REPORT OF THE CUMULATIVE EFFECTS TASK FORCE AT ITS 1ST MEETING

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CONTENTS

ACRONYMS

CEFT	Cumulative Effects Task Force
CMP	Conservation Management Plan
Company	Sakhalin Energy Investment Company Ltd.
ENL	Exxon Neftegas Limited
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
IWC	International Whaling Commission
MMPP	Marine Mammal Protection Plan
NTF	Noise Task Force
Panel	Western Gray Whale Advisory Panel
PCoD	Population Consequences of Disturbance
PCoMS	Population Consequences of Multiple Stressors
Sakhalin Energy	Sakhalin Energy Investment Company Ltd.
VEC	Valued Environmental Component(s)
WGWAP	Western Gray Whale Advisory Panel

SUMMARY

Consideration of cumulative effects or impacts is important both to satisfy lenders' guidelines and to ensure that measures taken to mitigate impacts on western gray whales, or other valued ecological components, are necessary, appropriate and effective.

The International Finance Corporation's Performance Standards on Social and Environmental Sustainability (hereafter IFC Performance Standards) require that the cumulative impacts on valuable ecological components be assessed and mitigated or offset, even if a project only contributes incrementally. The IFC 'Good Practice Handbook on Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets' (hereafter IFC Good Practice Guidelines) define cumulative impacts as:

> "*those that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to in this document as 'developments') when added to other existing, planned, and/or reasonably anticipated future ones. For practical reasons, the identification and management of cumulative impacts are limited to those effects generally recognized as important on the basis of scientific concerns and/or concerns of affected communities.*"

Other definitions of cumulative effects or cumulative impacts reviewed by the Cumulative Effects Task Force (hereafter - CETF or the Task Force) were broadly similar.

While one operator, or indeed all operators within an area, cannot be expected to take responsibility for managing cumulative impacts that include those caused by activities or forces beyond their direct control, an understanding of cumulative effects is an important part of the context for managing the impacts of each operation.

In order to fulfil its mandate, the Western Gray Whale Advisory Panel (hereafter WGWAP or the Panel) needs to determine the level of impacts that would be consistent with the conservation of the western gray whale population. This requires that impacts be assessed not only individually, but also in the context of the sum total of all impacts on the population, because all operators and sectors have to 'share' among them the population's finite capacity to withstand impacts. To evaluate cumulative effects, it is necessary to understand the overall state of the western gray whale population, how close the total impact is to the maximum sustainable impact, and the relative contributions of the different stressors.

For operations such as seismic surveys and vessel traffic, the Task Force will assist the Panel in placing its advice on mitigation measures in the context of cumulative effects. This should enhance the value of the Panel's advice both for Sakhalin Energy Investment Company (hereafter Sakhalin Energy or the Company) and for the wider field of players including other operators and the authorities.

Awareness of the context of cumulative effects can also assist in the evaluation of relative priorities assigned to different research and monitoring activities. It can do this by identifying (a) those data likely to contribute the most to filling gaps in understanding of the status of western gray whales and (b) the most significant threats. The identification and prioritisation of potential offsets can also be aided by an understanding of cumulative effects.

Examples of published analyses of cumulative effects on marine mammal populations are listed in Table 1. Given resource constraints, the Task Force does not recommend that the Panel embark on

its own modelling exercise for cumulative effects, but instead base its advice on the entire body of data and results available at the time, and on new information as it becomes available. Existing data sources relevant to the assessment of cumulative impacts on western gray whales are listed in Table 2.

The Task Force proposes to:

(i) ensure that the Panel’s advice in relation to the Joint Programme includes a cumulative effects perspective, ideally delivering such advice in advance of the deadline for the companies’ submission of the Scope of Work for official approval;

(ii) develop a framework for putting the Panel's noise management advice into a cumulative impactcontext, and make a preliminary presentation of this to the next Noise Task Force meeting (NTF-17) in November 2019;

(iii) help the Panel put its advice on impact management issues into a cumulative effects context more consistently and explicitly than it has in the past;

(iv) make a presentation on cumulative effects, followed by discussion, during a dedicated session at the WGWAP-20 meeting in November 2019.

1 INTRODUCTION

The 1st meeting of the CETG took place on 26 April 2019 at IUCN Headquarters, Gland, Switzerland, with Justin Cooke as chair and Ulrike Åberg as rapporteur. In addition to those attending in person, Jane Alcock (Sakhalin Energy) and Roberto Racca (JASCO) participated remotely.

The list of participants is attached as Annex A. The adopted agenda is attached as Annex B. A list of documents submitted to or used in the meeting is attached as Annex C. The structure of this report reflects the way this new Task Force chose to address its task, which deviated somewhat from the agenda.

2 BACKGROUND AND OBJECTIVES

2.1 Background

The importance of managing the cumulative effects or impacts of industrial and other activities on the environment and biodiversity is reflected in the environmental laws of some countries and in voluntary guidelines, such as the IFC Performance Standards. The IFC Performance Standards specify that the cumulative impacts to be considered include those “that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time the risks and impacts identification process is conducted.” While individual operators cannot take responsibility for managing cumulative effects that include those caused by activities or forces beyond their direct control, an understanding of cumulative effects is an important part of the context for the management of individual impacts.

The importance of considering cumulative effects has been recognized as central to the Panel's mandate since its inception. In discussion of the mandate of the future Panel, the September 2005 Lenders' workshop[1] recommended that:

[1] See www.iucn.org/sites/dev/files/wgw_workshop_report.pdf

> *"Cumulative impacts must be assessed and addressed through comprehensive, continued population monitoring, population modelling and review by the independent advisory body's work".*

2.2 Overall objective of the Task Force

This Task Force was established with a view to providing a basis for advice on the assessment and management of cumulative effects. The Task Force's main objective is to develop a framework for monitoring, measuring and managing cumulative effects such that the continued presence of gray whales off Sakhalin is not jeopardized by industrial or other human-caused impacts. This framework should provide a context for the Panel's advice on any specific factors that add to the cumulative impacts.

It is envisaged that the Task Force will assist the Company in meeting its own Marine Mammal Protection Plan (MMPP) objectives as well as the relevant IFC Performance Standards' requirements related to understanding, monitoring and, where possible, managing cumulative impacts of industry activities and multiple other stressors on the whales. In so doing the Task Force will hopefully help advance approaches to assessing and managing cumulative effects on marine mammals that are of wider potential utility.

2.3 Objectives of this meeting

- Review definitions of cumulative impacts or effects and any legal or other requirements to address them;
- Review cumulative impact assessments of marine populations conducted to date, noting the methods and data used;
- Determine how consideration of cumulative impacts can best be incorporated into the work of WGWAP, taking into account resource and timing constraints;
- Propose a plan of work for the Task Force up to the next WGWAP meeting in November of 2019 (WGWAP-20).

3 WORK TO DATE

3.1 Panel work to date

Cooke summarized the Panel's work on cumulative effects to date. While not explicitly in its terms of reference, the necessity for the Panel to consider cumulative effects was emphasized by the pre-Panel Lenders' workshop[1] and by the Panel at its first meeting[2]. In view of the need to consider the cumulative impact of all operators' activities, efforts were made to engage additional operators in the WGWAP, but these met only limited success. However, in its work the Panel includes, where possible, the impacts of other operators' activities. For example, in its assessment of noise exposure of gray whales resulting from 2015 seismic surveys in proximity to the feeding grounds, the Panel used the estimated contributions of both the Exxon Neftegas Limited (ENL) and Sakhalin Energy surveys[3].

The ongoing population assessments also can be seen as serving to indicate overall cumulative impact. In the early years these assessments highlighted the threat posed by the bycatch problem in Japan. While disentangling the potential impacts of other factors on western gray whale demography has proved challenging, it is clear that collection of individual-based data and its

[2] See www.iucn.org/sites/dev/files/report_1st_meeting_wgwap.pdf
[3] See www.iucn.org/downloads/cooke___final_16_may_2015_1.pdf

appropriate analysis is vital if we are to determine how impacts on individuals filter through to demographic changes.

The Noise Task Force (NTF) had suggested to distinguish between effects (which in principle can be positive or negative and often thought of as 'immediate') and impacts (which in principle can be measured on individuals and/or populations on appropriate time-scales)[4]. However, in practice the terms 'cumulative effects' and 'cumulative impacts' have continued to be used interchangeably. The NTF also stated that "cumulative impacts result from the incremental effects of an action when considered together with other past, present, and reasonably foreseeable future actions, regardless of who takes the other action. These incremental effects may become significant even though the effects of each action, when independently assessed, are considered insignificant[4]."

3.2 Cumulative effects approaches to date for marine mammal conservation

New summarized approaches for assessing effects on marine mammals that have been used or considered by scientists or managers to date. Cumulative effects are generally defined as changes in a population's vital rates that negatively affect population dynamics and probability of persistence as a result of repeated exposure to the same stressor over time or the combined effects of multiple stressors. The best-developed framework to date is the Population Consequences of Disturbance (PCoD) model (New et al. 2014) which has been extended to consider the Population Consequences of Multiple Stressors (PCoMS) (National Academies of Sciences, Engineering, and Medicine 2017). The effects of stressors on individuals' behaviour and physiology is converted to effects on allostatic load and vital rates and thence to effects on population trends and sustainability. Using this or similar frameworks, over a dozen analyses of cumulative impacts on populations of baleen whales, toothed whales and pinnipeds have been published. Table 1 below contains a non-exhaustive list with a brief characterisation of the data and modelling approach used in each analysis. One of the studies concerned eastern North Pacific gray whales (Villegas-Amtmann et al. 2015) which in a subsequent paper (Villegas-Amtmann et al. 2017) was extended to include the extra energetic costs to whales migrating to Sakhalin.

There was some discussion of the merits and drawbacks of the various modelling approaches. The full specification of the PCoD framework is data-demanding, and in practice, gaps have been filled using expert elicitation, which may not be satisfactory to all parties involved. The models used to construct the PCoD framework depend on the relevant management questions, and these questions would also define any expert elicitation undertaken. For example, in one study of the effects of offshore wind farms, a question of interest was the fate of animals that are driven out of an area by acoustic disturbance: do they find satisfactory alternative habitat or is there a population consequence?

A management question that the Panel has paid much attention to, through the work of the NTF, has been the timing of seismic surveys. To date, the Panel has recommended the scheduling of seismic surveys as early in the season as possible, before most whales have arrived. However, the Villegas-Amtmann energetic model implies that the whales are nutritionally most stressed when they first arrive on the feeding grounds; in the first few weeks the whales spend a high proportion of their time feeding, but as the season progresses they devote more time to other activities. Disturbance at the time of arrival may have a greater impact on individuals – and thereby on the population – than disturbance later in the season. Thus, models which can address this question are the pertinent ones for guiding advice on scheduling activities on or near the feeding grounds.

[4] See www.iucn.org/sites/dev/files/content/documents/ntf_4report_final_en.pdf

Table 1. Examples of published analyses of cumulative effects on marine mammal populations

Species	Reference(s)	Modelling Approach	Data
Bottlenose dolphins (*Tursiops truncatus*)	Schwacke et al. 2017	Matrix population modelling, mark-recapture, Silar competing hazard model, expert elicitation, state-space models	Respiratory rates, mark-recapture, age-at-death (stranding), reproduction
Harbor porpoises (*Phocoena phocoena*)	Nabe-Nielsen et al. 2014; King et al. 2015; Nabe-Nielsen et al. 2018	Bioenergetics, individual-based model, matrix population modelling, movement modelling	Passive acoustic monitoring, expert elicitation, morphometrics, prey energy composition, metabolic rates, duration of gestation & lactation
Killer whales (*Orcinus orca*)	Williams et al. 2016	Regression, matrix population modelling	Prey availability, survival, fecundity
Southern elephant seals (*Mirounga leonina*)	New et al. 2014	State-space models, matrix population modelling	Tracking, buoyancy, maternal mass before & after lactation, pup weaning mass, mark-recapture
Pinnipeds	McHuron et al. 2017	Stochastic dynamic programming (bioenergetics)	Morphometrics, prey energy composition, metabolic rates, duration of gestation & lactation
Gray whales (*Eschrichtius robustus*)	Villegas-Antmann et al. 2015, 2017	Bioenergetics, individual-based model	Morphometrics, prey energy composition, metabolic rates, duration of gestation & lactation
North Atlantic right whales (*Eubalaena glacialis*)	Schick et al. 2013	State-space models	Photographic assessment of health, entanglement status, injury severity, location, survey & effort
Humpback whales (*Megaptera novaeangliae*)	Williams et al. 2016	Matrix population modelling	Prey availability, calf survival
Sperm whales (*Physeter macrocephalus*)	Farmer et al. 2018	Bioenergetics	Morphometrics, prey energy composition, metabolic rates, duration of gestation & lactation
Blue whales (*Balaenoptera musculus*)	Pirotta et al. 2018	Stochastic dynamic programming (bioenergetics)	Morphometrics, prey energy composition, metabolic rates, duration of gestation & lactation
Minke whales (*Balaenoptera acutorostrata*)	Christensen & Lusseau 2015	Bioenergetics	Activity budgets, body condition, fetal length, morphometrics, prey energy composition, metabolic rates, duration of gestation & lactation
Beaked whales (Ziphiidae)	New et al. 2013	Bioenergetics	Morphometrics, prey energy composition, metabolic rates, duration of gestation & lactation
Long-finned pilot whales (*Globicephala melas*)	Hins et al. 2019	Dynamic energy budget	Morphometrics, prey energy composition, metabolic rates, duration of gestation & lactation

3.3 Cumulative effects from lenders' perspective

Hancox outlined the importance of cumulative effects from the lenders' perspective. Consideration of the cumulative effects of a supported project is required under the IFC Performance Standards. The last main update of the standards was in 2012, but the Guidance Notes for IFC Performance Standard 6 ‘Biodiversity Conservation and Sustainable Management of Living Natural Resources’ was updated in 2018. In 2013 the IFC published its Good Practice Guidelines, which includes a following definition of cumulative impacts (itself an elaboration of the definition in the IFC Performance Standards):

> *“Cumulative impacts are those that result from the successive, incremental, and/or combined effects of an action, project, or activity (collectively referred to in this document as ‘developments’) when added to other existing, planned, and/or reasonably anticipated future ones. For practical reasons, the identification and management of cumulative impacts are limited to those effects generally recognized as important on the basis of scientific concerns and/or concerns of affected communities.”*

Sakhalin Energy decided from 2012 to adhere to the IFC Performance Standards voluntarily. Under the standards the Company is required to:

(i) manage its own operations to minimise cumulative impacts, for routine activities and for potentially disturbing activities – especially seismic surveys;
(ii) apply its best efforts to leverage influence on management of cumulative impacts of other operations, which in turn involves:
  - understanding primary cumulative impacts and contributions;
  - developing joint and/or complementary mitigation and monitoring programmes;

(iii) identify offsets; in this context, understanding cumulative risks may help to:
  - identify opportunities to avert risk/impacts;
  - help design predictive assessments and effective monitoring requirements for offsets.

The steps required to address cumulative impacts are:

(i) determine spatial and temporal boundaries;
(ii) identify valued environmental components (VECs);
(iii) identify all developments and natural and social stressors affecting the VECs;
(iv) determine the present condition of VECs;
(v) assess cumulative impacts and their significance over VECs’ predicted future conditions;
(vi) design and implement: (a) adequate strategies, plans and procedures to manage cumulative impacts; (b) appropriate monitoring indicators; and (c) effective supervision mechanisms.

In discussion, it was noted that each of these steps has, to some extent, been implemented by the Company, but the Panel can usefully advise on what it sees as the main gaps that remain to be filled.

The spatial extent considered to date has been the Sakhalin Shelf, but arguably the intention of the standards is to consider all impacts on the identified VECs, such that for gray whales the range-wide cumulative impacts should be taken into account even if they are beyond the Company's influence. There may also be scope for identifying offsets outside the Sakhalin shelf area.

The IFC Performance Standards and IFC Good Practice Guidelines envisage some level of self-regulation by operators, to the extent that they go beyond the requirements of local laws, although obviously compliance with local regulations commands the highest priority.

3.4 Information relevant to cumulative effects

Some years ago the Panel had recommended (Recommendations 11/021 and 12/020) that to help with the assessment of cumulative effects, a comprehensive database on all industrial and other activities on the northeast Sakhalin shelf should be developed and maintained.

Berzina-Rodrigo summarized that work to date and the current status of the database. The database was started in 2013 and substantial information was compiled and entered, based solely on publicly available information, including but not limited to what can be obtained from websites of oil and gas companies, associations and service providers; tender documents; Russian governmental bodies; industry regulators; Russian and international media; and non-governmental organisations. An interactive map tool was developed but this was found not to be practicable to maintain. The information has nevertheless been updated regularly through media monitoring, tender information, internet research and searches of other public sources. Currently, the information includes which companies are operating on the Sakhalin shelf, infrastructure in place and infrastructure planned, and timing and scale of activities (e.g. seismic surveys, drilling, platform construction). Commercial fishing activities have been mapped and presumed entanglement hotspots identified (Lowry et al. 2018).

4 ELEMENTS OF A CUMULATIVE EFFECTS FRAMEWORK FOR MANAGING RISKS TO WESTERN GRAY WHALES IN SAKHALIN

4.1 Scope of work on cumulative effects in the Panel and Company context

4.1.1 Geographical

There was some discussion of the appropriate geographical scope of the work of the Task Force, i.e. whether it should focus on the Sakhalin shelf or be range-wide.

The work on cumulative impacts on western gray whales to date has mainly assumed that conditions outside the Sakhalin shelf area are either constant or simply random effects, but data from outside the area have been used when available. For example, as mentioned above, the spate of bycatches off Japan between 2005 and 2007 was included in the population model.

Gray whales that summer in the western North Pacific, mainly off northeastern Sakhalin Island and the southeastern coast of Kamchatka, appear to be a genetically and demographically self-contained group and are therefore red-listed as a subpopulation, even though many of them migrate to wintering areas in the eastern North Pacific (Cooke et al. 2018). One of the main conservation objectives for these whales, as set out in the draft IUCN/IWC Conservation Management Plan (CMP), is to ensure that this subpopulation is allowed to recover. The lack of information on the migratory route(s), wintering area(s) and hence the threats encountered by whales that overwinter in the western North Pacific limits the ability to assess cumulative effects. The situation could change if new information on the winter migratory destinations of whales in the western North Pacific comes to light.

The Task Force agreed that in view of resource limitations and the Panel's mandate, the Task Force should work on the same basis. That is, the focus will remain on impacts occurring on the Sakhalin shelf, but where information on impacts elsewhere is available, such as known deaths of whales that have previously been seen off Sakhalin, such information will be used in any assessment.

4.1.2 Types of impacts

The TF agreed that the cumulative effects of industrial and other human activities on the gray whales found off Sakhalin encompass both short-term responses resulting from multiple overlapping and potentially disturbing activities in the same general space, as well as the long-term chronic effects of degradation of the physical and acoustic environment by intensifying human pressures on the Sakhalin shelf or other parts of the range.

The Task Force further agreed that it should consider both aggregate impacts (for example from adding the sound exposures from different sources during concurrent seismic surveys) and their cumulative effect over time. The primary focus is on population-level impacts. However, on the scales at which management decisions and mitigatory measures are implemented, any population-level effects are often best determined by estimating the impacts on individual whales.

The question was raised as to the utility of including impacts from sources beyond the Company's control. The Task Force agreed that advice on Company-related impacts needed to be in the context of how the cumulative impacts from all sources compare with the estimated total ‘acceptable’ impact. Because the capacity of the population to withstand impacts has to be shared across different operators, sectors and types of impact, the determination of what level of a given impact is acceptable depends on the wider context.

The Company may well have an interest in better understanding effects beyond its control. With a better understanding of the Company’s contribution to cumulative impacts, it would be possible to assess whether a significant change, such as a decrease in population size, has or has not been caused by activities outside of the Company’s control.

Particularly where there have been or are ongoing major changes in the population and its environment, the wider context of cumulative effects needs to be accounted for in the evaluation of impacts from specific activities. For example, in recent years there has been a notable decline in benthic food sources nearshore[5] and a corresponding shift in the distribution of whales towards the offshore feeding area (except for mother-calf pairs), which will affect the interpretation of impact-relevant data, quite apart from the question of whether industrial activities may have contributed directly or indirectly to this shift.

The Task Force agreed that, in principle, all types of impacts are to be considered in the assessment of cumulative effects, but noted that the available data will limit what can be considered in practice.

4.2 Data sources for cumulative effects assessments

Table 2 lists the kinds of data that have been collected, but not necessarily on a continuing basis, on the Sakhalin shelf and which could be useful for cumulative effects assessment.

Table 2. Data sources for cumulative impact assessment

Data type/source	Notes
Benthic organisms	biomass, species distribution, diversity
Prey (presumed)	bioassays, caloric value, faeces
Hydrographic	depth, temperature, salinity, chlorophyll, currents
Sediments	grain size, toxicology, metals, hydrocarbons
Lagoon	biological and physical parameters
Ice	extent, scour, other

[5] See WGWAP Open Statement of Concern on decline of the amphipod prey base in the nearshore feeding area of gray whales near Piltun Lagoon, Sakhalin Island, Russian Far East, 11 July 2019, https://www.iucn.org/sites/dev/files/final_statement_from_wgwap_on_benthos_11july2019_en-ru.pdf

Acoustics	baseline, event-related
Human activities	construction, seismic, pipeline, etc.
Photo-identification	survival, reproduction, abundance, occurrence, habitat use, inter- and intra-basin movements, scarring (fisheries, ship strikes, killer whales), body condition
Distribution (ship-based, shore-based, aerial)	habitat use, density, seasonal shifts
Behaviour	focal follows (surface-dive-respiration parameters), theodolite tracking
Tagging	intra- and inter-area movements, habitat use
Bioassays	genetic, hormone, contaminant
Fisheries	locations, gear types

Some data are clearly relevant, such as prey biomass, and it is unfortunate that collection of benthic data has been discontinued. Other data are of more marginal relevance and would probably not be used in a first assessment: for example, sediment data appear to have been collected only around the platforms. These are important for monitoring compliance with environmental regulations, but probably less relevant for understanding effects on gray whales.

An important subsidiary objective of cumulative effects assessment is to identify the most important data gaps. The Panel's advice to the Company on its monitoring and research work should be given with a view to maximizing its utility for assessing cumulative effects.

4.3 Modelling

In view of time and resource constraints, the Task Force did not recommend that the Panel embark on a major new modelling exercise to address cumulative effects. Instead, its advice will be based on an ongoing synthesis of existing modelling results and other available data.

The modelling work to date includes the Sakhalin-centred population assessments considered by the Panel, the range-wide modelling being conducted in the context of the CMP, and the energetics models mentioned above. A major advantage relative to many other cases is the availability of long time-series of individual-based data from the two photo-id monitoring programmes. These data, and the models that incorporate them, are useful for converting estimates of individual impacts to population-level effects and for the maximum sustainable impact to be quantified, should this become feasible.

In the course of providing advice, important modelling gaps may be identified such that the Task Force or Panel could recommend specific, limited additional modelling work needed to fill such gaps.

5 WORK PLAN FOR THE TASK FORCE

5.1 Monitoring and research

The Task Force noted the long-running problem that the Panel has usually been informed of proposed research and monitoring activities after it is too late to provide input. It is important that the Panel provide advice on the 2020-2021 Programme of Work in sufficient time for it to be taken into account by the Company. The Task Force believes that putting the issues in a cumulative effects perspective will provide a clearer rationale for the relative priorities of research and monitoring options from 2020 onwards.

5.2 Seismic surveys

The likelihood of multiple seismic surveys occurring in the same season in proximity to feeding western gray whales is increasing, and therefore the current approach of assessing the impacts of each survey in isolation is not appropriate. Future advice on seismic surveys should account for expected total impacts, how these compare with estimates of maximum acceptable impact, and what this implies for the mitigation measures to be taken by each operator. While other operators are not obliged to follow the advice of the Panel, there is merit in the Panel developing recommendations for measures that would, in principle, be suitable for universal adoption. This would accord with the level-playing-field principle, and also provide output of wider utility that could outlive the Panel.

A synthesis of the different modelling results, including results from both the acoustic exposure modelling performed by the NTF to date and from the energetics modelling referred to above, should be conducted to provide better advice on the survey scheduling that would minimize the impacts on western gray whales. The CETF requested that appropriate members of the CEFT and NTF jointly prepare an input to be circulated prior to the NTF-17 meeting in November 2019.

5.3 Incorporating a cumulative effects perspective into Panel advice

The CETF will help to put the Panel's advice on other issues (besides concurrent seismic surveys) into a cumulative effects perspective. For example, on vessel traffic the Panel recently advised that the risk of strikes on gray whales by crew change vessels was probably acceptably low, but that technical measures should be adopted to help ensure that strikes are recorded should they occur. This advice considered the crew change vessels in isolation. It could be put into a cumulative impacts perspective by considering projections of the expected total amount of vessel traffic in the area and determining what would be an acceptable strike risk per vessel mile.

The Task Force requested that the annual population assessment update presented to the WGWAP-20 meeting in November 2019 address the assessment's implications for the management of cumulative effects, in particular the state of the population relative to maximum cumulative impacts consistent with conservation and recovery objectives.

5.4 Workshop involving more parties

There had been discussion at previous Panel meetings of bringing more parties together (companies, authorities and research institutions) to develop a comprehensive approach to a cumulative impact assessment for gray whales found off Sakhalin. This could be of interest to operators, because it could reduce the uncertainty surrounding the potential effects of their operations. Although little progress has been made on this idea to date, the Task Force still considers it worth pursuing. However, because the timeline is likely to extend beyond the current Panel, it should be treated as a separate project outside the WGWAP framework.

5.5 Output of this meeting

The Task Force discussed whether to produce a stand-alone document outlining its recommended approach to addressing cumulative impacts, but decided that for now it would be sufficient to preface this report with a summary which explains what is meant by cumulative effects, why the Company and Panel need to address them, and the work proposed to facilitate this aim.

5.6 Future of the Task Force

No further meetings of the Task Force are currently planned. It is expected that a decision on whether to continue the Task Force, and on its further programme of work, will be made following the WGWAP-20 meeting. The Task Force agreed to prepare a presentation for a dedicated session at WGWAP-20 meeting to explain the importance to stakeholders of considering cumulative effects and the suggested approach to cumulative effects assessment. A sufficient subset of Task Force members should hold a virtual meeting well before the NTF-17 and WGWAP-20 meetings to prepare the inputs to those meetings.

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ANNEX A – LIST OF PARTICIPANTS

Jane Alcock (Sakhalin Energy, remotely)
Dave Weller (WGWAP)
Justin Cooke (WGWAP)
Jonathan Hancox (Ramboll)
Leslie New (WGWAP)
Douglas Nowacek (WGWAP)
Roberto Racca (JASCO, remotely)
Randall Reeves (WGWAP)
Greg Silber (WGWAP)
Alexander Vedenev (WGWAP)

IUCN
Ulrika Åberg (Rapporteur)
Anete Berzina-Rodrigo
Giulia Carbone

Interpreters
Alexander Danilov
Grigory Shkalikov

ANNEX B – AGENDA

1. INTRODUCTORY ITEMS

1.1 Opening remarks and introductions
1.2 Chair and rapporteur(s)
1.3 Adoption of Agenda
1.4 Documents available

2. WORK TO DATE

2.1 Presentation on cumulative effects approaches to date for marine mammal conservation (New)
2.2 Presentation of WGWAP work to date on cumulative effects including definitions (Cooke)

3. DEVELOPMENT OF A CUMULATIVE EFFECTS FRAMEWORK FOR MANAGING RISKS TO WGW IN SAKHALIN

3.1. Scope of work on cumulative effects in the Panel and Company context
3.2 Structure and outline for a cumulative effects framework document (including likely data/analytical requirements)
3.3. Strategy, workplan, and timeframe

4. ADOPTION OF REPORT

Adopt draft report & recommendations (by email if necessary).

ANNEX C – LIST OF DOCUMENTS

#	DOCUMENT	STATUS
CEFT-1/1	Short background document summarizing approaches to assessing cumulative effects on cetaceans that are under discussion, in development or in effect (L.New) Note: See also documents/papers referred to in this document CEFT-1/1, as appropriate	For internal use at this stage
CEFT-1/2	Summary of work by WGWAP to date that is relevant (explicitly or implicitly) to cumulative effects (J. Cooke)	For internal use at this stage
CEFT-1/3	Cardinale, P.; Greig, L (2013). Good practice handbook : cumulative impact assessment and management - guidance for the private sector in emerging markets (English). IFC E&S. Washington, D.C. : World Bank Group.	Public
CEFT-1/4	Draft report of the Cumulative Effects Workshop of the International Whaling Commission’s Scientific Committee, May 2018	For internal use at this stage
CEFT-1/5	Updated Sakhalin Energy’s Strategy Report for WGW monitoring 2019+	For internal use only
CEFT-1/6	Summary slides of Sakhalin Energy’s Offshore monitoring programmes	Confidential
CEFT-1/7	Results of Sakhalin Energy’s benthic sampling around the waste disposal (Cuttings Re-Injection – CRI) wells for the three platforms and letter from the regulator (RPN) confirming no contaminants above levels of concern (available in Russian only)	Confidential
CEFT-1/8	Draft definition of cumulative effects considered by the Noise Task Force in the past	For internal use only
WGWAP-16/10-Ru	Сводный анализ связей между аспределением китов, биомассой кормовых объектов и уровнями шумов по результатам программы мониторинга охотско-корейской популяции серых китов у северо-восточного побережья острова Сахалин	Public

WGWAP-16/10-En	Integrated Analysis: Assessment of Whale Distribution Linkages to Benthic Prey and Acoustic Sound Levels for the Okhotsk-Korean Gray Whale Population Monitoring Programme off the North-East Coast of Sakhalin Island	Public
CEFT-1/INF.1	Villegas-Amtmann, S., Schwarz, L. K., Sumich, J. L. & Costa D.P. (2015). A bioenergetics model to evaluate demographic consequences of disturbance in marine mammals applied to gray whales. Ecosphere 6(10):183. http://dx. doi.org/10.1890/ES15-00146.1	Public
CEFT-1/INF.2	Villegas-Amtmann, S., Schwarz, L.K., Gailey, G., Sychenko, O., Costa, D.P, (2017). East or west: the energetic cost of being a gray whale and the consequence of losing energy to disturbance. Endangered Species Research Vol. 34: 167–183. https://doi.org/10.3354/esr00843.	Public
CEFT-1/INF.3	Fleishman, E., Streever, B., Angliss, R., Clark, C.W., Ellison, W.T., Frankel, A., Gedamke, J., Leu, M., McKenna, M., Racca, R., Simmons, S. & Suydam, R. (2016). Current Status of Development of Methods to Assess Effects of Cumulative or Aggregated Underwater Sounds on Marine Mammals. In: Popper A., Hawkins A. (eds). The Effects of Noise on Aquatic Life II. Advances in Experimental Medicine and Biology, vol 875. Springer, New York, NY, pp.303-311. https://doi.org/10.1007/978-1-4939-2981-8_36	Public
CEFT-1/INF.4	Fleishman, E., Costa, D.P., Harwood, J., Kraus, S., Moretti, D., New, L.F., Schick, R.S., Schwarz, L.K., Simmons, S.E., Thomas, L. & Wells, R.S. (2016). Monitoring population-level responses of marine mammals to human activities. *Marine Mammal Science*, vol. 32, no. 3, pp. 1004-1021. https://doi.org/10.1111/mms.12310	Public
CEFT-1/INF.4	NOAA CetSound project https://cetsound.noaa.gov/cetsound	Public
PhID/NT-1/INF.5	Christiansen, F., Rojano-Doñate, L., Madsen, P. T., & Bejder, L. (2016). Noise levels of multi-rotor unmanned aerial vehicles with implications for potential underwater impacts on marine mammals. Frontiers in Marine Science, 3, 277.	Public