Safety and Environment
IBM	Institute of Marine Biology (Vladivostok, Russia)
IFAW	International Fund for Animal Welfare
IFC	International Finance Corporation
IISG	Interim Independent Scientist Group
IPEE RAS	A.N. Severtsov Institute for Ecology and Evolution of the Russian Academy of Sciences
ISRP	Independent Scientific Review Panel
IUCN	International Union for Conservation of Nature
IWC	International Whaling Commission
IWG	Interdepartmental Working Group for the Conservation of Western Gray Whales under the Russian Federation Ministry of Natural Resources and Environment
JPTF	Joint Programme Task Force
LNG	Liquid Natural Gas
MMO	Marine mammal observer
MNRE	Ministry of Natural Resources and Ecology of the Russian Federation
MVA	Multivariate analysis
NGO	Non-Governmental Organization
NTF	Noise Task Force
OSR	Oil Spill Response
OPF	Oil Processing Facility
PA	Piltun Area
PBDE	Polybrominated Diphenyl Ether
PCAD	Population Consequences of Acoustic Disturbance
PCB	Polychlorinated Biphenyl
PCoD	Population Consequences of Disturbance
POI	Pacific Oceanological Institute
RHIB	Rigid Hull Inflatable Boats
RMS	Root-Mean-Square

RPN	Rosprirodnadzor - Federal Service for Supervision of Natural Resources Usage of the Russian Federation
SALM	Single Anchor Leg Mooring
SPL	Sound Pressure Level
SSTF	Seismic Survey Task Force
UNDP	United Nations Development Programme
VNIRO	Russian Federal Research Institute of Fishery and Oceanography
WCC	IUCN World Conservation Congress
WGWAP	Western Gray Whale Advisory Panel

EXECUTIVE SUMMARY

The 13th meeting of the Western Gray Whale Advisory Panel (WGWAP) was held in Tokyo on 15-17 May 2013.

IUCN reported progress on various aspects of WGWAP business including an improved method of tracking Panel recommendations on the website, developing mapping and other information tools and closer coordination with the IWG.

Sakhalin Energy reported that a final investment decision for the South Piltun project had not yet been taken and timing of the decision would depend on ongoing review of various factors. The Company also reported that a decision had been taken not to drill an appraisal well at South Piltun in 2014. Although no seismic work is planned by Sakhalin Energy for 2013 or 2014, the Company is planning for a 3D/4D survey of Piltun Astokh in 2015 and foresees repeat surveys at approximately 3-year intervals thereafter. The Panel **requested** that Sakhalin Energy provides at the next meeting a clearer explanation of why the Company foresees needing to conduct seismic surveys at such frequent intervals and how it has addressed the question of potential alternatives to frequent and extensive airgun surveys.

ENL recently announced plans for pier construction inside Piltun Lagoon between June 2014 and October 2015. Barges are expected to reach the pier construction site through the lagoon mouth. The Panel is seriously concerned about the potential for noise disturbance from the barge traffic. Assuming on-time completion, the pier would be used through 2017.

IUCN led a workshop within the meeting to address the development of a roadmap and a stock-taking document. At the end of this workshop, IUCN stated its intention to take the lead in developing the roadmap and the stock-taking document after considering views expressed at the workshop and in follow-up consultations with Panel members, Sakhalin Energy and stakeholder groups that have been involved in the WGWAP process.

Regarding cumulative impacts, the Panel is interested in learning more about an ongoing project on gray whales that employs the Population Consequences of Acoustic Disturbance (PCAD) framework. The Panel would like to receive a presentation at its first meeting in 2014 so that members will gain an improved understanding of the potential and limitations of PCAD.

The Panel is concerned about the failure to move ahead with an analysis of hypotheses concerning functional links between estuarine effluents of Piltun Lagoon and the foraging ecology and distribution of gray whales off Sakhalin; this is an important component of determining and assessing potential threats to western gray whales. Such an analysis (including a major literature review) was recommended by the Environmental Monitoring Task Force (EMTF) in December 2011 and subsequently by the Panel. At this meeting, the Panel was informed that a literature review had been undertaken by privately by V. Fadeev (Sakhalin Energy believed that this obviated the need for the analysis recommended by the Panel). The Panel **recommended** that IUCN provides it with an English-language copy of this review and that an environmental analysis as outlined by the EMTF (if necessary revised in the light of the as yet unseen review by Fadeev) be included in the 2014 annual WGWAP budget.

An updated population assessment, based on photo-ID data, presented to the Panel meeting by Cooke concluded that the number of gray whales regularly feeding off Sakhalin has continued to increase at around 3%/year. The results also indicate that the Sakhalin feeding aggregation has been demographically self-contained, at least in recent years, in the sense that the only new recruits appear to be calves born to mothers within the group, even though satellite telemetry and individual identification studies have shown that at least some Sakhalin whales migrate to common gray whale breeding grounds in the eastern North Pacific.

Although not all features of the data have been fully explained, the Panel considers these results to constitute the best available scientific assessment of the animals regularly feeding off Sakhalin, including trends and variations in demographic parameters. The Panel strongly encouraged,

however, further investigation of the factors behind apparent differences in results obtained from using the data supplied by the different photo-ID teams working in the region, and that the assessment be refined based on the results of this investigation.

One of the recommendations of the Joint Programme Task Force in February 2013 was developed in detail by the Noise Task Force (NTF) at its meeting just prior to WGWAP-13. This led the Panel to **recommend** a controlled experiment comparing the sound signatures of two boat types – a Rigid Hull Inflatable Boat (RHIB) and a Fast Response Cutter (FRC) jet-drive – with the objective of determining whether the FRC is suitable for use (from a noise perspective) in the Joint Programme's photo-ID and biopsy work. The Panel also endorsed an NTF **recommendation** that detection algorithms be applied to acoustic records in order to identify periods of excessive noise (both impulsive and continuous).

Regarding future satellite tagging of gray whales, the Panel again acknowledged that tagging at Kamchatka would lead to interesting results and address important questions, but reaffirmed its view that the highest immediate priority should be at least one more tagging effort at Sakhalin Island, if possible in 2014.

The Panel **agreed** that Sakhalin Energy would go ahead with a proposed change to the vessel traffic corridor, initially on a provisional basis for one year period, for reconsideration at a future Panel meeting based upon a report from the Company concerning marine mammal observer effort, whale observations and recorded vessel speeds.

In general, during the years of the Panel process, insufficient time has been built into meeting schedules to allow for private Panel discussion, report preparation and discussions between IUCN staff and Panel members. While cognisant of the need to be financially responsible, the Panel is concerned that this has become even more problematic in recent years and is exacerbated when there is only one 3-day Panel meeting per year. Use of modern video technology can assist in some cases, but it is not sufficient for more complex issues. The Panel's responsibilities are broader than simply considering the activities of a single company. Increasing and new oil and gas activities off Sakhalin by other companies and emergent problems such as fishery conflicts at Sakhalin, as well as practical issues including resources and the website, require further work in conjunction with IUCN and others. The Panel's need for more meeting time must be addressed if it is to fulfil its advisory responsibilities.

1 OPENING

1.1 Introductory remarks

The thirteenth meeting of the Western Gray Whale Advisory Panel (WGWAP-13) was held at the Hotel Okura Tokyo, Japan, from 15-17 May 2013 under the chairmanship of R.R. Reeves. It was immediately preceded by the fourth meeting of the Noise Task Force (NTF) at the same venue on 12-13 May 2013. There was also a meeting of the Joint Programme Task Force (JPTF) in February 2013 in Gland, Switzerland.

Reeves welcomed the participants and noted that most recent observations of gray whales in East Asia outside Russia had been in Japan, including a young individual seen and photographed in southern Honshu in March 2012 (Kato et al. 2012). He also pointed out that a gray whale was seen and photographed a few days before this meeting in Walvis Bay, Namibia, the first documented occurrence of the species in the Southern Hemisphere.

All Panel members except Brian Dicks were present (Annex 1). Representatives of the following organisations also attended the meeting as Observers (see Annex 1).

ENVIRON Exxon Neftegas Limited (ENL) International Fund for Animal Welfare (IFAW), Japan International Union for Conservation of Nature (IUCN)	Mizuho Corporate Bank, Ltd Pacific Environment Standard Chartered WWF Russia

Following a practice established at the last WGWAP meeting (in Busan, Republic of Korea), IUCN invited a number of scientists and government officials in Japan to attend as 'local' Observers. Only one of these, Toshio Kasuya, a retired professor at Mie University and a recognised world expert on cetaceans, was able to attend. Mike Swindoll of Exxon Neftegas Limited (ENL) attended at the invitation of IUCN and the Panel was pleased by this development. Various officials in the Russian and Sakhalin Oblast governments were also invited to attend as Observers but were unable to participate. The Panel welcomed all of the Observers who attended the meeting and emphasised that it places great importance on their participation and support.

Tatiana Saksina and Anete Berzina of IUCN facilitated meeting preparations and logistics. Sarah Humphrey served as rapporteur. Interpreters Alexander Danilov and Grigory Shkalikov provided their usual excellent help with simultaneous Russian-English translation. The Panel sincerely appreciates the efforts by all of these individuals. Carl Gustaf Lundin, Director of IUCN's Global Marine and Polar Programme, gave a slide presentation on other IUCN panels and facilitated the Taking Stock/Roadmap portion of the meeting (see agenda Item 4).

1.2 Adoption of agenda

The draft agenda circulated prior to the meeting was adopted without any major change (Annex 2).

1.3 Documents

The list of documents is given in Annex 3. Those designated as public are available on the WGWAP website.[1]

1.4 Reporting procedures and timelines

Reeves noted that the Panel's anticipated report production schedule had not been met for the previous meeting and he wished to avoid setting up unrealistic expectations this time. In general,

[1] See at http://www.iucn.org/wgwap/wgwap/meetings/wgwap_13/

during the years of the Panel process, insufficient time has been built into meeting schedules to allow for private Panel discussion, report preparation and discussions between IUCN staff and Panel members. This situation has become worse in recent years and it must be addressed for future meetings if the WGWAP process is to function optimally (see agenda Item 11).

The timing of this meeting meant that those Panel members with major responsibilities in regard to the International Whaling Commission (IWC) Scientific Committee's annual meeting (beginning in late May 2013) would have difficulty meeting a tight report production schedule. Moreover, Sakhalin Energy was not planning any activities considered potentially disturbing to gray whales this year that would make it urgent for the Panel to provide advice prior to the open-water season. Therefore, it was agreed that the Panel would strive to have its report ready for publication on approximately 15 July 2013, with a two-week window before then for Sakhalin Energy to fact-check the draft report. The Company will provide its formal responses to new Panel recommendations within a month after release of the report (mid-August). [Note: The draft report was initially transmitted by the Panel to IUCN on 12 July 2013. IUCN required that revisions and additions, primarily with regard to the 'Roadmap' section, be made to the draft before forwarding it to the Company for fact-checking. Discussions between the Panel and IUCN meant that the 'final' draft could not be forwarded to the Company by IUCN until 19 August. Other commitments meant that Sakhalin Energy was not able to provide its comments on and corrections to the draft until 3 October. The revised final report was submitted by the Panel to IUCN on 15 October.]

Reeves drew the attention of participants to the WGWAP Rules of Procedure which had been circulated before this meeting. At the previous meeting (WGWAP-12) participants had been invited to submit comments on the rules to IUCN. No comments had been received and Reeves confirmed that the rules as presented in document WGWAP-13/5 would be applied at this and future meetings.

2 UPDATES

2.1 Outstanding business from previous meetings, including the status of recommendations

Reeves reported on progress towards ensuring that the cumulative list of Panel recommendations is up to date. There had been some delays owing to unanticipated inter-sessional work – notably the JPTF meeting and roadmap preparation. Work to update the status of recommendations had not been completed but progress had been made, notably on the noise recommendations at the NTF-4 meeting (see agenda Item 9) and on the recommendations from the JPTF meeting.

In the report of WGWAP-12 (item 2.1) it was suggested that a summary table showing the number of recommendations falling under each status category should be prepared by IUCN and circulated to participants before each meeting. Instead of such a table, Saksina presented a series of pie charts showing the number of recommendations in each of several status categories, by theme or topic.

While summaries are useful, the Panel noted the following cautionary statement that accompanies the list of recommendations on the WGWAP website: "… it is the Panel's expectation that those who use the [recommendations] database will do so with respect for the process, bearing in mind the limitations of such a database, including the fact that at any given point in time, many of the recommendations will not fit exactly into only one status category and some status designations may not be entirely up to date. In other words, the database should not be treated as a precisely kept scorecard of performance but rather as a mechanism to ensure that nothing important 'falls through the cracks' and that progress is always being made towards full compliance with the WGWAP Terms of Reference."

As discussed further below (see agenda agenda Item 11), at its next meeting the Panel expects to review the cumulative list of recommendations, update implementation status and consider how best to assess and track implementation.

Berzina described the recent work by IUCN to create an online database that allows the above-mentioned cumulative list of recommendations to be filtered by meeting, category, topic and status and to be searched by keyword in the recommendations texts and the database fields regarding responsible parties, references and Company responses. The Panel welcomed this and it was further suggested that a constructive use of a Comment field would be, for example, to note where and in which report information can be found regarding the basis for determining that a given recommendation has been 'closed'. Such notation would not need to be applied retroactively to the entire list, but could instead be introduced gradually into the future.

The new database, which includes all recommendations to date, is publicly accessible via the WGWAP website at http://www.iucn.org/wgwap/wgwap/recommendations or directly at https://portals.iucn.org/wgwap/.

The Panel thanked Saksina and Berzina for their good efforts to maintain the recommendations list and improve the way it is managed and presented.

2.2 Website and other IUCN activities

Saksina noted that IUCN had been in communication inter-sessionally with several individuals from the Interdepartmental Working Group for the Conservation of Western Gray Whales of the Ministry of Natural Resources and Environment of the Russian Federation (IWG/MNR) and that further discussions between IUCN and Russian authorities as well as between IUCN and officials in Rosneft and Gazprom were planned. Saksina also reported that she had given a presentation on WGWAP and participated in the Third Annual Conference on "Health, Safety and Environment (HSE) in Oil & Gas: Russia and Commonwealth of Independent States (CIS)" in Moscow in March 2013.

Berzina summarised improvements on the WGWAP website and noted that good progress had been made at compiling a library of publications on WGWAP and western gray whales that would soon be accessible on the website. She thanked Reeves and Donovan for providing input from the Panel's side and invited all other participants to contribute additional articles of relevance.

The Panel again thanked Saksina and Berzina for their work.

2.3 Update on South Piltun, Sakhalin Energy work and planned activities including 2015/16 Seismic Plans etc.

2.3.1 South Piltun

Evans provided the following summary of current Company plans regarding the South Piltun development:

Towards the end of 2012, Sakhalin Energy's shareholders endorsed a just-in-time platform concept for South Piltun with a construction phase linked to the Lunskoye off-plateau date (2022-2028). The concept comprises an oil and gas production facility fully integrated into current infrastructure. If the final investment decision were taken in 2017, the first non-associated gas would be on stream in 2022 and infill drilling for oil development would begin in 2027. The option was left open of accelerating development (on-stream gas in 2019) but that will depend on the outcome of ongoing review of Liquefied Natural Gas (LNG) capacity, supply and demand considerations, etc.

Shareholders also supported the Company's recommendation not to drill an appraisal well in 2014 (using a dedicated jack-up rig) but rather to investigate alternative methods of data gathering through existing assets.

The Company is currently undertaking four investigative studies to underpin the above recommendations and determine whether any value can be added (to what remains a marginal opportunity) through integrating the South Piltun platform more closely with existing infrastructure.

In discussion of the alternatives under consideration, Evans indicated that the Company would be investigating the possibility of creating a single production entity by combining the functional

capabilities of the PA-A platform (Molikpaq) and a new PA-C platform (South Piltun) in order to recover both the Astokh and South Piltun reserves whilst reducing total project operating costs and improving the long-term functionality of the Molikpaq structure. He emphasised that there was no intention to remove the Molikpaq but that the PA-C platform would bring additional capabilities enabling longer-term field development (e.g. extended reach drilling).

The Panel welcomed this information.

2.3.2 Ongoing and Future Sakhalin Energy Activities

In response to the Panel's standing request to be apprised of Sakhalin Energy's planned activities, Evans presented an update for 2013 to 2016, as follows.

The only new item beyond what was reported at NTF-3 and WGWAP-12 is a planned increase in maintenance work on the PA-A (Molikpaq) and PA-B platforms in summer 2013 (June-November).

For the period 2014-2016, anticipated work will include:

- Deployment of at least one accommodation vessel (e.g. Heimdal) each summer season;
- Stabilisation of pipelines;
- Single Anchor Leg Mooring (SALM) decommission planning (execution timeline not yet agreed and no decision yet taken on whether further work is required);
- Oil Processing Facility (OPF) Compression Project: a temporary beach landing facility near OPF/LUN-A for landing of large equipment.

Regarding well engineering during 2013-2016, no further conductor piling is currently anticipated. Normal well engineering operations will proceed according to plans.

In addition to routine vessel operations at the platforms, vessel operations will be needed to support the following activities:

- Diving – e.g. for water jetting/clearing Facility Protection Devices of marine growth;
- Stabilisation of pipelines;
- Crew changes (vessels 'Polar Baikal' or 'Polar Piltun');
- Emergency Rescue and Response and Oil Spill Response vessels on standby at PA-B;
- Supply work at PA-A/PA-B, offload / backload ('Pacific' vessels).

The Panel thanked Evans for this update.

2.3.3 Future Seismic Surveys

Although no seismic work is planned by Sakhalin Energy for 2013 or 2014, the Company is planning for a 3D/4D survey of Piltun Astokh in 2015 as part of ongoing reservoir monitoring. Repeat surveys are foreseen every 3 years thereafter. Details are summarised in the forthcoming NTF-4 report and this subject is further discussed below under agenda Item 9. Sakhalin Energy confirmed its commitment to engage closely with the Panel (mainly via the NTF) in planning the monitoring and mitigation aspects of the 2015 survey.

Evans explained that there is no fixed timing for repeat surveys as the timing depends on a number of factors, the most critical being the timeframe linked to production rates. According to Evans, the interval between surveys could be two, three, five, ten years or longer. However, any increase in the overall frequency of large seismic surveys in the region, particularly if they are without mitigation, would be of great concern to the Panel (see for example the information provided with respect to Gazprom, item 3.2 below). The Panel therefore **requests** that at the next meeting, Sakhalin Energy provides a clearer explanation of why the Company now foresees repeat surveys every three years and also how it has addressed, or plans to address, the question of potential alternatives to more frequent and extensive airgun surveys as discussed previously by the Panel and during previous NTF and SSTF meetings (see item 9.3 below). In this regard, the Panel received

some brief information on the ongoing development of vibroseis technology that could be valuable for the future.

2.4 IWG/MNRE meeting reports

Saksina, Reeves, Vedenev and Tsidulko attended the 8th IWG meeting in Moscow on 6 December 2012 as guest participants. Yablokov and Vladimirov attended as IWG members and Evans attended as a guest participant representing Sakhalin Energy. Saksina gave a presentation concerning the workshop on western gray whales (jointly sponsored by IUCN and Sakhalin Energy) that had been held at IUCN's World Conservation Congress (WCC) in Republic of Korea, September 2012. Reeves gave a presentation on the results of the WGWAP-12 meeting that had been held one month prior to the IWG meeting (early November 2012). Vladimirov gave a presentation on Sakhalin Energy's monitoring and mitigation programme for the 2012 2D seismic survey. In addition, there were presentations by E.N. Kalinin of ENL on the ENL/Sakhalin Energy Joint Programme, and by V.Y. Ilyashenko of the A.N. Severtsov Institute for Ecology and Evolution of the Russian Academy of Sciences (IPEE RAS) on satellite tagging of gray whales at Sakhalin.

The meeting was chaired by the IWG's Deputy Chair A. Amirkhanov, Deputy Head of Rosprirodnadzor (RPN) – Federal Service for Supervision of Natural Resource Usage of the Russian Federation, the agency responsible for issuing permits and licences and for giving approval to the Joint Programme. Saksina pointed out that Amirkhanov also serves as the IUCN Councillor for Russia and she expressed hope that he would be able to attend the next WGWAP meeting as an Observer. The Panel welcomed this possibility and encouraged Saksina to make every effort to enable it.

Saksina reported that progress towards better communication and coordination between the IWG and the WGWAP had been made through her contacts with the IWG's Executive Secretary. Saksina indicated that she has a standing invitation from the Executive Secretary to attend IWG meetings as a guest participant. She also expects that one or more representatives from the IWG will be able to attend the next WGWAP meeting as Observers. IUCN had successfully obtained the minutes from the 8th IWG meeting and provided an English translation to the Panel (per recommendation WGWAP-12/002). The Panel expressed its appreciation and expects to receive such minutes on a routine basis in future.

Yablokov noted that at the 9th IWG meeting in April 2013, it was clear that companies (specifically Sakhalin Energy and ENL) were receiving strong pressure from Russian authorities to reduce the costs of their whale monitoring and research programmes. Nonetheless, Sakhalin Energy reported that approval had been received for the 2013 Joint Programme at the beginning of May 2013.

Yablokov and Vladimirov once again drew the Panel's attention to the Global Environment Facility (GEF) project 'Mainstreaming Biodiversity Conservation into Russia's Energy Sector Policies and Operations'[2]. Two officials from the United Nations Development Programme (UNDP), the GEF Agency for the project, had been present at the IWG meeting in April. The Executing Agency for the project is the Russian Ministry of Natural Resources and Ecology (MNRE) and Sakhalin Energy is a major partner (listed on the project website as having contributed $10,750,000 in co-financing). Among the expected outputs in the category of 'Biodiversity risk mitigation measures demonstrated in oil fields …' is the following:

> In collaboration with Sakhalin Energy Investment Company Ltd., the following types of biodiversity risk mitigation measures will be demonstrated in the Piltun-Astokhsoe and Lunskoe oil & gas fields in north-eastern Sakhalin: Pilot Field 1 -- (i) During construction and use of offshore drilling platforms and installation of sub sea pipelines, it is planned to undertake certain measures to control and minimise noise pollution; (ii) Timeframes for seismic exploration will be corrected so that those take place before the grey whales enter the feeding areas in the proximity of exploration sites; (iii) Activities to prevent emergent cases of drill mud

[2] http://www.thegef.org/gef/project_detail?projID=3909

dumping in the Sea of Okhotsk will be continued; (iv) Emergency oil spills response system will be improved, both for summer and winter (ice covered sea) period; Pilot Field 2 – (i) In the process of pipeline construction and other activities associated of massive ground replacement the measures will be put in place to minimize negative impact on rivers and lagoons inhabited by fish - a primary sources for food for the Steller's Sea eagle; (ii) An awareness programme for the general public and the company staff will be developed to emphasize the importance of conservation measures for the Steller's Sea eagle, to distribute information on how to behave when close to the bird's nest, of the species status which makes it illegal to kill it, and on measures to protect birds from being injured by power lines; Pilot Field 3 – (i) Install pipe reducers, permanent and temporary pathways through rivers in winter, in order to minimize the discharge of the sandy-argillaceous particles into water; (ii) Replacement of ballast water in the open ocean before they are discharged in the coastal waters of Sakhalin, in order to prevent invasion of alien species; (iii) Continue creation of a system of preparedness and response to the emergency oil spills from the on-shore facilities and along the pipelines, in order to prevent release of petroleum products into rivers; (iv) Awareness programme for the general public and the company staff will be developed to emphasize the importance of conservation measures for the Sakhalin taimen, particularly emphasizing the promotion of «Catch and release» ideas for tourist agencies.

Vladimirov further indicated that the project was expected to produce guidelines for environmental monitoring of marine mammals during offshore oil and gas activities (to be implemented into Russian legislation) and identify 'best practices' for environmental assessment, mitigation etc. at the national level. A working group of scientists, industry representatives and lawyers will be convened to accomplish these tasks. Another expected output is a monograph to showcase results of the last ten years of research on western gray whales.

3 INDUSTRY UPDATE

3.1 Access to information and mapping

At its last meeting, the Panel had recommended that IUCN develop an interactive map that could be used by Panel members, particularly when considering cumulative, aggregate or interactive impacts from various human activities in the region (recommendation WGWAP-12/020).

Berzina provided information on progress made to date with development of an initial web application (restricted access only). A number of layers had already been integrated into the application's map, in collaboration with a web development company. Those included 21 known oil and gas projects with their major existing and prospective infrastructure on the Sakhalin Shelf and in other parts of the Sea of Okhotsk, whale feeding and occurrence areas in the North Pacific, and some of the main shipping routes in the Sea of Okhotsk. For the application, a great deal of information, all from the public domain, has been amassed on these oil and gas projects.

3.2 Activities on Sakhalin Shelf in 2013 and beyond

Berzina presented the major activities by other companies in 2013 and beyond and explained that the information compiled for the mapping project (above item), including summary descriptive texts on each oil and gas project as well as accompanying maps when available, was the result of a team effort over several months by herself and Zanda Krukle, a PhD student in environmental sciences specialising in noise management issues. She also indicated that the effort had benefited from advice from some Panel members and from Saksina, Lundin and Vladimirov on the type and structure of the information to be included. Thus far, the team has compiled a broad overview, in part to identify gaps, and it anticipates regular updates and further work. Importantly, all of the information and data is referenced to source so that it should be possible to assess how current and reliable a given item is likely to be.

The Panel thanked Berzina and Krukle for their considerable work on this important contribution. However, it was impossible in the time available for the Panel to make a meaningful assessment of this massive compilation and thus to advise IUCN on how to prioritise and focus the effort. For example, there may be areas of particular interest to the Panel, such as historical and contemporary contaminant runoff into the Amur River or Piltun Lagoon, that would require a somewhat different approach to the search for information. The Panel has long stressed the importance of having better

information and the ability to engage with all companies that operate on the Sakhalin shelf and whose activities may affect the whales.

It was agreed that IUCN would provide a means for Panel members to access the material on activities by other companies (including the interactive maps) and provide necessary direction and guidance to the IUCN team as it goes forward with this work, as well as provide any information that they may have on activities. The Panel stressed the importance of allowing members to engage in the process directly during inter-sessional periods. Moreover, the Panel needs to be given time to review the materials ahead of meetings and time for serious discussions of the information at meetings.

An item of immediate interest and concern at this meeting was the recent announcement of ENL's plans for pier construction inside Piltun Lagoon, scheduled to take place between June 2014 and October 2015. According to a newspaper announcement related to the official notice of a public hearing on this activity, the pier will be 800-900m in length, 40m wide and built alongside existing ENL infrastructure. Barges are expected to reach the pier construction site through the lagoon mouth. Assuming on-time completion, the pier would be used through 2017.

When asked whether the lagoon mouth would be altered in any way to accommodate the barge traffic, Swindoll said that natural water depths are sufficient to allow the barges and the accompanying shallow-draft tugboats to enter and exit the lagoon without a need to alter the bottom in the lagoon mouth. Therefore no dredging is planned for this activity.

Tsidulko pointed out that public documents referred to i) possible alternative ways of transporting materials to the construction site and ii) the possibility that it would prove necessary to flatten sandbars in the lagoon mouth. Swindoll noted that ENL had considered several transport options but determined that movement of the modules could not be accomplished from the land side and a temporary offloading facility would need to be constructed for movement on the sea side. ENL had concluded that the plan to use barge transport through the lagoon mouth was preferable. With regard to sandbar flattening, he indicated that because strong current action in the lagoon mouth causes the sandbars to move and change frequently, it will be necessary to refer to current and bathymetry data closer to the time when barge movement is planned to decide whether flattening will be needed. [Note: The Panel's concern has increased since the meeting and since public release of the detailed EIA for the pier construction project. Underwater noise levels from the barge and tug traffic are likely to reach or exceed 200 dB re 1 mPa at 1m and this could mean prolonged periods with received levels of continuous noise well above the 'safety threshold' of 120-130 dB in portions of the nearshore gray whale feeding area. Two or three barge trips into and out of the lagoon per month are anticipated, each lasting up to four days, during the navigation season in 2016 and 2017. Without rigorous mitigation efforts, this planned industrial activity represents a potentially serious threat to the whales.]

Berzina also reported that Gazprom's Sakhalin-III activities have been advancing and commercial production is foreseen to start this year. Of concern is that drilling work is already under way and seismic survey work is to be conducted in the coming open-water season close to the Offshore feeding area. The Panel considers it important for other companies operating on the Sakhalin Shelf to at least be aware of, and preferably adhere to, the guidelines for seismic surveys developed jointly by Sakhalin Energy and the Panel.[3]

4 TAKING STOCK/ROADMAP

This portion of the meeting agenda consisted of a workshop organised and conducted by IUCN and chaired by Lundin. A partial draft of a roadmap document had been prepared before WGWAP-13 by IUCN with assistance from Humphrey and in consultation with Reeves. IUCN stated its intention to take the lead in developing and completing the roadmap after taking account of views expressed at the workshop and in follow-up consultations with Panel members, the Company and the various

[3] http://www.iucn.org/wgwap/wgwap/seismic_survey_monitoring_and_mitigation_plan/

stakeholder groups that have been involved in the WGWAP process as observers (e.g. Lenders, NGOs, Russian government agencies).

A summary of the workshop was prepared independently by IUCN and is included below, as it was received from IUCN and without editing by the Panel. It represents the findings and conclusions of IUCN and, as such, does not necessarily represent the Panel's views and interpretations.

The Roadmap

The "Roadmap Session" of the agenda was chaired by Dr. Carl Gustaf Lundin, Director, IUCN Global Marine and Polar Programme. Lundin opened the session by presenting lessons from IUCN's industry panels, their advantages and achievements, potential risks and challenges.

The discussion on the need for the WGWAP Roadmap ensued. Lundin pointed out that there is growing awareness and recognition of other developments on the Sakhalin shelf – a dynamic new environment that needs to be taken into consideration. Indeed, oil and gas development around Sakhalin Island is evolving with new projects operated by Exxon, Rosneft and Gazprom, which will be larger than Sakhalin-II. This significantly larger oil and gas development will have a bigger footprint and potentially higher impact on the environment and on marine mammals, including gray whales. In order to pursue the positive whale conservation efforts, and minimise the environmental impact of these important oil and gas developments, the Panel's remit needs to be broadened to encompass the activities of other operators. Further, efforts should be undertaken to bring other operators (e.g., Exxon, Rosneft, Gazprom, etc.) as well as Russian environmental authorities into the WGWAP process. Pursuing a gray whale conservation programme without these other critical stakeholders has limited value if key oil and gas operators do not join the WGWAP and jointly pursue its mission.

Lundin noted there have been previous discussions on how to make the Panel more relevant. He noted that all participants of the meeting need to reflect on whether they are getting the optimal results from the Panel. Evans recalled that the 2008 WGWAP evaluation found that the Panel needs to have a strategic direction and roadmap. This has not been addressed and can be expected to come up during the next evaluation. This is why a Roadmap that will show how the WGWAP should navigate in the new environment, guide the Panel and IUCN's work until 2016 and serve as a coherent and interwoven plan of action is needed.

The departure point for the development of the Roadmap document should be accomplishments to date and how the WGWAP should proceed taking into account lessons learnt; and how the it should adapt its work from what is in essence bilateral engagement with one company to broader outreach to other key actors. There is a need to meaningfully engage companies that may have less capacity and a different culture. There may also be new ways of working and new tools that can be considered. A starting point may be to identify the issues these new actors/companies need help with. This should come from a dialogue with the companies, there may also be a need to better connect with the Russian environmental authorities in order to ensure they have a stake and ownership in the process. Lundin pointed out that he could also envisage helping to build the capacity of companies to help them to meet the highest environmental standards, already implemented by Sakhalin Energy, so as to minimise the footprint of new operations and consequential impact on the gray whales.

With respect to how to work with other actors, Lundin made several further suggestions. The WGWAP Panel will continue its work. In addition, other approaches such as secondments of experts may play a part of the broader set of actions. Another approach may be to have Task Forces that have more of an educational approach, to walk the companies through the WGWAP process and generate confidence in the results coming from the Panel.

Zengerly noted that Sakhalin Energy had reached a stage where the Company has sufficient certainty that current and planned activities would not lead to an undesirable impact on whales. Sakhalin Energy is very serious about its commitment to sustainable development and worried about activities of other companies. Zengerly stated that the Roadmap is critical at this stage, and needs input from all sides. Indeed, there is a need to consult with other companies and with Sakhalin Energy on the contents of the roadmap. Evans noted that there is a need to review the monitoring and mitigation work and how this is meeting the current requirements. There is a need for thorough planning based on the analysis of what has been achieved thus far. Sakhalin Energy also needs to know which of its

scientific programmes should continue and which can be brought to an end. Lundin suggested this could build into the Roadmap.

From the ENL (ExxonNeftegaz Limited) point of view as stated by Swindoll, the objective of engaging other stakeholders is desirable. However, the WGWAP may not necessarily be the group to bring in that broader stakeholder involvement.

Donovan suggested the other companies need to be consulted in order to learn how they can engage and what is needed for this to happen. Zengerly suggested there is a need for a marketing effort from the WGWAP.

Next, the WGWAP-13 participants, divided into four groups, undertook an exercise to answer the following questions and compare their answers:

- WGWAP achievements to date?
- Risks to be managed – to whales, environment, reputation?
- Expertise required?
- Which stakeholders to engage?
- Where does WGWAP want to be in 2016?

The notes from the group discussion were collected and will be used for the development of the Roadmap and the stocktaking report. It was agreed that a small drafting committee will work together on the Roadmap. The group should include Panel, Company and Secretariat participants.

IUCN will take responsibility for the development of the Roadmap. The Roadmap is not an end in itself; it is an opportunity to strengthen the process and make it more relevant. All stakeholders shall be consulted in the development of the roadmap.

IUCN will lead the process of engagement with other oil and gas operators on the Sakhalin shelf and the Russian government. Sakhalin Energy offered assistance in bringing other companies into the room.

The Stocktaking

Lundin explained that, in his view, the stocktaking should consist of two elements:

- identify what has been accomplished
- use this as a marketing tool in order to engage into the WGWAP process other crucial actors – notably other companies and the Russian environmental authorities.

It was noted that the stocktaking is a separate exercise from the 2-yearly independent review process which is required by Para 10(b) of the WGWAP TOR.

It was agreed that the Secretariat will draft a stocktaking report based on the list of accomplishments and suggestions of the participants made during the WGWAP-13 meeting. All current WGWAP stakeholders shall be consulted in the development of the 2-4 page stocktaking report. Donovan noted that it is important that everyone agrees on the content. It may be given to an editor to present with pictures in a glossy format.

5 CUMULATIVE EFFECTS AND IFC-RELATED ISSUES

The Panel (and its predecessor IUCN panels) has repeatedly identified cumulative effects, or impacts, as a major concern. Also, it has insisted that this concern is broader than a single stressor (e.g. noise) and broader than the activities of a single company (e.g. Sakhalin Energy) or for that matter a single region (e.g. Sakhalin shelf). The Company has also indicated its view of the importance of considering cumulative effects and impacts.

Donaghy provided a brief presentation on cumulative impacts, particularly with respect to regulatory environments (e.g. Environmental Impact Assessment (EIA) Directive, International Finance Corporation (IFC) emerging markets), and the challenges involved in assessing and addressing such impacts. Hancox drew attention to the IFC Good Practice Guidance note, which concerns methods of identifying cumulative impacts, but unfortunately from the perspective of individual rather than multiple projects. The problem of spatial and temporal scale is one of the more challenging aspects of cumulative impact assessment. Also, noise does not accumulate in the

same manner as, for example, a chemical pollutant, yet this does not mean there are no cumulative impacts of noise, ranging from behavioural to physiological and even psychological.

The Panel welcomed the input on this subject from the 4th Noise Task Force (NTF-4) meeting[4] and continued what has become an ongoing discussion of relevant concepts, such as the difference between effects and impacts; direct, indirect and interacting impacts; and the difference between aggregate and cumulative. Regarding this last point, aggregate refers to simultaneous activities and their potential effects while cumulative brings in the added dimension of time.

The Panel concluded that the topic of cumulative impacts should continue to be pursued primarily in the context of the NTF. In that regard, the Panel expects the task force to investigate one specific line of inquiry as a first order of its future business. Given the data available on Sakhalin gray whales and their environment – long times series of data on whale body condition, annual calf production etc. as well as detailed information on at least some potential stressors (e.g. acoustic data from the 'control' site and direct exposure) – the Panel believes the Population Consequences of Acoustic Disturbance (PCAD) framework (Harwood et al. 2011) deserves close investigation as a potential method for assessing the cumulative impacts of industrial activity and other potential stressors on this whale population. The PCAD framework is designed for building models for populations or species of animals for which extensive data sets exist. The PCAD structure makes it possible to quantify contributions from multiple stressors while using a logical, common currency (e.g. energy or the bioenergetic status of individuals in the population). Annual calf counts and health scores (*sensu* Pettis et al. 2004; Bradford et al. 2012) can be used to assess the significance of individual stressors. An ongoing Shell/XOM-sponsored project is being undertaken by Dr. Dan Costa's laboratory at the University of California at Santa Cruz using this framework with gray whales and the Panel therefore would like to receive a presentation at its first meeting in 2014 so that members will gain an improved understanding of the potential and limitations of PCAD. Furthermore, the Panel should try to stay up-to-date on progress of the gray whale PCAD project and upon the project's completion, the results should be presented at a Panel meeting.

6 PROGRESS ON INTER-SESSIONAL PANEL WORK

6.1 Oil spills

In Dicks's absence, Reeves summarised items identified for action in the WGWAP-12 report.

The Panel had been told at WGWAP-12 that final versions of the Company's offshore OSR plans would likely be resubmitted to regulators in the first part of this year, at which point they would be made available for Panel review (Recommendation WGWAP-12/010). The Company indicated that these were not yet complete.

The Panel was told at the last meeting (item 6.1.5 of WGWAP-12 report) that the final version of Sakhalin Energy's Ice Response Manual would be available for Panel review within six months. The Company again gave assurance that this would happen in the near future. [Note: The Panel was pleased to learn that the Manual was made available to Dicks for review in mid-July 2013.]

Evans reported that the Company is continuing discussions with various parties regarding pre-approval of dispersant use under specific conditions (item 6.1.5 of WGWAP-12 report) but that it may take several years to reach agreement.

There is a standing recommendation (since WGWAP-7) that Sakhalin Energy should provide for Panel review its upcoming OSR exercise matrix each year as well as a selection of Ecoshelf summary reports of exercises conducted. The matrix for 2013 was received but no Ecoshelf reports were received beyond those seen by Dicks during his 2012 site visit and those provided to him at

[4] The meeting report is soon to be published at http://iucn.org/wgwap/wgwap/task_forces/noise_task_force/

WGWAP-12. [Note: The Panel was pleased to learn that the reports were made available to Dicks for review in mid-July 2013.]

The Company's response to issues raised in Recommendation WGWAP-12/011 was generally positive. There was an inconclusive discussion at this meeting regarding the value and feasibility of including 'blind' elements in oil spill response exercises. Dicks will attempt to clarify and resolve outstanding concerns when he visits Sakhalin in July to observe Sakhalin Energy's planned Tier 3 exercise.

Knizhnikov reported that a new EIA process would be in place in Russia from July 2013 and it would include a requirement for companies to document their OSR capacity. He further noted that the Russian agency responsible for oil spill response is in transition and expected to be restructured, probably before the end of this year.

At WGWAP-12, Knizhnikov had drawn the Panel's attention to a report commissioned by WWF on OSR planning, including spill modelling, for Gazprom's Prirazlomnaya platform in the Pechora Sea (item 6.1.5 of WGWAP-12 report). Following that meeting, Knizhnikov provided the WWF report to the Panel and Dicks reviewed it. The overall conclusion of Dicks was that the study's predictions regarding the fate and behaviour of spilled oil under both ice-free and winter ice conditions appeared realistic but that a major weakness was the research team's lack of oil spill response expertise. Although the report's broad conclusion that the deployment of booms and skimmers would be unable to cope with a large spill in such an environment at any time of the year is probably correct, some of the reports' recommendations about spill response, such as the suggestion to deploy protection booms along huge lengths of coastline, are completely unrealistic. Reeves suggested that Knizhnikov contact Dicks directly for more detailed feedback on the Pechora Sea report. This is particularly important in view of the news from Knizhnikov that a similar independent review and modelling exercise is being planned for north-eastern Sakhalin.

6.2 Environmental monitoring

The Panel and Sakhalin Energy have had frequent but largely inconclusive discussions over a number of years about the possible ecological significance of Piltun Lagoon effluent waters to benthic productivity and gray whale distribution and abundance in the Piltun feeding area. As agreed at the December 2011 meeting of the Environmental Monitoring Task Force (EMTF) and subsequently recommended at WGWAP-11 (recommendation WGWAP-11/012; also see item 6.3 in the WGWAP-12 report), the Panel anticipated that a team consisting of VanBlaricom, Tsidulko, V. Fadeev and colleagues would move ahead with a comprehensive, concept-oriented analysis of the question of ecological subsidies from marine lagoons to adjacent coastal ocean habitats, with emphasis on the Piltun Lagoon region.

Following WGWAP-12, VanBlaricom submitted to IUCN a proposed workplan and budget for this effort (per recommendation WGAP-11/012). Relevant literature was to include published material in Russian, Japanese and English. The goal was to produce a report for publication in a peer-reviewed technical journal, something that IUCN and Sakhalin Energy have repeatedly indicated a strong interest in seeing happen as a way of legitimizing and promoting the panel concept and demonstrating their commitment to creating as well as using the best available science. Besides a comprehensive and authoritative analysis of the literature, the document was expected to define concept-based hypotheses that could help guide future work to characterise the apparent functional link between estuarine effluents of Piltun Lagoon and the foraging ecology and distribution of western gray whales. Saksina had confirmed at WGWAP-12 that funds were available to pursue the analysis, including support for necessary travel and translation services for the Japanese literature (see WGWAP-12 report, item 6.3). VanBlaricom's budget request included travel funds to allow the team to meet periodically and to allow Tsidulko to examine archived reports and documents in Yuzhno-Sakhalinsk. Funding was also requested for the services of a translator to assist with literature published in Japanese, and for compensation of time and effort by the participants. VanBlaricom subsequently located a professional colleague with strong language skills in English

and Japanese, a doctorate in marine ecology and current employment at the United Nations in New York, for possible involvement in the project. This individual agreed to participate, pending agreement on scheduling and financial considerations. Requests by VanBlaricom to IUCN, spanning several years' time, for information on costs and logistics for obtaining translation services for this activity had elicited no response.

In the weeks preceding WGWAP-13, VanBlaricom was advised by Saksina in successive e-mail messages that the proposed budget initially submitted for the project was judged to be excessive although no suggestions or guidelines regarding an acceptable scope were provided. VanBlaricom subsequently provided suggestions for reducing the budget, which were welcomed. However, he was later advised that Fadeev had completed a literature review on his own initiative and thus that the Panel recommendation originating from EMTF-1 was deemed no longer necessary. The Panel has previously expressed its serious concerns about recommendations that were initially agreed by a task force and endorsed by the Panel but then were not implemented in the manner intended (also see item 2.2 in the WGWAP-12 report and recommendation WGWAP-12/001).

Recognising that there have been some unfortunate misunderstandings and delays on all sides over this issue, the Panel **recommends** that IUCN provides an English-language version of Fadeev's completed literature review, at first convenience, and make it available for the Panel's consideration. Once this document has been received and evaluated, the Panel will consider options for a constructive path forward to ensure completion of the full analysis, which was always meant by the Panel to be broader than just a literature review. This will require support from IUCN. Therefore the Panel **recommends** that IUCN includes the environmental analysis project in the 2014 WGWAP budget (if necessary revised in the light of the as yet unseen review by Fadeev), following direct consultation with Panel members of the EMTF (VanBlaricom, Dicks, Reeves, Tsidulko and Weller).

6.3 Photo-ID and genetics

Weller summarised information on the IWC-supported Pacific-wide study of individual movements of gray whales between the western and eastern North Pacific. Most of the photo-identification catalogue comparisons have now been completed (e.g. Sakhalin/Kamchatka vs. Mexico and Sakhalin vs. Pacific Northwest region of Washington/British Columbia) while one (Kamchatka vs. the Pacific Northwest) was under way at the time of the WGWAP meeting. It was anticipated that an update of the results of the Pacific-wide study would be provided to the annual meeting of the IWC Scientific Committee in June 2013. [Note: The discussion at this IWC Scientific Committee meeting can be found at http://iwc.int/screport (and especially in Annex F).]

The Panel considers this an excellent example of range-wide collaboration and commends Weller, who chairs the IWC group on this study, and all other contributors for their efforts. The results of those efforts provide a sufficient basis for in-depth investigation of basin-wide population structure (and see Item 12.1). Such investigation will help to inform conservation planning.

6.4 Population assessment

6.4.1 Update of catalogue comparisons

The Russia-US team has been collecting gray whale photo-ID data near Piltun from 1994 to the present. Since 2009 the project has been run by the Kamchatka Branch of the Pacific Institute of Geography (Burdin et al. 2013). The team of the Institute of Marine Biology, Vladivostok (IBM) team has been collecting photo-id off Sakhalin since 2002 as part of the Sakhalin Energy/ENL Joint Programme (Tyurneva et al. 2013). Gray whale photo-id data have also been collected off south-eastern Kamchatka since 2006 (Tyurneva et al. 2010).

The Panel received through IUCN the results of the updated catalogue cross-comparison conducted by each team of the IBM and Russia-US catalogues for Sakhalin incorporating data through 2011. The comparison resulted in a total of 223 individual whales seen off Sakhalin, of which 187 were

common to both catalogues. A comparison of the Sakhalin and Kamchatka catalogues by the IBM team found that of the 150 whales in the IBM Kamchatka catalogue (as of 2011) 86 had also been photo-identified off Sakhalin by either the Russia-US team or the IBM team.

The Panel thanked the two teams, and especially Sychenko and Tyurneva, for updating the cross-comparison. The Panel will consult with the two teams with regard to the timing of future updates of the comparison.

6.4.2 Update of population assessment

6.4.2.1 Background

The last joint population assessment using data collected off Sakhalin by the Russia-US and IBM teams was presented to WGWAP-8 in 2010, using data through 2008 (document WGWAP 8/9). The results showed an increasing trend in the population when the Russia-US or the combined data set were used, but showed no clear trend when fitted to the IBM data alone, which at the time was ascribed to the shortness of the IBM time series. An updated assessment, using Russia-US data only, was presented to WGWAP-11 in 2012: it showed that the population had continued to increase as predicted.

In accordance with recommendation WGWAP 12/023, Cooke prepared a new assessment for WGWAP-13 using the annual summaries of photo-ID data from each Sakhalin team through to the 2011 season. In the case of the IBM team, not only were three further years of data (2009-2011) provided, but also the data from previous years (2002-2008) had been revised. In addition, sex determinations from biopsies collected by the Russia-US team were available through to the 2008 season. For the first time, data from Kamchatka were available for those whales also found in a Sakhalin catalogue, for seasons through to 2011.

6.4.2.2 Summary of the assessment update

An updated version of the population model was available which allowed for the following additional features *inter alia* to be included:

1) individual heterogeneity in sampling probability;
2) time lags in the effects of environmental variability on population parameters;
3) immigration of "foreign" whales (i.e. whales whose mothers were not in the Sakhalin population).

The standard Akaike Information Criterion (AIC) for the goodness of fit of the model to the data was used to determine which of the new factors were to be included in the final model choice. Because the assessment model and results are documented in more detail in a document submitted to the IWC Scientific Committee shortly after WGWAP-13 (SC/65a/BRG27[5]), a summary of only the main findings is presented here. The IWC Scientific Committee's discussion of the paper can be found at http://iwc.int/screport and especially in Annex F of that Committee's report.

The selection of model features was conducted using the Russia-US data set, as this provides the longest single time series (17 years). As in previous assessments, the sampling probability was found to be significantly stage-dependent: it is highest for mothers with calves and lowest for non-calf immature animals. Allowing, additionally, for individual heterogeneity in sampling probability resulted in a very substantial improvement in the fit of the model to the data but had only a small effect on estimates of population size and demographic parameters. Significant inter-annual fluctuation was found in both calving rates and calf survival rates, but no evidence of any net trend in these parameters over time. The best fit to the data was obtained by introducing a 2-year time lag into the correlation between calving rates and calf survival rates, *i.e.* a low (high) calf survival rate from year t to year t+1 tends to be associated with a low (high) calving rate in year t+2. There was

[5] See at http://events.iwc.int/index.php/scientific/SC65a/paper/view/436

little evidence for immigration: the level of immigration was estimated to be zero or negligible in recent years, but immigration earlier in the period could not be excluded.

The selected model was fit to: (a) the Russia-US data set; (b) the combined Russia-US and IBM Sakhalin data set; and (c) all three data sets combined (Russia-US, IBM and Kamchatka). Estimates of key population parameters for each of the three data sets are listed in Table 7.1. The estimates of population size over time are shown in Fig. 7.1 for (i) the population aged 1+ (i.e. all animals except calves) and (ii) mature females only.

	Data set					
Population parameter	**RUS**		**RUS+IBM**		**RUS+IBM+KAM**	
Adult survival rate (%)	97.7	(0.5)	97.9	(0.4)	98.1	(0.4)
Calf survival rate (%)	67.3	(6.7)	68.2	(5.7)	78.8	(4.7)
Sex ratio at birth (female %)	38.3	(4.3)	39.2	(4.3)	39.1	(4.3)
Mean age at first calving (yr)	10.7	(0.4)	11.1	(0.5)	11.3	(0.4)
Calving rate (after lactating) (%)	49.1	(7.7)	44.1	(8.1)	45.0	(7.9)
Calving rate (after resting) (%)	53.3	(12.1)	46.9	(13.4)	49.7	(13.0)
Annual rate of increase 2002-2012 (%)	3.4	(0.5)	3.8	(0.4)	4.7	(0.3)
Aged 1+ population size in 2012	142	(7)	161	(6)	174	(4)
Mature female population size in 2012	36	(2)	36	(2)	37	(3)

Table 7.1. Estimates of key population parameters (standard errors in parenthesis)

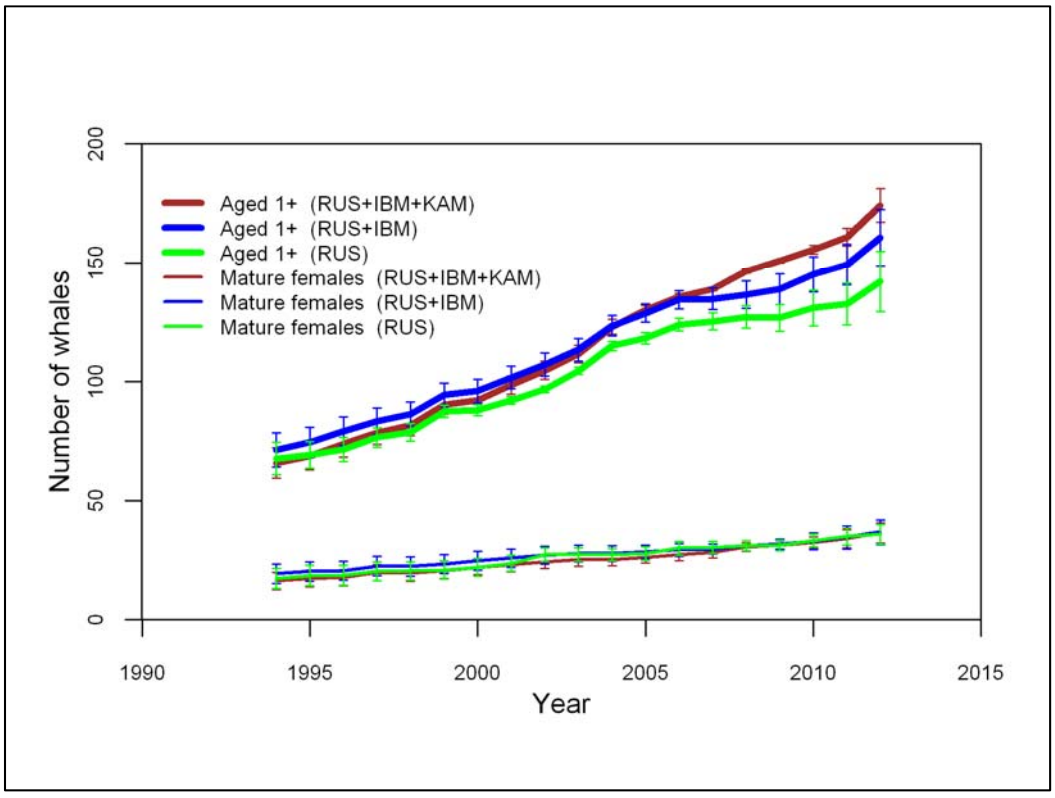

Figure. 7.1. Estimated population trends for the Sakhalin gray whale population for (i) aged 1+ animals (all animals except calves) and (ii) mature females only, for three data sets: (a) Russia-US(RUS) only; (b) RUS and IBM; (c) RUS and IBM and Kamchatka.

Estimates of parameters and trends are broadly similar for all three data sets, but the estimate of the final aged 1+ population size is higher when the IBM data are included and higher still when the Kamchatka data are included. The estimates of the mature female population size are essentially the same for all three data sets.

Fitting to the IBM data set alone, or the IBM and Kamchatka data sets, without the Russia-US data, appeared to show rather different trends, but it was not possible in the time available to determine the cause of this.

The preferred convention for reporting population estimates is in terms of the aged 1+ population (excluding calves) rather than the total (including calves). This is consistent with the practice of the IWC Scientific Committee which has agreed on the 1+ population as the reference quantity for baleen whale populations. Furthermore, the data for this population do not permit estimation of the actual numbers of calves born, because data are collected in summer when the calves are already 6-8 months old. An unknown, and probably variable, proportion of calves will have died before reaching the study area. When comparing population numbers from different sources, it is important to ensure that the numbers relate to the same population component in the same year.

6.4.2.3 Discussion and action arising

In discussion of these results, Vladimirov suggested that the lower total population estimate obtained when fitting to the Russia-US data alone could be related to the restricted survey area of the Russia-US team, being limited to that reachable by a small inflatable boat launched from shore near the Piltun Lighthouse; it is possible that some whales rarely or never enter this area. Cooke noted that the population growth rate may be overestimated when the other data sets are combined with the Russia-US data set, because of relative underestimation of the population size in the early years when only Russia-US data were collected, compared to the later years when data from all three teams were available. He believed that the estimate from the longest single data series (3.4% p.a. with SE 0.5%) is probably the best currently available estimate of population trend.

The Panel notes with interest the findings relating to fluctuations in calving rates and calf survival rates, and to the 2-year time lag between them, and suggests that it would be worthwhile to investigate what environmental factors these fluctuations are correlated with.

The results also indicated that the Sakhalin feeding aggregation has been demographically self-contained, at least in recent years. In other words, the only new recruits appear to be calves born to mothers within the group, even though satellite telemetry and individual identification studies have shown that at least some of the Sakhalin whales migrate to common gray whale breeding grounds in the eastern North Pacific. The Panel notes the importance of this finding relative to the question of whether the Sakhalin gray whale population should continue to be treated as a management unit ('unit to conserve') and **encourages** further investigation of this aspect. The IWC Scientific Committee has made a similar recommendation (http://iwc.int/screport).

In discussion it was noted that the model estimates of population numbers were in some cases only slightly higher than the number of whales actually seen. For example, a total of 150 Sakhalin whales (including calves) were seen in 2011, when the Kamchatka data are included. The model estimates of the total number of Sakhalin whales (including calves) alive in summer 2011 ranged from 151 (±10) using only the Russia-US data, to 181 (±7) using all three data sets. It was questioned whether it was plausible that that such a high proportion of the population would be seen in one season.

In a telephone conference held after the WGWAP-13 meeting, the Panel was informed by Evans and Vladimirov that the companies supporting the Joint Programme had little or no confidence in the population model or the results of the assessment for a number of reasons, including those raised in the discussion reported above. They considered that any further implementations of the assessment model or comparison of the input data sets would be premature until the model has been verified. They informed the Panel that Sakhalin Energy would consult with its partner in the Joint Programme (ENL) and report back to the Panel and IUCN on the chosen course of action. This may include the commissioning of another independent review of the population assessment, either by

the companies directly or through IUCN, and/or the commissioning of an alternative assessment model.

The Panel recalls that the last review of the population assessment was conducted in 2011 by scientists at the University of St Andrews under contract to IUCN. The report of that review (document WGWAP 10/9) was submitted to and discussed at WGWAP-10. The Panel offers to assist in any way it can, subject to time constraints, in the event that the companies or IUCN decide to commission another review.

6.4.2.4 Panel conclusions

The Panel takes note of the Company's views on the population assessment, but still considers that the results of this population assessment provide the best currently available scientific information on the status of the population, the population trend, the values of the demographic parameters, and the extent and nature of variability in the demographic parameters. The Panel recognizes that a model can always be improved and extended to incorporate additional factors, especially as the length of the time series increases.

With regard to the differences in results obtained when fitting to the different data sets, the Panel strongly **encourages** that a careful comparison be made between the Russia-US and IBM data sets, as previously recommended (recommendation WGWAP 13/024), with a view to identifying the factors behind the differences in results. Among other things, the comparison should attempt to quantify the extent of overlap between the data sets, examine possible changes in timing and geographical locations of sampling within datasets that might lead to heterogeneity bias, and consider how assumptions within the model are met. If the results of this comparison identify factors that are relevant to the assessment, then a refined assessment taking account of these factors should be prepared in time for consideration at WGWAP 14.

The Panel **concludes** that the current increasing population trend is satisfactory from a conservation point of view, but emphasizes the importance of updating the population assessment at regular intervals (at least biennially) so that any unforeseen downward trend can be detected and acted upon.

The Panel **agrees** that 'Population Assessment' will remain as a standing item on its agenda. Under this item, the Panel will continue to consider the results both of updates of the current population assessment model and the results of any alternative population assessment approaches that may be presented.

Finally the Panel thanks the leaders of all three photo-ID projects for making their data available for this joint population assessment. It intends to continue working towards development of an assessment that uses the combined datasets in co-operation with all teams involved as well as the sponsors and data holders.

7 JOINT PROGRAM TASK FORCE REPORT

Reeves recalled that the Panel had been advised at its last meeting that Sakhalin Energy and ENL were considering significant changes to the Joint Programme field effort in 2013. In its WGWAP-12 report (item 3.5), the Panel expressed "strong concern that potentially important modifications to the Company's long-running monitoring and research programme were brought to its attention only during this meeting, with no advance notice and without any documentation justifying and explaining details of the proposed changes." Discussions among the Panel, Sakhalin Energy and IUCN immediately following WGWAP-12 led the Panel to establish an *ad hoc* Joint Programme Task Force to consider the proposed programme changes in detail and to develop advice particularly in regard to offshore distribution surveys and photo-identification. The Task Force met in February 2013 in Gland[6] and concluded that the proposed changes, as laid out by Sakhalin Energy in its presentations in Gland, were likely to achieve at least the same levels and types of data collection as

[6] See the full report at https://cmsdata.iucn.org/downloads/jptf_report_final_feb2013.pdf

in 2011 and 2012. The Task Force report and its recommendations were reviewed and discussed inter-sessionally by the Panel and the resulting Panel recommendations, together with Sakhalin Energy's responses, are available on the WGWAP website[7].

In discussion, the Panel reiterated its longstanding concern over previous changes to the Joint Programme, especially the removal of regular behaviour monitoring. There seems to be an implicit assumption on the companies' part that experienced, competent people capable of collecting and analysing behaviour data will be available to participate in 'activity-specific' monitoring on a sporadic basis. The Panel questions that assumption and remains concerned that opportunities to improve understanding of behavioural responses of gray whales to various types of disturbance, most notably seismic surveys, have been and will continue to be lost as a result of the decision to discontinue the behaviour component of the Joint Programme.

There was also some discussion of recommendation WGWAP/JPTF-09 concerning the need for clarity in regard to objectives of the biopsy work and the criteria for selecting whales to be sampled. The Panel had indicated that it supports the intention of trying to collect biopsies only from whales not previously sampled because these will at least allow determination of the animal's sex and provide its genetic profile (see recommendation WGWAP-12/026). In its response to recommendation WGWAP/JPTF/09 the Company asked for advice from the Panel on the selection criteria. It was agreed, after a brief and inconclusive discussion, that this matter would require further inter-sessional discussion among the relevant parties in order to make progress. Weller agreed to act as the Panel point of contact to pursue this matter, and the Panel **requests** that Sakhalin Energy nominate its point of contact. Weller will report back on progress no later than the next Panel meeting.

Detailed discussion of the Panel's recommendation concerning the need for testing and evaluating boats available for use by the photo-ID teams in 2013 (recommendation WGWAP/JPTF-07) occurred at the NTF-4 meeting and the outcome is summarised below under item 9.1.

8 RESULTS OF 2012 JOINT PROGRAMME

8.1 Acoustics: main results

The 2012 acoustics report was discussed in detail by the NTF[8], which made several comments and suggestions. Based on those and on discussions at this meeting, the Panel makes the following **recommendation**:

Inclusion of Company activities with the annual Acoustics report
Objective To facilitate the interpretation of data in the annual Acoustics report, presentation of information on major activities of the Company potentially associated with the acoustic data (e.g. vessel arrivals and departures, platform work etc.) should be reported to the Panel – this is relevant to 'quiet' as well as 'noisy' periods. **Data requirements/analyses** Information is needed about the Company's activities, e.g. timing and nature of work on or associated with the platforms. The Company has provided such information in the past, and little additional analytical work on the acoustic data is required. Logbook data from the platform and any vessels operating at or near it should suffice. The Company will suggest to the Noise Task Force the level of detail to be presented regarding the activities and methods of presenting the information that do not risk revealing confidential information to other operators. This suggestion

[7] See at https://cmsdata.iucn.org/downloads/summary_of_jptf_recommend_with_sakhalin_energy_response_apr2013.pdf

[8] The report of the 4th NTF meeting is soon to be available at http://iucn.org/wgwap/wgwap/task_forces/noise_task_force/

should be informed by past events and associated noise levels.

Responsible persons

The Company will provide the information to the Noise Task Force.

Timeline

This procedure should be followed on an annual basis, and the timeline of activities should be provided with the annual Acoustics report.

In addition, the Panel wishes to investigate further three time specific periods: two 'noisy' and one 'quiet'.

For the first noisy period, from 14 June – 9 July 2012, Rutenko reported that this involved noise from both a seismic survey and the installation of the Arkutun-Dagi Platform's Gravity-based Structure (GBS). During intense phases of the platform work from 14 June – 2 July, recorded levels reached 125-130 dB re 1 μPa. Also, recordings of seismic noise at the Molikpaq, Piltun-20 and Orlan monitoring stations from 22 June – 9 July indicated that half of the averaged Root-Mean-Square (RMS) levels significantly exceeded background levels. Specifically, this was the case at the Molikpaq station from 15:00 on 22 June until 19:00 on 25 June, from 11:00 on 27 June until 01:00 on 4 July and from 07:00 on 8 July until 01:00 on 9 July; and at the Piltun-20 station from 04:00 on 22 June until 01:00 on 4 July and from 07:00 on 8 July until 01:00 on 9 July. The most intense levels, exceeding 120-130 dB_{RMS}, were noted during active periods of the seismic survey.

The second noisy period, as shown for the Orlan monitoring station on a figure in document WGWAP 13/15, was coincident with rock dumping for scour protection at the Arkutun-Dagi GBS from 16-22 August 2012. At times during this period recorded noise levels in the Offshore feeding area reached 130-140 dB_{RMS}. Finally, there was a relatively quiet period from 15-19 June 2012 which may correspond to a time when the PA-B platform was shut down. [Footnote: The Panel was informed from the fact-check of the draft of this report that there was no PA-B platform shutdown during this period.] Data from this period could be useful for approximating a baseline ('ambient') noise level for the area.

During the Panel's internal discussions, it was noted that according to the documents submitted to date, the sensitivities of most of POI's hydrophones may have not been verified since 2008 even though such calibrations should occur annually. The Panel welcomes the fact that POI undertakes a cross-calibration (i.e. compares data between operational sensors) once annually, and that the errors detected between the different hydrophones are relatively small. However, it is well known that with time, hydrophone sensitivities can change, depending on the quality of the ceramic material used in their construction, thermal cycling, etc., and this can lead to problems in analysing and interpreting recorded levels. Given this, a precisely calibrated hydrophone (e.g. Bruel & Kajer 8103 model) should be used routinely (e.g. at least every other year) as a 'reference'. The Panel would welcome information on whether such verification procedures have been undertaken.

8.2 Distribution

Vladimirov provided an overview of data collected by IBM and the Russian Federal Research Institute of Fishery and Oceanography (VNIRO) during the 2012 Joint Programme vessel- and shore-based distribution surveys.

Vessel-based surveys

Vessel surveys were conducted from the R/V Igor Maksimov between 31 July and 8 October. Three such surveys were completed in the Piltun (near-shore) feeding area, six in the Offshore feeding area and one each in the Arkutun-Dagi and Piltun-Astokh license areas. The survey grids in all areas were unchanged from 2011. Overall, gray whale concentrations in the Offshore feeding area were more inshore in 2012 as compared to 2011, generally shifting into the central and shallower portion of this feeding area.

In the Piltun feeding area, gray whales were distributed throughout the central portion (i.e. mostly between shore stations 6-10) and almost exclusively within 5-6 km of shore. A small aggregation of whales to the north (i.e. between shore stations 3-4) was also observed in both August and September. Overall, the 2012 vessel-based surveys found the distribution of gray whales in waters off north-eastern Sakhalin to be broadly similar to what had been observed in earlier years.

Shore-based surveys
The shore-based distribution effort was similar to that of previous years. Surveys were conducted between 31 August and 30 September. Although poor weather conditions prevailed during some portions of the study period, 2012 was by far the most productive year since the inception of the programme in terms of the number of surveys that were conducted. A total of 31 complete synchronised surveys (i.e. all 13 shore stations covered in a single day) were completed. The north-south distribution of gray whales in the near-shore feeding area during August-September 2012 was similar to 2011, including areas of high whale concentrations near the mouth of the lagoon. In general, the distribution of gray whales in the near-shore feeding area was similar to what had been observed in previous years.

The Panel commended the research teams for their hard work and dedication to this long-term programme.

8.3 Benthos

Vladimirov summarised sampling effort and data for benthic invertebrates and sand lance in known feeding areas off north-eastern Sakhalin from the 2012 field season (extensive information provided in documents WGWAP-13/7 and 8). The Panel was pleased to learn that the changes in survey methods used during the 2011 field season had been rescinded, and that survey methods used in 2012 were comparable to those used in the years prior to 2011.

Samples and data collected during the 2012 field season included the following:

1) Surface and sea bottom water temperatures: Piltun and Offshore areas;
2) Benthic sediment grain size compositions: Piltun area, Offshore area and gray whale feeding points;
3) Contaminants in sediments: heavy metals, organochlorine pesticides dichlorodiphenyltrichloroethanes (DDTs) and hexachlorocyclohexanes (HCHs) and petroleum hydrocarbons: Piltun Area;
4) Benthic invertebrates (randomly placed stations and gray whale feeding points in all areas): Piltun area, Offshore area, Chaivo Bay, Olga Bay;
5) Biopsies from gray whales for diet assessments using fatty acid biomarker analyses: Piltun and Offshore areas;
6) Biopsies from gray whales for diet assessments using analyses of ratios of the stable isotopes of carbon and nitrogen: twenty samples were obtained from 17 whales, locations not specified.

Data continue to indicate low values for all contaminant categories in sediments of gray whale feeding areas on the north-eastern Sakhalin shelf. In all cases, measured values are below background levels (defined as naturally occurring levels in sediments prior to industrialization of the region beginning in the mid-1990s). Measured levels of heavy metals (ten categories) in sediments are in all cases below published minimum 'probable active concentrations' for detectable biological damage.

At face value, benthic invertebrate data reported for 2012 are consistent with those collected in previous years in terms of biomass, taxonomic composition, relative abundances of species and spatial distributions on the north-eastern Sakhalin shelf. Amphipod biomass has been similar across recent years in the Piltun area (at depths <15 m) and in the Offshore area (at all depths). Densities of sand lance in the Piltun area in 2012 were substantially lower than in other recent years.

Fatty acid biomarker data suggest that whales feeding in the Piltun and Offshore areas have discernibly different fatty acid spectra based on blubber biopsies. Data for whales sampled in the Offshore area show fatty acid concentrations consistent with feeding primarily on populations of the filter-feeding amphipod genus *Ampelisca*, while data for whales sampled in the Piltun area are consistent with feeding primarily on the fossorial omnivorous amphipod *Monoporeia affinus*. The observation of recognizably different fatty acid biomarker data in whales feeding in different areas is consistent with the premise that the whales remain in specific feeding areas for relatively long time periods.

In its WGWAP-12 report the Panel raised three issues of concern with regard to benthic studies undertaken by Sakhalin Energy in 2011 (recommendation WGWAP-12/03). The first was the matter of changes in sampling methods used during the 2011 benthic surveys, as acknowledged by Fadeev. The Panel had agreed with Fadeev that given the methodological changes implemented in 2011, the 2011 benthic abundance data could not be considered comparable to data from other survey years; as a consequence, inclusion of 2011 data as part of any long-term times series of data for benthic samples from the Sakhalin-II project area would be inappropriate in a statistical sense. Nevertheless, the appropriate caveats were not included in portions of document WGWAP 13/8 (e.g. figure III-5, page III-19). In its WGWAP-12 report the Panel recommended two options for managing the problem associated with the 2011 data: either 1) determination and application of statistically based correction factors to the 2011 data, such that they could remain a part of a legitimate long-term data series for benthos, or 2) recognition that the 2011 data, uncorrected, are not appropriate to include in a long-term time series of benthic data, and that any use of the 2011 data in presentations or written summaries of benthic data must be either avoided altogether or appropriately qualified.

In its official response to recommendation WGWAP-12/03, the Company indicates that it 'doesn't support the application of the correction factor to the 2011 dataset' but that it 'will discuss the matter further' with V. Fadeev, the principal investigator for the benthic studies element of the Joint Programme. The Panel acknowledges that some portions of document WGWAP 13/8 (e.g., figure III-11) separate out the data from 2011 due to 'sampling difficulties'. Nonetheless, the Panel considers recommendation WGWAP-12/03 open pending a response from Sakhalin Energy concerning the outcome of its discussions with Fadeev.

The second issue raised at WGWAP-12 related to a statement in document WGWAP-12/6 (page 4-101) that no benthic samples had been collected during 2011 in the Chaivo feeding sub-area, unlike previous years, because 'no feeding whales were observed' in that area. In recommendation WGWAP-12/04 the Panel asked for clarification of this statement. In its official response, the Company explained that sampling in 2011 'wasn't complete because of the tight vessel schedule with Satellite Tagging operations from the same vessel'. It further indicated that the Chaivo area 'was completely sampled in 2012 and will continue in 2013 and further'.

The third issue raised was the Panel's repeated recommendations that Sakhalin Energy add sampling for polychlorinated biphenyl (PCB) and polybrominated diphenyl ether (PBDE) residues to the existing sampling protocol for persistent organic contaminants in gray whale feeding areas off north-eastern Sakhalin (initially recommendation WGWAP-10/011) and that sampling of benthic organisms for tissue contamination be expanded to include specific groups of known or suspected primary gray whale prey (initially recommendation WGWAP-10/012). In its official response to both of those recommendations following WGWAP-10, the Company indicates that it 'will discuss [the matter] … [and] investigate how this could be implemented'.

During discussion at this meeting, however, the Company stated its view that it would be unlikely to find PCB or PBDE residues in the gray whale feeding areas given the environmental setting with regard to likely sources of contamination. The Panel finds the explanation both difficult to understand and implausible for four reasons. First, dismissal of a sampling effort based on assumption is far inferior, conceptually, to verification of a conclusion based on empirical measurements. Second, PCBs and PBDEs are known to be associated with emergence of regional industrialisation, and if oil exploration and production activities on the Sakhalin shelf are in fact not producing PCBs or PBDEs in gray whale feeding habitats, it would be to everyone's benefit, but

especially the companies' benefit, to have empirical confirmation of this. Third, the companies seem willing to provide data on DDT and HCH residues in sediments of the north-eastern Sakhalin Shelf region, despite the fact that DDTs are pesticides most often associated with agricultural development, and HCHs are insecticides most often used in treating head lice and limiting insect infestations of fruit, vegetable and forest crops. Thus, neither category of contaminant would be expected to occur in significant quantities off Sakhalin. Finally and most importantly, it is vital in a conservation context to know to what extent, if any, gray whales are exposed to a range of persistent organic contaminants when feeding in benthic habitat off north-eastern Sakhalin. In that context, monitoring of PCB and PBDE residues is arguably of higher priority than monitoring of DDTs or HCHs. The Panel supports continued monitoring of DDTs and HCHs, but **reiterates** previous recommendations that (a) sampling for persistent organic compounds in gray whale feeding areas be expanded to include documentation of PCB and PBDE residues (recommendation WGWAP-10/011) and (b) sampling of benthic organisms for tissue contamination be expanded to include the previously specified known or suspected primary gray whale prey (recommendation WGWAP-10/012).

8.4 Photo-ID

Tyurneva provided an overview of information collected during the joint Sakhalin Energy/ENL 2012 photo-identification surveys. Overall, the 2012 survey effort was remarkably high in comparison to previous years. Small-boat surveys were conducted off Sakhalin during 34 missions between 3 August and 5 October with 97 hours dedicated to photographing whales in the Piltun, Offshore and Chaivo areas (some photographs were also obtained opportunistically from aboard the R/V *Igor Maksimov*). Nearly 19,000 photographs were collected, resulting in the identification of 144 different whales including one mother-calf pair and eight independent calves (meaning that the total number of calves in 2011 was nine). [Note: Based on Tyurneva et al. (2013) which states: "… a total of 144 individual gray whales were documented by the IMB team off the coast of Sakhalin Island; 14 individuals, including 9 calves, were identified as new whales, i.e., registered for the first time. Seventeen gray whales, including 3 calves,were identified in Olga Bay (Kamchatka) in 2012; 6 of these whales have been sighted offshore Sakhalin in earlier years. Thus, out of 219 gray whales recorded in the IMB Sakhalin gray whale catalogue, 150 individuals were documented off Sakhalin and Kamchatka in 2012."] In addition to the standard photo-identification work off Sakhalin in 2012, the IBM team collected 20 biopsies from 17 different whales.

Photo-identification surveys in Olga Bay, south-eastern Kamchatka, were not part of the Joint Programme in 2012. V. Vertyankin independently conducted photo-identification surveys, however, and provided photographs and data to IBM for analysis. Surveys were conducted during eight days between 25 July 2012 and 25 August 2012 (two in July and six in August). Almost 4,000 photographs were collected, resulting in the identification of 17 whales. Eleven of these 17 whales had been sighted in previous years off Kamchatka while six were new to the catalogue. Six of the 11 whales already in the Kamchatka catalogue had been sighted off Sakhalin. None of the whales photo-identified off Kamchatka in 2012 were observed off Sakhalin in 2012. Two mother-calf pairs and one independent calf were identified in Olga Bay. Neither of the females and none of the three calves had ever been photo-identified off Sakhalin.

In discussion, the Panel noted the lower number of whales identified off Kamchatka in 2012 despite similar or slightly more survey effort compared to some previous years (see Table II-12 in document WGWAP 13-8). For example, 2011 field effort off Kamchatka began about the same time as in 2012 (21 July vs 25 July) and ended earlier (8 August vs 25 August) and had fewer survey days (6 days vs. 8 days) but nevertheless resulted in more identified whales (30 vs 17). Further, the Panel noted that there was no detected movement of any individual whales between Kamchatka and Sakhalin in 2012, in contrast to previous years. In comparison, in 2011 at least one intra-seasonal match between Kamchatka and Sakhalin was made (see Turyneva et al. 2012). These findings, alone and in combination, signal a possible change from previous years in the situation of whales off Kamchatka and show the importance of continuing the survey effort off Kamchatka.

The Panel welcomed the presentation of these data and thanked Tyurneva and her colleagues, as well as Vertyankin, for their dedication and hard work.

8.5 Progress on MVAs and Integrated Analysis

Vladimirov provided a brief summary of progress being made on the integrated analysis. He noted that the work is nearly completed; datasets have been integrated and there has been some success in integrating acoustics with benthic and distribution as reported at WGWAP-12. Good progress has also been made in terms of visualisation of the data and has been quite informative, especially with regard to acoustic parameters. Sakhalin Energy expects a draft report to be ready by the end of 2013. This report will be reviewed by Sakhalin Energy and ENL and then submitted to regulators (MNRE).

The Panel welcomed this news which is of great interest in the context of examining cumulative effects and the potential impacts of certain activities on whales. After this submission process is completed, the Panel **requests** that IUCN consult with the necessary parties to obtain a copy of the report for the Panel to read.

9 NOISE ISSUES

9.1 Report of NTF-4 meeting

Donovan summarised the results of the NTF-4 meeting and readers are referred to the NTF-4 report for details[9].

As mentioned above under agenda Item 7, considerable time was devoted by the task force to a detailed discussion of the Panel's previous recommendation concerning the need for testing and evaluating boats available for use by the photo-ID teams in 2013 (recommendation WGWAP/JPTF-07). This led to development of the following recommendation, which was adopted in full by the Panel:

Recommendation on the comparison of the RHIB and FRC
Objective To obtain representative noise signature measurements for the Sakhalin Energy Rigid Hull Inflatable Boat (RHIB) and Fast Response Cutter (FRC) jet-drive to determine whether the latter is considered suitable for use (from a noise perspective) in the photo-ID and biopsy work during 2013 and beyond (the RHIB will be the default choice until the noise signature measurements have been collected and reviewed by a small group identified for this purpose.) **Data requirements/analyses** The work falls into two stages: (1) the collection of data from an experiment carried out in which the two vessels undertake speed and course manoeuvres around two deployed mini Autonomous Underwater Acoustic Recorder (AUAR)s; and (2) the rapid completion of specific analyses of the results and an assessment of these by a small group who will provide an informed judgement on whether the FRC would be a suitable alternative in terms of potential noise disturbance of gray whales. The technical details of each stage were developed during this meeting (NTF-4) and are given in its report. **Responsible persons** Company personnel will be responsible for the collection and analyses of the acoustic data and the circulation of results to the small group (at least Donovan, Nowacek, Racca, Rutenko, Southall, Vedenev, Vladimirov) via IUCN. The small group will be responsible for developing advice on the suitability of the FRC and providing that advice to the Company and the Panel via

[9] The report of the NTF-4 meeting is soon to be available at http://iucn.org/wgwap/wgwap/task_forces/noise_task_force/

IUCN within the specified time frame.

Timeline

Collection of data as soon as possible within the season, taking into account practical and permit considerations (expected mid-August). [Subsequently, the Panel was informed that the experiment could not be carried out until mid-October.] Within three days of analysed data being received by the small group, IUCN will organise a conference call to develop advice, which will be transmitted by Donovan (or substitute) to the Company and the Panel.

Important details on field data collection methods, acoustic analyses and measurements, and the process for rapid assessment of results were provided by the NTF and should be considered intrinsic elements of this recommendation.

9.2 Unidentified noise sources

In recommendation WGWAP-12/005 (see agenda Item 3.4 of the WGWAP-12 report), the Panel requested that Sakhalin Energy provide a description of its activities around the PA-B platform during specified periods in August and September 2011 when anomalously high continuous noise levels were identified. Discussions at NTF-4 indicated that there had been no unusual events during routine operations on or around the platform and no plausible hypotheses were found that would explain the recorded noise levels. One suggestion was that the elevated levels were associated in some way with the accommodation vessel, which is normally stationed at the platform to provide rooms for personnel.

To resolve the issue of unidentified noise sources in the platform area, the Panel suggests that acoustic data be acquired by deploying a Pacific Oceanological Institute (POI) buoy close to the platform (within 2 km) for a year (a full season of work). Correlation of acoustic data from that buoy with the data from other Joint Programme buoys could lead to an explanation for the unusually high noise levels that are sometimes registered from areas close to the platform. Another option discussed at NTF-4 for helping to identify sources of the noise (whether they are associated with the platform's operations or not) would be to install vibration sensors on the platform itself. Correlation (comparison) of tonal components in spectra of vibrations registered on the platform with acoustic data recorded by monitoring buoys could point to potential noise sources on and around the platform.

The Panel **endorsed the recommendation** agreed by the NTF regarding the use of detection algorithms to identify periods of excessive noise in all acoustic records, as follows:

Recommendation to perform a comprehensive analysis of all acoustic records using an automated detector of loud noise periods of likely anthropogenic origin

Objective

To facilitate the detection of periods of elevated noise of likely anthropogenic origin in recorded data from an acoustic station with a view to identifying the sound source(s) and thereby enabling future mitigation.

Data requirements/analyses

A software detector should be identified with suitable capacity to recognise periods of elevated noise with spectral characteristics indicating that it as likely anthropogenic. The detector should then be used to process all the data from the various acoustic stations deployed over a season. The identified periods of noise should then be reviewed manually to verify that the detection was correct, and suitable interpretation of the nature of the detected noise then carried out as appropriate.

The detector algorithm should be based on a two-stage approach:

(1) Detection of periods in the acoustic data for which the RMS Sound Pressure Level (SPL) computed over the frequency band 10-1000Hz exceeds specified thresholds (to be agreed by the NTF for each station – see below) for each buoy for at least 15 minutes;
(2) Frequency domain analysis of the acoustic data within the periods identified in (1) to detect the presence of at least one tonal component within the same frequency range.

The detection of tonal components in the data can be achieved by a number of methods. One possible approach is to generate time-frequency intensity plots (sonograms) of the acoustic signal for the periods selected in the first stage and apply standard image processing algorithms such as contouring and blob analysis to detect the presence of linear shapes along the time axis in the density surface. This approach can detect tonal lines even in signals relatively cluttered by natural ambient or other non-tonal noise.

Responsible persons

The Company will suggest specified thresholds to the NTF before running the software. IUCN will co-ordinate the submission of the suggestions to the NTF and the holding of a teleconference to agree these.

Timeline

The work should be undertaken in time to allow the algorithm to be used for the 2013 acoustic data, and periods of elevated noise should be highlighted in a document to the Panel to assist in reviewing the 2013 acoustic report.

9.3 Future seismic surveys

The Panel enquired about the timing and nature of future seismic surveys. The NTF had had a brief discussion of the general topic as well as of some issues, e.g. how to minimise power. The main aim at NTF-4 and this meeting was to establish the principle that general as well as specific issues need to be addressed, and there will be a substantial discussion of seismic surveys at the next NTF meeting. The Panel recalled the review of alternative means of acquiring geophysical data prepared by John Diebold under contract to IUCN in advance of the second Seismic Survey Task Force (SSTF) meeting (see Item 3.2 in the SSTF-2 report), and that this subject had also been investigated by a workshop sponsored by the Okeanos Foundation for the Sea in 2009 (Weilgart 2010). Although it recognises there are limitations when it comes to acquiring 4-D data, the Panel believes that other possibilities for collecting such data, rather than sole reliance on high-power airgun surveys, need to continue to be explored.

Broker advised the Panel that work on one type of alternative technology, vibroseis, is under way, sponsored by Shell, XOM and Total as part of the Joint Industry Programme (JIP). He added that a comparative EIA (between airguns and vibroseis) had already been prepared by LGL and is available on the JIP website. Broker emphasised that although vibroseis is a promising technology, it should not be expected to replace conventional airgun surveys entirely.

The Panel again raised the question of whether archival multi-sensor acoustic tags (e.g. DTag or Accusonde) might be used to obtain data relevant to the design of seismic survey mitigation strategies. The NTF had signalled that there was continued interest in the use of such instruments, and this subject will be considered further in the context of the upcoming 4-D survey and other future surveys. There was interest in seeing a more detailed proposal for consideration at the next NTF meeting.

9.4 Acoustic control station

The Control station implemented in 2005 was at a sufficient distance from both Sakhalin Energy and ENL operations that background noise there was not expected to be influenced by these companies' activities. Levels recorded at the Control station were intended to represent the 'ambient', i.e. the sound produced by natural sources (e.g. wind and precipitation) as well as anthropogenic noise from sources not associated with either Sakhalin Energy or ENL (e.g. distant vessel traffic, seismic surveys or pile driving). Now that activities, particularly seismic surveys, of other companies have become much more frequent off north-eastern Sakhalin, the 2005 Control station may no longer fulfil the role for which it was intended.

Noise levels recorded at the Control buoy are clearly influenced by industrial activities, and at times they even exceed the exposure thresholds identified by the Panel as 'acceptable' for western gray whales. For example, starting on 12 August 2011, broadband continuous noise at this buoy rose above 120 dB_{RMS} and persisted until 15 August. For approximately five continuous hours during this period, the received noise levels actually exceeded 140 dB_{RMS}. This buoy is well north of the primary near-shore (Piltun) feeding area, but in terms of its function as a control site, these levels are troubling. Elevated levels at this location had indeed been registered in the past (e.g. 21-22 September 2010), and it is probably no longer possible to regard it as a suitable 'control site'. Clearly the area is no longer 'quiet' nor does it reliably reflect 'natural' ambient conditions at the present time.

To investigate trends in background noise levels off north-eastern Sakhalin (due to gradually increasing industrial activities since 2005), the Panel suggests that graphs be produced for averaged noise levels and spectra in the low frequency band (up to 2 kHz) using long-time averaging (week, month) for consecutive years (2005-2012) based on records from the Control station. It would also be useful to look at 50% percentile statistical analysis of the data with the same long-time averaging for the same years.

Given the anticipated pier construction by ENL in Piltun lagoon scheduled to begin late next year (see agenda item 3.2), the Panel believes the existing Control station should continue to be used to collect acoustic data, but no longer under the assumption that those data are unaffected by local oil and gas exploration and production activities. The increasing noise levels documented at this site will be useful in tracking cumulative impacts into the future. The Panel also believes, however, that a new 'quiet' area should be identified that is more likely to reflect the true 'ambient' conditions.

9.5 Future work of Noise Task Force

In 2011, the name of the Seismic Survey Task Force was changed to the Noise Task Force (NTF) to acknowledge that its remit should include all aspects of the noise issue and not exclusively those related to seismic surveys. The future work of this task force was laid out in detail in the NTF-4 report. Major areas of focus include: (1) regular review of the annual acoustics report from the Joint Programme, (2) in-depth consideration of the cumulative effects issue, (3) review of results from the 2012 seismic survey (site survey for South Piltun) monitoring programme and (4) planning for mitigation and monitoring of future seismic surveys.

10 SATELLITE TAGGING

At WGWAP-12, Weller summarised an assessment of follow-up photographs from whales satellite tagged off Sakhalin in 2010 and 2011. After that review, the Panel recommended that a similar exercise to determine the effects of tagging on the animals' health be conducted and presented to the Panel at WGWAP-13 by: (1) the IBM team for whales photographed off Sakhalin (and Kamchatka), and (2) Mate for eastern gray whales he has tagged off the US west coast in the past several years. Mate reported that a group of veterinarians is examining images of tag-related wounds and subsequent healing in gray whales and sperm whales. This evaluation is expected to result in a journal publication sometime in the future.

In discussion, it was noted that no tagging off Sakhalin or Kamchatka would occur in 2013 but there seemed to be considerable enthusiasm for such work to take place in 2014 if funding can be confirmed. The subject of funding opened further discussion concerning the question of why telemetry work had not been incorporated as part of the joint gray whale monitoring programme sponsored by companies operating on the Sakhalin shelf. The Panel recalled the extended debate within the conservation and research communities surrounding the question of whether implantable tags should be used on this critically endangered whale population and if so, on what terms and conditions. This may help explain why tagging has not been made a routine element of monitoring and mitigation work by the companies. After considerable discussion, meeting participants agreed on the need to secure outside sources of funding not only for further tagging work but also for other types of research on western gray whales that the companies consider to be outside the Joint Programme framework.

The Panel cautioned that relatively new and powerful research tools such as satellite tags are used to best effect when they are employed to address specific research questions rather than simply to 'see what happens'. When possible, such questions should be framed in quantitative as well as qualitative terms and priorities should be assigned in relation to the significance or importance of the questions being asked. Similar to WGWAP-12, there was considerable discussion on whether it would be appropriate to initiate a tagging effort in Kamchatka given that the sample size of tagged whales at Sakhalin was still small (only three individuals have been tracked outside of the Sakhalin feeding area) and outstanding questions remain to be answered from additional tagging there. Although the Panel agreed (again) that tagging at Kamchatka would lead to interesting results and address important questions, it continues to believe that the highest immediate priority should be at least one more tagging effort at Sakhalin Island, if possible in 2014, as recommended at WGWAP-12 (recommendation WGWAP-12/08).

The Panel further noted that in considering the types of questions that are most important for conservation (e.g. the routes used by gray whales to travel south, at least to Japan, and back into Russian waters; what factors determine the movements and habitat selection of the Sakhalin whales over the course of the open-water season), other approaches in addition to, or in some cases even instead of, satellite tagging could be useful. For example, greater effort might be made to engage and support researchers in Japan and China to carry out field surveys in areas where, based on historical and interview data, small numbers of gray whales may still occur. In addition, the use of tags designed to acquire finer-scaled, shorter-term data on local movement patterns, behaviour, environmental features etc. might be very informative in terms of better understanding changes in distribution or behaviour that relate to human activities.

11 WGWAP WORKPLAN FOR REMAINDER OF 2013

As mentioned under agenda Item 1.4 above, the time available at meetings for closed Panel discussions and report preparation has always been limited and has become more so. For example, to date, the Panel has never had an opportunity to meet as a group for a reasonable block of time in order to take stock of progress (e.g. review the status of the more than 500 recommendations made by the western gray whale panels since 2004), identify important information gaps and develop the strategic, proactive approach to its work that is expected and warranted. While time problems have always existed, they have become worse since the length of meetings has been shortened from 4 days to 3 days from WGWAP-8 (at the insistence of Sakhalin Energy). The Panel has been forced to prepare its advice and reports under increasing time pressure, and generally during brief, fragmented sessions typically at the end of already-long, intense days of presentations and discussion. Given the different time zones of Panel members, the complexity of many of the issues and the other responsibilities of Panel members, this work can most efficiently be achieved by face-to-face meetings. Video- or teleconferencing can be a valuable tool in some circumstances with short, straightforward tasks but it cannot replace face-to-face meetings. The Panel believes that the present mode of operation needs to change if the WGWAP process is to fulfil its stated role adequately. Therefore, the Panel will attempt to build into the planning of the next meeting at least one full day

(following the open plenary period) for internal discussion and report development. Among other issues to be addressed in such a context besides past recommendations are cumulative impacts and the IFC net-benefit requirement.

The Panel also sees great value in being able to meet privately with IUCN staff to focus explicitly and in-depth on some information and support issues, including the website and databases, that otherwise receive only sporadic and cursory attention in the open meetings. For example, questions raised at this meeting (see Items 2 and 3) on how the Panel can contribute to, and help shape, IUCN's on-line presentations of the mapping, oil/gas project information, document library (or libraries) and recommendations can only be addressed if dedicated time is made available for such work.

The ongoing and anticipated work of the Noise Task Force is summarised under item 9.6 and it was agreed that this task force should meet again early in 2014 after contracting of the seismic vessel for the 2015 Piltun-Astokh 4D survey has been completed. [Note: At the initiative of Sakhalin Energy, a NTF meeting was planned at short notice and held in Amsterdam on 11-12 October 2013.]

It is the Panel's view that the next meeting should occur before the end of 2013 in order to move ahead with the issues mentioned above. The agenda for the open plenary component of such a meeting, e.g. for receiving updates on field activities in 2013 and addressing outstanding questions on the standard array of topics, could be relatively short. However, a total meeting period of up to four or five days is foreseen for the Panel, one or two days in the regular plenary sessions, one day for Panel work with IUCN addressing, among other things, the issues mentioned under agenda Items 2 and 3, at least one day dedicated to private Panel discussions, and one day of report preparation. This schedule means that Sakhalin Energy representatives would need to be present for only 1-2 days plus travel time rather than the present 3.

With regard to venue, for many previously stated practical reasons the Panel's preference is that its meetings take place in Switzerland. However, Sakhalin Energy has stated that Panel meetings should be held in Russia, Japan or South Korea. Of those three countries, South Korea is preferable to the IUCN secretariat for reasons of lower cost; also, Saksina stated that she believes the South Korean government could become interested in contributing funds.

The Panel noted that most of the recent records of gray whales in East Asia outside Russia have been in Japan and also that with greater effort it should be possible to attract more Japanese scientists to attend as observers. Kasuya suggested that if another WGWAP meeting were held in Japan, it would be important to encourage and facilitate media attention and take advantage of the opportunity to raise local awareness of western gray whales. This might be accomplished through an 'extra' half-day public session such as that arranged immediately following the IUCN-sponsored western gray whale workshop at the national museum in Tokyo in 2008. With regard to cost, several Panel members indicated that, based on their own experience of organising scientific meetings in Japan, it should be possible to make economical arrangements. Funahashi, the IFAW observer from Japan, kindly offered to help with this, as well as with the organisation of a public awareness session, if she is requested to do so.

12 OTHER BUSINESS

Two items of other business were considered, one related to an IWC initiative presented by Donovan and the other concerning a proposed change in vessel traffic corridors as stipulated in Sakhalin Energy's Marine Mammal Protection Plan.

12.1 Proposal for Rangewide Review and Revised Conservation Management Plan

Donovan presented a proposal for a two-stage approach to investigate population structure of gray whales in the North Pacific Ocean and develop necessary conservation actions. The first stage would involve an international workshop on population structure and status and begin the process of

modifying the existing draft Conservation Management Plan (CMP) [10], with a focus on research and development of a modelling framework. The second stage would involve a workshop to review results of the population modelling together with information on future human activities and to update the CMP with a focus on management-related actions. It was suggested that the process should proceed under the auspices of the IWC, with co-sponsorship by IUCN, Sakhalin Energy, ENL and if possible other parties including additional oil and gas companies; these would have *inter alia* a role on developing the final agenda and being represented on a steering group.

The first workshop would be primarily scientific in nature and scope while the second would address a mixture of scientific and management concerns. For planning purposes, it was proposed that these workshops could take place in June and September 2014, respectively. The main outputs would be a series of published scientific papers, possibly in a special issue of a journal, and an updated, authoritative CMP that has range state endorsement and support.

During the IWC Scientific Committee meeting the proposal was revised such that the timeframe for the two workshops was extended, with the suggestion that the second workshop would take place after the 2014 meeting of the Commission.

Although it was recognized that the subject is a dynamic one, with gray whales being observed in unexpected places and recent evidence having shown that traditional assumptions about their movements are in need of revision, data currently available from photo-identification, genetics and telemetry are sufficient to justify an initiative such as the one proposed. Not only would it lead to a valuable synthesis and provide an important state-of-knowledge benchmark, but it would also serve to identify gaps in data, sampling and information and thereby guide and focus future work. Given recent developments with regard to North Pacific right whales and humpback whales, relevant case studies on those species could prove informative for the scientific workshop in particular.

12.2 Corridors

The Company presented a proposal (document WGWAP-13/20) from its Marine Department for a change to the vessel traffic corridor. This change would allow supply vessels and other ships involved in Sakhalin Energy operations to take a more direct, nearer-shore route as they approach the LUN-A platform from the south and as they leave it again south-bound. As such, this would reduce operational costs, sailing time and exhaust emissions. The Company emphasised that the new route would not impinge on gray whale feeding habitat as presently defined and that no other aspect of Sakhalin Energy's vessel management programme would be affected. In other words, the stipulations currently outlined in the Marine Mammal Protection Plan, including vessel speed restrictions and the use of dedicated, trained Marine Mammal Observers (MMOs) under specified circumstances, would remain unchanged. It was noted by Company officials that although the maximum allowed speed of vessels travelling within the corridor was 16 knots, they actually normally operate at 12 knots.

In discussion of this proposal, the Panel noted that one of the satellite-tagged whales had moved south towards the area of the proposed new corridor, raising the possibility that gray whales would be encountered in the corridor at least occasionally. In response to a question of whether there were any records of sightings on the proposed route, the Company stated that existing MMO records contained no evidence of sightings to the south of the Offshore feeding area. The Panel pointed out, however, that MMO coverage to date applies only to the existing corridor which is well offshore of the proposed new route. Additionally, the Panel recalled that some industry-funded systematic vessel and airplane surveys had been conducted in the early 2000s along the entire length of the eastern Sakhalin coastline and the reports and data from those surveys should be examined for observations of gray whales on or near the proposed new route. Finally, the question of whale migration routes was discussed, with some Panel members expressing concern about potential impacts on whales approaching or leaving the feeding grounds.

[10] See https://cmsdata.iucn.org/downloads/wgw_conservation_plan.pdf

The Company stated that any risk to whales would be mitigated by vessel speed restrictions and the presence of MMOs on-board. Sakhalin Energy suggested that the Panel may wish to recommend that the new route be established on a provisional basis for one season (2013), after which time the Company would report back and facilitate further Panel review. The Panel agreed with this suggestion and therefore **agreed** that the proposed change to the corridor be implemented for one year, on a provisional basis, for reconsideration at a future Panel meeting based upon a report from the Company concerning MMO effort, whale observations and recorded vessel speeds.

12.3 Final Comments

The Panel was particularly pleased that Swindoll, from ENL, and Kasuya, a Japanese gray whale expert, were able to attend this meeting and participate as observers. The Panel thanked them and the other observers for their important contributions and expressed its hope that such interest and participation can be maintained. The Panel further acknowledged Saksina's effective efforts in trying to stimulate interest and facilitate participation in the WGWAP process by Russian officials and other oil companies. Finally, the Panel noted the work of Sakhalin Energy to provide information, reports and slide presentations.

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14 SUMMARY OF RECOMMENDATIONS FROM THE 13TH MEETING OF WGWAP

Recommendation Number	Cross-Reference	WGWAP Recommendations & Requests	Responsible Party/Parties	Target Completion Date	Sakhalin Energy Response
ITEM 2: UPDATES					
WGWAP-13/001	Item 2.3.3.	However, any increase in the overall frequency of large seismic surveys in the region, particularly if they are without mitigation, would be of great concern to the Panel (see for example the information provided with respect to Gazprom, item 3.2 below). The Panel therefore **requests** that at the next meeting, Sakhalin Energy provides a clearer explanation of why the Company now foresees repeat surveys every three years and also how it has addressed, or plans to address, the question of potential alternatives to more frequent and extensive airgun surveys as discussed previously by the Panel and during previous NTF and SSTF meetings ….	Sakhalin Energy	WGWAP-14	
ITEM 6: PROGRESS ON INTER-SESSIONAL PANEL WORK					
WGWAP-13/002	Item 6.2.	Recognising that there have been some unfortunate misunderstandings and delays on all sides over this issue, the Panel **recommends** that IUCN provides an English-language version of Fadeev's completed literature review, at first convenience, and make it available for the Panel's consideration. Once this document has been received and evaluated, the Panel will consider options for a constructive path forward to ensure completion of the full analysis, which was always meant by the Panel to be broader than just a literature review. This will require support from IUCN. Therefore the Panel **recommends** that IUCN includes the environmental analysis project in the 2014 WGWAP budget (if necessary revised in the light of the as yet unseen review by Fadeev), following direct consultation with Panel members of the EMTF (VanBlaricom, Dicks, Reeves, Tsidulko and Weller).	IUCN	As soon as possible	

Recommendation Number	Cross-Reference	WGWAP Recommendations & Requests	Responsible Party/Parties	Target Completion Date	Sakhalin Energy Response
ITEM 7: JOINT PROGRAM TASK FORCE REPORT					
WGWAP-13/003	Item 7	The Panel had indicated that it supports the intention of trying to collect biopsies only from whales not previously sampled because these will at least allow determination of the animal's sex and provide its genetic profile (see recommendation WGWAP-12/026). In its response to recommendation WGWAP/JPTF/09 the Company asked for advice from the Panel on the selection criteria. It was agreed, after a brief and inconclusive discussion, that this matter would require further inter-sessional discussion among the relevant parties in order to make progress. Weller agreed to act as the Panel point of contact to pursue this matter, and the Panel **requests** that Sakhalin Energy nominate its point of contact. Weller will report back on progress no later than the next Panel meeting.	Sakhalin Energy	No later than WGWAP-14	
ITEM 8: RESULTS OF 2012 JOINT PROGRAMME					
WGWAP-13/004	Item 8.1.	**Recommendation for the inclusion of Company activities with the annual Acoustics report:** **Objective** To facilitate the interpretation of data in the annual Acoustics report, presentation of information on major activities of the Company potentially associated with the acoustic data (e.g. vessel arrivals and departures, platform work etc.) should be reported – this is relevant to 'quiet' as well as 'noisy' periods. **Data requirements/analyses** Information is needed about the Company's activities, e.g. timing and nature of work on or associated with the platforms. The Company has provided such information in the past, and little additional analytical work on the acoustic	Sakhalin Energy	Annual as part of regular report	

Recommendation Number	Cross-Reference	WGWAP Recommendations & Requests	Responsible Party/Parties	Target Completion Date	Sakhalin Energy Response
		data is required. Logbook data from the platform and any vessels operating at or near it should suffice. The Company will suggest to the Noise Task Force the level of detail to be presented regarding the activities and methods of presenting the information that do not risk revealing confidential information to other operators. This suggestion should be informed by past events and associated noise levels. **Responsible persons** The Company will provide the information to the Noise Task Force. **Timeline** This procedure should be followed on an annual basis, and the timeline of activities should be provided with the annual Acoustics report.			
WGWAP-13/005	Item 8.5	The Panel welcomed this news [regading near-completion of the integrated analysis] which is of great interest in the context of examining cumulative effects and the potential impacts of certain activities on whales. After this submission process [to the regulators] is completed, the Panel **requests** that IUCN consult with the necessary parties to obtain a copy of the report for the Panel to read.	IUCN	As soon as feasible	
ITEM 9: NOISE ISUES					
WGWAP-13/006	Item 9.1.	**Recommendation on the comparison of the RHIB and FRC:** **Objective** To obtain representative noise signature measurements for the Sakhalin Energy Rigid Hull Inflatable Boat (RHIB) and Fast Response Cutter (FRC) jet-drive to determine whether the latter is considered suitable for use (from a noise perspective) in the photo-ID and biopsy work during 2013 and beyond (the RHIB will be the default choice until the noise signature measurements have been collected and reviewed by a small group identified for this purpose.)	Sakhalin Energy	No later than end of 2013 field season	

Recommendation Number	Cross-Reference	WGWAP Recommendations & Requests	Responsible Party/Parties	Target Completion Date	Sakhalin Energy Response
		Data requirements/analyses The work falls into two stages: (1) the collection of data from an experiment carried out in which the two vessels undertake speed and course manoeuvres around two deployed mini Autonomous Underwater Acoustic Recorder (AUAR)s; and (2) the rapid completion of specific analyses of the results and an assessment of these by a small group who will provide an informed judgement on whether the FRC would be a suitable alternative in terms of potential noise disturbance of gray whales. The technical details of each stage were developed during this meeting (NTF-4) and are given in its report. **Responsible persons** Company personnel will be responsible for the collection and analyses of the acoustic data and the circulation of results to the small group (at least Donovan, Nowacek, Racca, Rutenko, Southall, Vedenev, Vladimirov) via IUCN. The small group will be responsible for developing advice on the suitability of the FRC and providing that advice to the Company and the Panel via IUCN within the specified time frame.			
WGWAP-13/007	Item 9.2	**Recommendation to perform a comprehensive analysis of all acoustic records using an automated detector of loud noise periods of likely anthropogenic origin** **Objective** To facilitate the detection of periods of elevated noise of likely anthropogenic origin in recorded data from an acoustic station with a view to identifying the sound source(s) and thereby enabling future mitigation. **Data requirements/analyses** A software detector should be identified with suitable capacity to recognise periods of elevated noise with spectral characteristics indicating that it as likely anthropogenic. The detector should then be used to process all the data from the various acoustic stations deployed over a season. The identified periods of noise should then be reviewed manually to verify that the detection was correct, and suitable interpretation of the nature of the detected noise then carried	Sakhalin Energy, IUCN	Well in advance of WGWAP-14	

Recommendation Number	Cross-Reference	WGWAP Recommendations & Requests	Responsible Party/Parties	Target Completion Date	Sakhalin Energy Response
		out as appropriate. The detector algorithm should be based on a two-stage approach: (1) Detection of periods in the acoustic data for which the RMS Sound Pressure Level (SPL) computed over the frequency band 10-1000Hz exceeds specified thresholds (to be agreed by the NTF for each station – see below) for each buoy for at least 15 minutes. (2) Frequency domain analysis of the acoustic data within the periods identified in (1) to detect the presence of at least one tonal component within the same frequency range. The detection of tonal components in the data can be achieved by a number of methods. One possible approach is to generate time-frequency intensity plots (sonograms) of the acoustic signal for the periods selected in the first stage and apply standard image processing algorithms such as contouring and blob analysis to detect the presence of linear shapes along the time axis in the density surface. This approach can detect tonal lines even in signals relatively cluttered by natural ambient or other non-tonal noise. **Responsible persons** The Company will suggest specified thresholds to the NTF before running the software. IUCN will co-ordinate the submission of the suggestions to the NTF and the holding of a teleconference to agree these. **Timeline** The work should be undertaken in time to allow the algorithm to be used for the 2013 acoustic data, and periods of elevated noise should be highlighted in a document to the Panel to assist in reviewing the 2013 acoustic report.			

ANNEX 1. LIST OF PARTICIPANTS

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Observers – Lenders and Others

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Bruce MATE, ENVIRON
Toshio KASUYA, Japanese whale scientist
Masako OKADA, Mizuho Corporate Bank Ltd
Corinne RAUX-FOGGON, Standard Chartered
Mike Swindoll, Exxon Neftegas Limited (ENL)

Interpreters

Alexander DANILOV
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ANNEX 2. FINAL MEETING AGENDA

WESTERN GRAY WHALE ADVISORY PANEL		**15-17 May 2013**
13th meeting		**Hotel Okura Tokyo, Japan**
PROVISIONAL AGENDA AND TIME SCHEDULE		
15 May, Day 1, room "Clifford" (2F, Main Building)		**Documents**
09:00 – 09:30	**1. Opening of the 13th WGWAP meeting** 1.1 Introductions and logistics 1.2 Adoption of agenda 1.3 Documents 1.4 Report drafting procedures and timeline	WGWAP-13/1 WGWAP-13/2 WGWAP-13/3 WGWAP-13/4 WGWAP-13/5 WGWAP-13/19
09:30 – 10:30	**2. Updates** 2.1 Outstanding business from previous meetings, including the status of recommendations [***Reeves, Saksina, Vladimirov***] 2.2 Website and other IUCN activities [***Saksina, Berzina***] 2.3 Update on South Piltun, Sakhalin Energy work and planned activities including 2015/16 Seismic Plans etc. [***Evans, Vladimirov***] 2.4 IWG/MNRE meeting reports [***Reeves, Saksina, Vladimirov,Yablokov***]	
10:30 – 10:45	*Coffee break*	
10:45 – 11:15	**3. Industry update** 3.1 Activities on Sakhalin Shelf in 2013 and beyond [***Berzina***] 3.2 Access to information and mapping [***Berzina***]	
11:15 – 12:30	**4. Taking Stock/Roadmap** [***Lundin***]	
12:30 – 13:30	*Lunch break*	
13:30 – 15:30	**Taking Stock/Roadmap (continued)**	
15:30	*Adjourn*	
16 May, Day 2, room "Kensington Terrace" (12F, South Wing)		**Documents**
09:00 – 10:00	**Concluding discussion and way forward on Roadmap**	
10:00 – 10:30	**5. Cumulative Effects and IFC-related Issues – briefly considered pending in-depth discussions at WGWAP- 14** [***Donaghy***]	
10:30 – 10:45	*Coffee break*	
10:45 – 11:30	**Discussion and way forward on Cumulative Effects and IFC-related Issues (planning of in-depth work between meetings and at WGWAP-14) [*to include Donovan presentation on this part of NTF-4 report*]**	

11:30 – 12:30	**6. Progress on Inter-sessional Panel Work** 6.1. Oil spills [***Reeves for Dicks***] 6.2. Environmental monitoring [***VanBlaricom***] 6.3. Photo-ID and genetics [***Weller, Cooke, Broker***] 6.4. Population assessment [***Cooke, Broker***]	
12:30 – 13:30	*Lunch break*	
13:30 – 14:00	**7. Joint Program Task Force Report** [***Reeves, Donovan***]	WGWAP-13/18
14:00 – 15:30	**8. Results of 2012 Joint Programme** [***Sakhalin Energy***] 8.1 Acoustics: main results [***Rutenko***] 8.2 Benthos [***Vladimirov for Fadeev***] 8.3 Photo-ID [***Tyurneva***] 8.4 Distribution [***Vladimirov***] 8.5 Progress on Integrated Analysis [***Vladimirov***]	WGWAP-13/6 WGWAP-13/7 WGWAP-13/8 WGWAP-13/9 WGWAP-13/10 WGWAP-13/11
15:30	*Adjourn*	
17 May, Day 3, room "Emerald" (2F, Main Building)		**Documents**
09:00 – 10:30	**9. Noise issues** 9.1 Report (provisional) of NTF-4 meeting [***Donovan***] 9.2 Discussion and resolution of noise-related issues [***Various***] 9.3 Future work of Noise Task Force [***Donovan***]	WGWAP-13/17 WGWAP-13/12 WGWAP-13/13 WGWAP-13/14 WGWAP-13/15 WGWAP-13/16
10:30 – 10:45	*Coffee break*	
10:45 – 11:15	**10. Satellite Tagging** 10.1 Review of photos etc. of tagged whales [**Mate, Others**] 10.2 Plans (if any) for 2013 season [***Mate, Others***] 10.3 Future planning and funding [***Various***]	
11:15 – 12:30	**11. Approaches to influence industry-wide practices** 11.1 Record to date [***IUCN, Panel, Sakhalin Energy***] 11.2 Suggestions from Observers 11.3 Discussion	
12:30 – 13:30	*Lunch break*	
13:30 – 14:00	**Continuation of discussion on industry-wide practices and WGWAP relations with other entities** [***Various***]	
14:00 – 15:00	**12. WGWAP Workplan for remainder of 2013**	
15:00 – 15:30	**13. Other business**	WGWAP-13/20 WGWAP-13/20-1 WGWAP-13/20-2 WGWAP-13/20-3
15:30	*Adjourn*	

ANNEX 3. LIST OF DOCUMENTS

DOCUMENT #	TITLE	LANGUAGE	STATUS
WGWAP-13/1	Provisional agenda (including time schedule)	English	Public
WGWAP-13/2	Provisional agenda (including time schedule)	Russian	Public
WGWAP-13/3	List of documents distributed in connection with the 13th meeting of the WGWAP	English	Public
WGWAP-13/4	List of documents distributed in connection with the 13th meeting of the WGWAP	Russian	Public
WGWAP-13/5	Rules of Procedure for WGWAP meetings (2013 updated version)	English	Public
WGWAP-13/6	Western (Okhotsk-Korean) Gray Whale Research and Monitoring Programme in 2012, Sakhalin Island, Russia. Volume 1: Methods	Russian	Public
WGWAP-13/7	Western (Okhotsk-Korean) Gray Whale Research and Monitoring Programme in 2012, Sakhalin Island, Russia. Volume 2: Results	Russian	Public
WGWAP-13/8	Western (Okhotsk-Korean) Gray Whale Research and Monitoring Programme in 2012, Sakhalin Island, Russia. Volume 2: Results	English	Public
WGWAP-13/9	2012 Sonograms of the Western (Okhotsk-Korean) Gray Whale Monitoring Programme off the Northeast Coast of Sakhalin Island, 2012	-	Confidential
WGWAP-13/10	2012 Marine Mammal Observer Programme, Close-out Report	Russian	Public
WGWAP-13/11	Marine Mammal Observer Programme 2012. Close-out Report	English	Public
WGWAP-13/12	Analysis of acoustic noise and parameters of low-frequency pulses recorded at geophysical surveys in Piltun-Astokhskoye oil field from June 14 to August 6, 2012	English (non-official translation)	Public
WGWAP-13/13	Study of the behaviour, movements and distribution of the gray whales near the coast of Sakhalin during the seismic survey in 2012	English (non-official translation)	Public
WGWAP-13/14	Acoustics and Hydrographic Studies on the Northeast Sakhalin Shelf 1st August to 6th October, 2012	Russian	Confidential
WGWAP-13/15	Acoustics and Hydrographic Studies on the Northeast Sakhalin Shelf 1st August to 6th October, 2012	English	Confidential
WGWAP-13/16	2012 2-D Seismic Survey Sonograms	-	Confidential

WGWAP-13/17	WGWAP 3rd Noise Task Force Meeting (NTF-3) Meeting Report	English	Public
WGWAP-13/18	WGWAP Joint Programme Task Force (JPTF) Meeting Report	English	Public
WGWAP-13/19	Rules of Procedure for WGWAP meetings (2013 updated version)	Russian	Public
WGWAP-13/20	Proposal for a change to the Southern Approach to LUN-A Platform, Offshore Sakhalin	English	Confidential
WGWAP-13/20-1	Map of Proposed New Corridor Approach	English	Confidential
WGWAP-13/20-2	Map of Existing Corridor Approach	English	Confidential
WGWAP-13/20-3	Map of Detailed Existing Corridor Approach	English	Confidential
WGWAP-13/21	IUCN presentation on Oil and Gas Development in the Sea of Okhotsk & mapping	English	Public
WGWAP-13/Inf.1	A letter of 8 May 2013 from NGOs to the WGWAP regarding "Threats to the Critically Endangered Western Gray Whale from Sakhalin II Mobile Offshore Drilling"	English	Public