

197Reference	Cross-Reference	WGWAP Recommendation & Requests	Responsible Party	Target Completion Date	SEIC Response
WGWAP 1/001	WGWAP 1/3 - Section 3.0	<p>The Panel <b>requests</b> that Sakhalin Energy prepare a schedule of its work for at least the next five years – this should include the construction and operations schedule, the research and monitoring plans and the times when decisions will be taken. As well as confirmed activities, it should indicate all anticipated or likely events, such as seismic testing.</p> <p>In addition, the Panel <b>requests</b> that Sakhalin Energy establish a standard practice of keeping it informed of its plans, through IUCN, without the Panel having to request such information repeatedly.</p>	SEIC	Completed	Program sent to IUCN
WGWAP 1/002	WGWAP 1/3 - Section 4.2	<p>The Panel <b>recommends</b> that from this year onwards, certain simple statistics from photo-identification studies be reported by Sakhalin Energy as routine information after each field season, including: field effort, number of different whales sighted and identified, number of identified females and males sighted, number of calves, number of 'new' whales, number of mother-calf pairs, number of skinny whales, and any known deaths.</p> <p>The Panel also looks forward to receiving the detailed analysis of the 'skinny' whale issue being undertaken by the Russia-USA team.</p>	SEIC	31/03/2007	Such statistics have been provided every year in MNR report. 2006 statistics will be a part of the report due by Mar 31 2007.
WGWAP 1/003	WGWAP 1/3 - Section 6.0	<p>Time spent WGWs diving may be an indicator of foraging effort or success and should be explored more carefully. Accordingly, the Panel <b>suggests</b> that reanalysis of behavioural data based on percent of total time spent below the surface would be a useful follow-up to assess possible changes in foraging effort.</p>	SEIC		SEIC approach is to finalize and publish the MVA report and then address any additional proposals made by the WGWAP rather than continuously delaying the publication of the report.
WGWAP 1/004	WGWAP 1/3 - Section 6.0	<p>In view of the endangered status of this population, the observed offshore displacement, change in diving pattern, and other potential effects warrant additional scrutiny and follow-up. Points to consider include the following:</p>	SEIC		Ditto
		<p>(1) From a conservation perspective, the objective of the study was to test the null hypothesis that construction noise and associated activities have no impact on the population. The observation of apparent effects on individuals (e.g. offshore displacement) suggests that a population impact may occur and this possibility should be investigated further rather than being dismissed as insignificant</p>			Ditto

197Reference	Cross-Reference	WGWAP Recommendation & Requests	Responsible Party	Target Completion Date	SEIC Response
		<p>(2) The study would benefit from an exploration of the relationships among the predictor variables and among the response variables. For example, response variables may be related, given that they depend on the behaviour of an animal (e.g. an animal that is travelling at greater speed spends more time at the surface and moves in a more nearly constant direction). Such possibilities should be explored to provide the best possible understanding of the relationships among the different variables and the most appropriate form of the predictor and response variables. Principal components analysis is one way to examine these relationships and is often used as a preliminary step to explore the data before hypothesis testing is initiated.</p>			Ditto
		<p>(3) The 'subjects' of the research also warrant reconsideration. In the analysis considered at the meeting, the authors had chosen to pool data for mother-calf pairs and single-whale groups. Unfortunately, this adds a confounding discontinuity in the subject pool because mother-calf pairs behave differently from single whales. Such pooling should always be preceded by comparison of the behaviour of the groups under consideration to confirm their homogeneity before pooling. Homogeneity is highly unlikely given the different distributions and behaviours of the two types of group.</p>			Ditto
		<p>(4) The results were confounded by extraneous variables, most notably vessel noise from watercraft used for research purposes (photo-id). In future studies, greater effort should be made to avoid the confounding effects of such variables either by eliminating them as part of the research design or developing analytical methods to remove their influence on the analysis. It is also worth noting that this finding provides a clear basis to recommend that duplication of photo-identification research effort be avoided in the future.</p>			Ditto

197Reference	Cross-Reference	WGWAP Recommendation & Requests	Responsible Party	Target Completion Date	SEIC Response
		<p>(5) The use of variables that are more-or-less arbitrarily determined (e.g. noise exposure over a 10-minute period) also should be examined to determine the potential effect of the chosen time period on the results. For example, in the case where distance offshore is the response variable, an implicit assumption of using 10-minute noise exposure as an explanatory variable is that whales would move back towards shore during a 10-minute lull in the noise. This assumption is not realistic; it may take much longer for the distribution of whales to return to normal. Use of the 10-minute interval as the explanatory variable could, therefore, seriously underestimate the true effect of noise.</p> <p>(6) Finally, during previous reviews of Sakhalin Energy's activities and evaluations of the potential effects of construction noise, the panels have repeatedly indicated that noise level alone may not be the most relevant or the only indicator of the influence of noise on the whales. The analysis apparently did not take into account the total noise energy exposure, duration of exposure, frequency and bandwidth of the noise, amount of variation in noise levels over time, occurrence of noise spikes, etc. In particular, the timescale involved in the whales' response to a stimulus (e.g. movement offshore) and in the subsequent decay of the response (e.g. movement back towards shore) needs to be considered explicitly in an analysis. This and other aspects of the noise exposure ought to be considered and explored before reaching firm conclusions about potential effects.</p>			Ditto
WGWAP 1/005	WGWAP 1/3 - Section 6.0	<p>The Panel <b>recommends</b> that:</p> <p>(1) The above 'points to consider' be taken into account in the final report on the multivariate analysis of 2005 data.</p> <p>(2) In the final report, and in any other outlet citing its findings (e.g. on Sakhalin Energy's website), the study's limits, as outlined above e.g. in relation to the lack of baseline (pre-disturbance) behavioural data and the failure to collect behavioural data during the two loudest phases of the construction activity, be clearly acknowledged. It should not be claimed that the extent of the whales' response to noise, such as movement offshore, has been quantified.</p>	SEIC		Ditto

197Reference	Cross-Reference	WGWAP Recommendation & Requests	Responsible Party	Target Completion Date	SEIC Response
		(3) The foregoing concerns and suggestions be considered in analyses of effects using 2006 data and also in the planning and decision-making process for data collection and analysis in 2007.			
WGWAP 1/006	WGWAP 1/3 - Section 7.1	The Panel <b>recommends</b> that it be provided with a full analysis using effort-corrected data on distribution, for each year that such data are available, overlaid onto the appropriate acoustic 'footprint' information. The results should be integrated to produce an appropriate multi-year comparison of distribution, particularly for years with and without significant anthropogenic noise	SEIC	To be determined depending on requirements.	Further clarification is required from the WGWAP on this in relation to overlaying with the acoustic footprint. SEIC will produce effort-corrected density analysis this year.
WGWAP 1/007	WGWAP 1/3 - Section 7.2	The Panel <b>recommends</b> that noise exposure criteria developed in the IISG report and intended for application in the 2006 construction season be followed during the 2007 season and thereafter unless, during the interim, sound exposures below the recommended thresholds are found to result in unexpected adverse effects.. In addition, the panel <b>requests</b> the following information for its next meeting (spring 2007):	SEIC	31 Dec	SEIC doesn't agree there is a valid scientific reason for changing acoustic criteria proposed by Vedenev in Gland in 2005 and adopted and implemented by the Company. SEIC will provide the reasoning for this.
		(1) All acoustic data from buoys at the edge and inside the feeding area, reported in standard formats, e.g., dB re 1 µPa RMS levels for 1 minute intervals.		28 Feb	Further technical clarification is needed: what frequency band and spectral resolution are required
		(2) Actual day-by-day construction activities for each vessel involved in June-August 2006 construction.		28 Feb	The data will be provided.
		(3) Whale distribution data for 2006, corrected for effort, analyzed with respect to noise levels, and compared to appropriate historical data.		See above	SEIC is planning to produce effort-corrected density analysis this year.
		(4) An analysis of the relationship between the 2006 acoustic data and concurrent behavioural observations.		To be defined	On the basis of MVA report 2005 and further comments strategy for MVA 2006 will be defined.
WGWAP 1/008	WGWAP 1/3 - Section 7.3	The Panel emphasises its concern about one major drawback of having multiple research and monitoring teams in the field, which is that it can add to the disturbance from vessel noise or vessel presence on and near the feeding grounds. Therefore, any encouragement of independent initiatives must carry a caveat – that due consideration be given to this concern and that every effort is made to avoid or minimise additional disturbance to the whales.	ALL RESEARCH GROUPS		SEIC confirms that the teams sponsored jointly by ENL and SEIC seek to minimize disturbance to the whales.
WGWAP 1/009	WGWAP 1/3 - Section 8.0	The Panel <b>agreed</b> that it would provide Sakhalin Energy with a recommended minimum altitude and distance from the shore, for these types of surveys prior to the 2007	WGWAP		

197Reference	Cross-Reference	WGWAP Recommendation & Requests	Responsible Party	Target Completion Date	SEIC Response
		construction season.			
WGWAP 1/010	WGWAP 1/3 - Section 8.0	The Panel <b>recommends</b> that the northern areas should be surveyed by helicopter monthly during the open-water season. Although these areas may be observed by research groups as they move into and out of the region, ground vehicles are not sufficient for complete coverage because the beach zone is not always visible from the road.	SEIC	Nov 2007	Will be implemented in 2007
WGWAP 1/011	WGWAP 1/3 - Section 8.0	The Panel endorses the relatively detailed protocols and advice given in the IISG report under the heading 'Carcass Detection, Salvage and Necropsy'. It also <b>recommends</b> that as a minimal response to the finding of a gray whale carcass, Sakhalin Energy make sure that it is photographed promptly and that IUCN is notified by phone or e-mail as soon as possible. Then, based on the condition of the carcass (as inferred from the photographs), the Panel will make recommendation concerning what materials should be collected etc.	SEIC	Complete	SEIC has a procedure that requires that it first contacts relevant Russian authorities and then if permitted will provide information to external parties. This is a legal requirement.
WGWAP 1/012	WGWAP 1/3 - Section 9.0	In terms of DNA and other biological sampling, the Panel refers Sakhalin Energy to the IISG report where detailed advice was provided. Here, it <b>recommends</b> that a tissue sample (preferably skin or bone) be collected as soon as possible if any carcass of a baleen whale is found and there is any possibility that it could be a gray whale.	SEIC	Complete	In case of a gray whale carcass found SEIC will make every effort possible to obtain relevant samples in close cooperation with Russian authorities. Necropsy form is a part of MMO manual that is to be presented for the panel review.
WGWAP 1/013	WGWAP 1/3 - Section 10.0	The Panel <b>requests</b> that a report on tagging work undertaken on gray whales off Chukotka in the summer of 2006 be made available to it as soon as possible.	SEIC	April 2007	This was on Eastern Gray Whales and will be made available as soon as it's complete.
WGWAP 1/014	WGWAP 1/3 - Section 10.0	The Panel agreed that in principle, telemetry work on western gray whales should be carried out provided that:	Joint responsibility	April 2007	Conceptually SEIC sees this as a good idea but would like to consider first the associated risk.
		(a) It be under the direction of Bruce Mate using his tags;			
		(b) It be restricted to 'non-skinny' males and take into account the occurrence of males with rare and common haplotypes when the final tagging protocol is adopted;			

197Reference	Cross-Reference	WGWAP Recommendation & Requests	Responsible Party	Target Completion Date	SEIC Response
		(c) Bruce Mate submits to the Panel, for review, a detailed experimental protocol including measures to be taken to minimise the possibility of accidental injury or stress to the animals, and a proposal on sample size in terms of attempts as well as successful attachments;			
		(d) A formal report is submitted to the Panel by the vet who determined the cause of death of the gray whale in Bruce Mate's Mexican study (see WGWAP 1/INF.12);			
		(e) The Panel receives and considers the report of the Society for Marine Mammalogy's workshop on whale tagging;			
		(f) Experience from around the world on safeguards for the process (e.g. number of approaches allowed per day or other unit of time, total time spent with a particular animal) has been reviewed by the Panel;			
		(g) Efforts have been made by the Panel to arrange contacts with appropriate range-state scientists for possible follow-up work;			
		(h) A final recommendation on protocols, time in the season to attempt tagging and sample size is not made until after consideration of the results of (c) – (g) and taking into account the view of the IWC Scientific Committee at its forthcoming meeting in Anchorage in May 2007; and			
		(i) Weekly positional updates from transmitting tags are made available to the Panel (while maintaining the usual rights of data owners).			
WGWAP 1/015	WGWAP 1/3 - Section 10.0	In view of the provisos listed in Recommendation WGWAP 1/014, the Panel <b>recommends</b> that the tagging work does not take place until the 2008 season, noting that this has the additional advantage of an anticipated lower level of industrial activity in the Sakhalin region (at least with respect to Sakhalin-II).		No action required	Agree
WGWAP 1/016	WGWAP 1/3 - Section 11.0	The Panel recognizes the spatial separation of Piltun Lagoon from Sakhalin II activities, but nevertheless continues to <b>recommend</b> studies of the linkage of Lagoon biota and detrital output with WGW feeding areas.	SEIC	April 2007	In 2005 and 2006 SEIC benthic program included sampling inside and outside Piltun lagoon to investigate detritus transport and its influence on Piltun feeding ground. In light of the large number of publications available on Piltun lagoon biota and the fact that the Company is not planning any activity inside the lagoon SEIC sees little reasons

197Reference	Cross-Reference	WGWAP Recommendation & Requests	Responsible Party	Target Completion Date	SEIC Response
					for further studies there.
WGWAP 1/017	WGWAP 1/3 - Section 11.0	The Panel recognizes the logistical challenges and potential costs of maintaining an effective LTMP in Piltun Lagoon, given its size and physical complexity and the spatial variation in within the lagoon ecosystem. It is <b>recommended</b> that Sakhalin Energy focus on measurements of quality and quantity of detrital transport from the Lagoon to whale feeding areas. Primary goals for study of detrital transport should be: identification of source species contributing to detrital mass, stable isotope signatures for detritus transported from the Lagoon to whale feeding areas, and interannual variation in quality and quantity of transported detritus.	SEIC		Ditto
WGWAP 1/018	WGWAP 1/3 - Section 11.0	The Panel <b>suggests</b> that data on the abundances of mobile epifauna may be significant in understanding whale feeding behaviour, and <b>recommends</b> that Sakhalin Energy researchers work towards identification and application of an appropriate and efficient method for sampling mobile epifauna.	SEIC	April 2007	Epifauna sampling is planned for 2007 with the intention of quantitative analysis of it in the feeding areas. Samples of epifauna taken in 2006 will allow for composition to be analyzed. This will be included in the final report due by Mar 31 2007.
WGWAP 1/019	WGWAP 1/3 - Section 11.0	The Panel <b>recommends</b> that Sakhalin Energy researchers continue to assess the potential value of sidescan methods in the context of benthic studies on the NE Sakhalin shelf.	SEIC	April 2007	Side scan sonar value for the benthic study will be additionally assessed.
WGWAP 1/020	WGWAP 1/3 - Section 11.0	The Panel was asked to consider a proposal from WWF-Russia for sampling benthos in Severnaya Bay on the NW Sakhalin shelf, given recent observations of foraging gray whales there. It <b>notes</b> that such studies could be valuable and concludes that this work should be pursued. The Panel emphasises that methods for assessing benthos should be the same as those employed in Sakhalin Energy studies of benthos in the two known whale feeding areas on the NE Sakhalin shelf.	ALL RESEARCH GROUPS	November 2007	First samples were taken in Severnaya Bay in 2005. More sampling was carried out in 2006 and that allowed for delimiting of the area available for whale feeding. The same methodology used in the feeding areas was applied. Prey stock is planned to be estimated in 2007.
WGWAP 1/021	WGWAP 1/3 - Section 11.0	The Panel <b>recommends</b> that Sakhalin Energy researchers take the following LTMPs of benthic communities in the whale feeding areas:	SEIC		

197Reference	Cross-Reference	WGWAP Recommendation & Requests	Responsible Party	Target Completion Date	SEIC Response
		<p>(1) LTMP design should reflect consideration of possible spatial and temporal separations in processes important to benthic community structure, dynamics and productivity. Detrital transport connections between Piltun Lagoon and the whale feeding areas are an example of spatially distinct processes that could be important to whale food availability. Effects of winter and spring sea ice cover and movement on subsequent patterns and productivity of benthos provide examples of potentially important processes that are temporally disjunct.</p> <p>(2) Continued monitoring of benthic communities in the whale feeding areas, using sampling approaches employed in previous years, is essential as a long-term commitment. Sampling effort should continue to focus on target variables identified in the IISG report. To maximise the potential both for large-scale inference and for discerning trends, sampling should continue in three categories: 1) a stratified random sample placement; 2) sampling of a grid of spatially fixed study sites; and 3) sampling in proximity to identified whale feeding locations.</p> <p>(3) The development of effective methods for summarizing data on benthic communities and placing them in the contexts of spatially explicit time series is highly desirable. Such an approach is suggested because of the potential value in understanding connections between food availability and other time-varying patterns, such as annual calf production and the 'skinny whale' phenomenon (see item 4).</p> <p>(4) Geographic information system (GIS) technology should be applied to the management and presentation of benthic community data. This approach facilitates the characterisation and communication of patterns in the data, and will contribute to understanding the linkages between community patterns and various physical, biological and anthropogenic processes on the NE Sakhalin shelf.</p>		<p>November 2007</p> <p>No further action required</p> <p>To be determined once the scope is fully identified.</p>	<p>In 2007 plans are to start sampling program earlier in the season to be able to estimate prey distribution and development prior to the feeding season.</p> <p>The approach proposed was extensively used in previous years and will be employed again in 2007.</p> <p>GIS system is a part of the data management plan and is planned to be designed and implemented for the whole benthic dataset.</p>
WGWAP 1/022	WGWAP 1/3 - Section 11.0	The Panel further <b>recommends</b> that it receive at its next meeting an integrated analysis and overview of results so far, with special attention to the observed annual difference in calf production.	SEIC	April 2007	Calf production will be reported in Photo-ID report. Additionally calf feeding points benthic sampling analysis will be presented in the Benthic report. Due by Mar 31 2007.



197Reference	Cross-Reference	WGWAP Recommendation & Requests	Responsible Party	Target Completion Date	SEIC Response
WGWAP 1/023	WGWAP 1/3 - Section 12.1	Concerning the issue of reducing collision risks associated with crew change vessels, the Panel notes some positive changes in the Sakhalin Energy approach. However, it believes that further work in this area is important and should be pursued. Therefore, it is <b>recommend</b> that:	SEIC		
		(a) Both crew change vessels have 2 MMOs onboard on a <i>permanent</i> basis, as recommended by the IISG, instead of 'whenever possible', as reported by Sakhalin Energy at this meeting;		November 2007	This was Implemented in 2006 and is planned for 2007
		(b) Further measures be taken to avoid deviations of crew change vessels from the prescribed route;		No further action required	SEIC has a procedure in place and follows up on all deviations.
		(c) Serious consideration continue to be given by Sakhalin Energy to the issue of collision risk associated with number and frequency of crew change vessel trips; a solution to this problem must be found.		No further action required	Helicopters will be primary crew change vehicle and will be used whenever the weather permits.
WGWAP 1/024	WGWAP 1/3 - Section 12.2	Taking into account previously raised concerns with regard to the effectiveness of the MMO programme, the Panel <b>looks forward</b> to reviewing details of the MMO training protocol to examine its effectiveness prior to the 2007 construction season.	SEIC	February 2007	MMO training programme will be presented
WGWAP 1/025	WGWAP 1/3 - Section 12.2	As a way of helping to assess the risk of ship-whale collisions during poor visibility conditions, it is <b>recommended</b> that, at a minimum, the following information be provided to the next meeting of the WGWAP:	SEIC	April 2007	These will be incorporated into MMO close-out report 2006. This will be made available to the WGWAP early in 2007.
		(a) Amount of MMO effort under conditions with visibility $\leq 1$ km;			Ditto
		(b) Number of crew change vessel trips conducted in conditions with visibility $\leq 1$ km or at night;			Ditto
		(c) Number of whales detected during poor weather conditions (e.g. visibility $\leq 1$ km, Beaufort sea state $\geq 3$ , or after sunset);			Ditto
		(d) Number of whales detected during good weather and good visibility conditions.			Ditto
WGWAP 1/026	WGWAP 1/3 - Section 12.2	The Panel <b>recognises</b> the effort invested by the company towards improving MMO effectiveness. Nevertheless, a meaningful evaluation of the MMO programme will be feasible only after a detailed report has been made available to the Panel on MMO observations and measures taken in response to them in the 2006 season. The Panel <b>recommends</b> that such a report be submitted	SEIC		The report will be presented to the panel by next meeting.

197Reference	Cross-Reference	WGWAP Recommendation & Requests	Responsible Party	Target Completion Date	SEIC Response
		for consideration at the next WGWAP meeting and emphasises that the report must be more than a collation of observer data and should include appropriate analyses.			
WGWAP 1/027	WGWAP 1/3 - Section 12.2	Additionally, the Panel <b>requests</b> that Sakhalin Energy submit for review its protocol for allocating MMOs to the various vessels in the fleet.	SEIC		There is no formal assignment protocol. SEIC has a pool of trained MMO that are assigned to vessels as required.
WGWAP 1/028	WGWAP 1/3 - Section 12.2	Finally, the Panel <b>recommends</b> that Sakhalin Energy share its traffic rules, its scheme of vessel navigation corridors and its MMO programme plan with other oil and gas companies operating on the Sakhalin Shelf, regardless of whether those companies are obligated to implement such rules, protocols and programmes.	SEIC		SEIC encourages IUCN to provide this information to other operators with whom IUCN has contact. SEIC has shared this with ENL.
WGWAP 1/029	WGWAP 1/3 - Section 13.0	The Panel <b>affirms</b> its continued interest in knowing more about the oil spill that occurred in the vicinity of Hokkaido in January 2006 (and considered by the IISG) and <b>requests</b> that both Sakhalin Energy and IUCN make further inquiries and report on progress at the next WGWAP meeting.	IUCN / SEIC	April 2007	IUCN is currently following this up with the Japan Coast Guard and will also be writing to the Ministry for Foreign Affairs and the Japanese IUCN Committee. A progress report will be provided to the WGWAP at its next meeting.
WGWAP 1/030	WGWAP 1/3 - Section 14.0	It was agreed that there was a need for access to an authoritative, up-to-date and more detailed map showing the spatial boundaries (including latitudes/longitudes) of the existing (and proposed) oil and gas lease areas on the Sakhalin Shelf. The Panel <b>recommends</b> that IUCN consult with industry (Sakhalin Energy as well as other companies), Russian governmental agencies, NGOs and other sources, as appropriate, to obtain better information on oil and gas activities in the Sakhalin region. Such information needs to be provided to the Panel on a routine basis.	IUCN	April 2007	IUCN will establish an in house GIS capability within the Global Marine Programme. IUCN is exploring options for gaining access to an authoritative data set of offshore oil and gas data for the Sakhalin region. Once this is finalised, an update (with maps as appropriate) will be provided to the Panel and a progress report will be presented to the next WGWAP meeting.
WGWAP 1/031	WGWAP 1/3 - Section 14.0	The Panel further noted that it would be useful to obtain access to expertise in spatial data management and modelling (e.g. GIS, 3-dimensional modelling) for assistance in analysing existing and future data and for helping to ensure that such data are archived for future use. The Panel <b>recommends</b> that IUCN investigate and pursue this matter with Sakhalin Energy and relevant panel members on an ongoing basis and that a report on progress be provided at the next WGWAP meeting.	IUCN	Ongoing – progress report April 2007	Once IUCN has established the GIS system in house, it will liaise with other data holders/providers in order to identify relevant data sets and discuss with those data providers the most effective way of making these available to the Panel.  IUCN will present a progress report to the next WGWAP meeting.