

January 6, 2017

Joint Nature Conservancy Committee
Inverdee House
Baxter Street
Aberdeen, AB11 9QA, United Kingdom

VIA Email (seismic@jncc.gov.uk)

Re: Stakeholder Consultation on the JNCC Guidelines for Minimizing the Risk of Injury and Disturbance to Marine Mammals from Seismic Surveys

To Whom it May Concern:

This letter provides the comments of the International Association of Geophysical Contractors (“IAGC”). We appreciate JNCC’s consideration of the comments set forth below.

I. THE ASSOCIATION

IAGC is the international trade association representing the industry that provides geophysical services (geophysical data acquisition, processing and interpretation, geophysical information ownership and licensing, and associated services and product providers) to the oil and natural gas industry. IAGC member companies play an integral role in the successful exploration and development of offshore hydrocarbon resources through the acquisition and processing of geophysical data.

II. OVERVIEW

In 1995 the UK government adopted a set of guidelines developed by JNCC to minimize disturbance to small cetaceans from seismic surveys and other operations where acoustic energy is released. Since then JNCC guidelines have been revised on a number of occasions, taking into account stakeholder feedback, common issues encountered and new research into marine mammal hearing and sensitivity. The guidelines aim to reduce the risk of injury to marine mammals to negligible levels and help reduce the risk of disturbance.

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The current version of the guidelines was published in August 2010 (JNCC, 2010; http://jncc.defra.gov.uk/pdf/JNCC_Guidelines_Seismic%20Guidelines_Aug%202010.pdf). JNCC is now undertaking a new review to ensure the guidelines remain fit to purpose, are logistically feasible and provide the best available mitigation.

III. BACKGROUND

In March 2015, JNCC published two reports; the first (Stone, 2015a; <http://jncc.defra.gov.uk/page-6985>) analyzed seismic survey and marine mammal observer (MMO) data between 1994 and 2010 to assess the effects of seismic operations on marine mammals to identify general trends in compliance. The second (Stone, 2015b; <http://jncc.defra.gov.uk/page-6986>) assessed the level of compliance with the guidelines from 1995 to 2010 and highlighted items to be considered during the next guideline revision.

The results from these reports, together with general queries and feedback received from MMO reports, were used to generate an initial set of consultation questions circulated in November 2015. The resulting revised draft guidelines were circulated for comment on 23 November, 2016. The following are IAGC's comments on the November 2016 draft guidelines.

Our detailed comments on the 2016 draft JNCC guidelines are set forth in Section IV below, and in the JNCC requested format; (http://jncc.defra.gov.uk/pdf/SSconsultation_Surveyquestion.pdf), submitted via internet (<http://www.smartsurvey.co.uk/s/JNCCguidelines/>).

Overall, IAGC would like to commend JNCC for the thoroughness of preparation represented by the two analysis documents of prior year report data (Stone 2015a and 2015b) and the 2015 questionnaire. The resulting November 2016 draft guidelines were generally clear, straightforward and practical, in contrast to the general trend on this topic which has resulted in excessively long guidance or requirements, containing recommendations that are too often impractical, of questionable effectiveness, and are difficult to interpret and apply. Consistent with prior versions of the JNCC guidelines, the 2016 revision promises to be a model for other regulatory or advisory bodies dealing with the issue of effects of manmade sound on the marine environment.

As the primary trade association representing the vast majority of members of the seismic survey industry, as well as seismic survey technology and mitigation service providers, IAGC offers the following more detailed comments in the hope that JNCC will find our input helpful in arriving at an even more useful, practicable and environmentally beneficial set of guidelines.

IV. COMMENTS

A. **IAGC Recommends Continued Use of a Simple 500-meter Mitigation Radius (“Zone”)**

While JNCC discusses the possibility of adopting species, location or survey specific mitigation zones, the underlying metric for biological risk, the propagation modeling methodology to be applied and other aspects of context-dependent metrics are not discussed, leaving uncertain the process by which context-specific mitigation ranges would be determined. It has long been understood that while the 500-meter range benchmark was generally based on biological and acoustic propagation information, it was as much a practical mitigation metric as a risk-based metric. As knowledge accumulates on the variety of possible risks from seismic sound and the likely thresholds of either injurious or behavioral risks, the ranges to possible effect have broadened from as little as the immediate proximity of the source itself to ranges over 500 meters. Asking MMOs to mitigate to multiple ranges is clearly impractical, and IAGC reminds JNCC and other interested parties of the trade-offs between practicable mitigation monitoring and risk reduction. Absolute, complete reduction of all risk is impossible and attempts to address all risks end up reducing, rather than improving overall risk mitigation. While a 500-meter mitigation radius exceeds most current metrics of injurious risk and a considerable portion of disturbance risk, IAGC members still support it as a practicable range of mitigation monitoring, achievable at relatively little added cost over more restricted ranges of mitigation consistent with current best available science. IAGC members therefore recommend continuing the 500-meter standard as a means of achieving consistent compliance that is maximally effective as well as practicable.

B. **The Introduction of a Novel, Undefined Spatial Mitigation “Areas of Importance to Marine Mammals” (AIMM) Should be Removed.**

At several places within the draft guidance JNCC introduces a novel kind of protected area, the ‘area of importance to marine mammals’ (AIMM), without providing a definition of what constitutes an AIMM, the legal authority for establishing such AIMMs, or giving examples of AIMMs, as opposed to the more familiar Marine Protected Areas (MPA). IAGC is very concerned with the general proliferation of time-space restrictions on ocean users without appropriate stakeholder consultations, legal procedures and required supporting data. Mechanisms exist for designating such mitigations (e.g. MPAs), therefore, the creation of an undefined new mechanism (AIMM) is of great concern and opposed by IAGC.

C. **The Guidance for Operations During Line Changes is Unnecessarily Complex and Confusing.**

JNCC provides no fewer than four different sets of criteria for shutdown, pre-start monitoring and soft starts during line changes for large arrays (greater than 500 cubic

inches), small arrays (less than 180 cubic inches), Ocean Bottom Seismic (OBS), and unexpected breaks. The differences are largely trivial, in terms of both risk reduction and practicability, though the consequences for increased survey duration and cost are not trivial. IAGC, therefore, recommends that all four survey conditions be given the same criteria of a maximum of 40 minutes for a line change before shutdown must be implemented, with standard pre-survey and soft start metrics.

For two of the line change scenarios, arrays less than 180 cubic inches and OBS, a complicated variant of a mitigation source is allowed to continue line changes longer than the stipulated limits, but the manipulation of pulse intervals or Shot Point Intervals (SPI) is so complex as to be almost impossible to comply with. The purpose of gradually increasing and then decreasing SPI as a sort of “mini-soft-start” is not well thought out and is unlikely to produce a risk mitigation effect on disturbance or injury any greater than standard mitigation source operations or shutdown and re-start. IAGC recommends that the variable SPI mitigation be dropped.

JNCC is not explicit about the possibility for mitigation source use, a topic that has met with much controversy elsewhere in the world. Some IAGC members regularly employ mitigation sources during line changes and other down periods; others do not. If JNCC contemplates the option of allowing or recommending use of a mitigation source, IAGC would like to point out that recent studies of disturbance by sonar and by seismic suggest that vessel noise alone is as effective as a mitigation source as low-level operation of the source itself. Thus, operation of a mitigation source is unnecessary even if some form of mitigation ‘warning’ is considered desirable when the source of concern is not operating.

D. PAM Recommendations or Requirements Need to be Clarified

Generally speaking, JNCC treats PAM as an optional but recommended mitigation, but in parts of the document the regulatory requirement for PAM in order to be able to operate at night or during daytime periods of low visibility make PAM a *de facto* requirement. Consistency in the use of “shall” versus “should”, or recommended versus required would help the operators understand when PAM is essentially a necessity for normal operations and when it is considered an option.

IAGC asks that remote and automated PAM options be addressed in the JNCC guidelines. Both methodologies are seeing increased use around the world and offer distinct advantages and disadvantages relative to standard operator-on-board systems. Automated PAM, such as Sercel’s Quiet Sea or Western GeCo’s WhaleWatcher offer the option of enabling the ship’s navigation crew to perform PAM-based mitigations, but it is understandable that JNCC or others might want assurances that the automated systems perform at levels comparable to systems requiring a dedicated PAM operator. Details about relative system advantages and disadvantages are spelled out in the appended detailed comments, also submitted via the web survey site.

More than one IAGC member interpreted the requirement for two experienced PAM operators if day length exceeds twelve hours, and two experienced operators for operations in protected areas as inferring that four PAM operators would be required for summer operations involving marine protected areas. If this is not the case, additional wording clarifying these requirements should be added.

Possible issues with PAM operator training were identified. First, that the requirement for only experienced operators in protected areas might preclude opportunities for inexperienced operators to gain the requisite experience. Or, seen from the perspective of compliance objectives, restriction of opportunities for trained, but relatively less experienced operators might adversely affect recruitment and lead to a shortage of qualified PAM personnel to meet industry needs.

While MMO training/qualification metrics were reasonably explicit and clear, PAM operator training metrics were not as clear. It is possible that JNCC can take advantage of the ANSI standard for towed PAM, scheduled for release in early 2017, but in the meantime definitions of “trained” PAM operators, “experienced” PAM operators, and “highly experienced” PAM operators are unclear.

E. The Introduction of Non-Compliance Report Forms is not Needed.

As the two excellent statistical analyses of required observer report forms illustrate (Stone 2015a, 2015b), very detailed and specific information about non-compliance can be obtained from existing data. There is no need for self-reporting of non-compliance, a process fraught with potential errors and hidden costs to both the operator and regulator. An earlier proposal for a confidential anonymous tip line suffers from the same problems. Any kind of tip or self-reporting is vulnerable to inconsistencies in compliance, which must itself be investigated by the same statistical techniques already put into practice by JNCC, and for which JNCC is to be greatly commended. IAGC notes that the industry is promoting similar analytic practices for other jurisdictions where observer report data are required, via the Sound and Marine Life Joint Industry Program for funding independent expert study of topics relevant to the underwater sound issue.

Non-compliance forms or anonymous tip reports must still be investigated and verified, at non-trivial cost to the regulator. If the party in question desires to contest the claims or the follow-up, additional infrastructure must be created and costs incurred in the adjudication and enforcement of judgements and administration of any fees, fines or punitive actions. The kinds of efforts pioneered by JNCC of statistically revealing problem areas, for example short soft starts, and then creating solutions in guidance to facilitate compliance are likely to be much more effective than either self-reporting or anonymous tips that lead both regulator and regulated parties into costly processes of adjudication and reactive *post hoc* response instead of independent identification and amelioration of compliance problems in a proactive rather than reactive process. IAGC requests the non-compliance reporting forms be removed.

F. Introduction of a Requirement for an EU Environmental Impact Assessment

On page 6 the draft guidance suggests that the likelihood of injury or disturbance be addressed via an Environmental Impact Assessment (EIA) accompanying the application. IAGC members noted that in the past a “Disturbance Assessment” was provided but a full-blown EIA as defined in the referenced EU directive was not required. One of the strong positive features of historic JNCC guidance has been the minimization of excessive paperwork and complex instructions that lead to inadvertent non-compliance and less environmental risk reduction than could have been achieved by simple guidance and minimal paperwork. IAGC opposes the requirement of an EIA being included in applications.

Consistent with this comment and a general theme of inconsistency in stating whether guidance is discretionary or mandatory is the language about “best practice measures” that “should” be implemented “whenever possible” being listed again on page 6 as measures “one should consider” during planning. These do not seem to convey the same level of recommended/expected/required action, a problem that could be easily eliminated by consistent use of terms like “should consider” versus “should be implemented”.

G. Addition of Turtles and Basking Sharks to the Risk Analysis

Historically the JNCC guidance was framed specifically for marine mammal mitigation and indeed the overall content of the current guidance remains marine mammal focused. While JNCC and the UK regulatory agencies might wish to expand JNCC guidance to other taxa such as fish and turtles, IAGC questions whether that is best done within the existing, largely unmodified marine mammal guidance, or via a separate guidance document specific to those species. Other species in general, and certainly the two taxa in question, sea turtles and one elasmobranch fish, have very different hearing and behavioral responses to sound, use sound differently than mammals, and have different ecosystem niches, distribution and abundance patterns and different conservation and management needs.

Elasmobranch fishes, like basking sharks, do not detect sound pressure, but respond to particle motion, which does not propagate in the same way as sound pressure. Turtles hear using sound pressure, but with a very different middle and outer ear structure from mammals, and with clearly different frequency response, sensitivity, dynamic range and other properties. Neither species appears to make sound for communication or sensing. Their use of ambient sound is largely unknown and is not likely to be as well-developed as for marine mammals. Both taxa are not detectable at all by PAM and are less easy to detect visually than all but the most cryptic mammal species. It is not that these species do not deserve the consideration of a risk assessment and mitigation protocol, but rather that the estimation of risk, development of a risk assessment and mitigation plan, and

stipulation of mitigative actions are all better addressed in a separate process, and not rolled up into the risk evaluation, planning and mitigation developed for a taxonomic group with very different biology, behavior, ecology and conservation needs. For these reasons, IAGC requests the removal of reference to non-marine mammals from the guidelines.

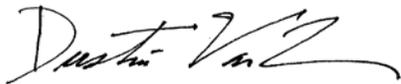
V. CONCLUSION

IAGC reiterates our general support for the efficient and understandable draft set of guidelines. Our comments above, along with the detailed comments submitted via the online survey, aim to assist JNCC in providing clarity in the final guidance along with reducing non-mitigative and expensive requirements on seismic operators. Specifically, IAGC opposes any requirement of complete EIAs for applications of possible marine mammal disturbance and any added, extra-legal, establishment of protected areas through the guidance.

We appreciate JNCC's consideration of the recommendations set forth above and we strongly encourage the committee to continue to reach out to, and coordinate with, the regulated community.

Should you have any questions, please contact the undersigned at +1 713 957 8080, or via email at dustin.vanliew@iagc.org.

Sincerely,



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