



Policies and Procedures

Evidence Quality Assurance: Evidence Quality Guidance Note #3

Quality Assurance of Expert Knowledge and Opinion

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Evidence Quality Guidance Note 3: Quality Assurance of Expert Knowledge and Opinion

1. What is expert knowledge and opinion and why is it needed?

The advice that JNCC provides is strongly based on direct evidence, which is obtained from many sources, including the *knowledge* of experts. However, there are occasions when expert *opinion* is also required to generate evidence. Expert opinion is an informed judgement, based on the experience and knowledge of the expert(s) concerned. It can be presented as a form of scientific evidence, as opposed to a value judgement. It contrasts with evidence derived from direct empirical observation, or extrapolation of empirical evidence.

Techniques for eliciting expert opinion are used in many fields, for example engineering, medicine and hazard prediction. The techniques aim to synthesise opinions of experts where there is uncertainty, for example, in the case where there is a lack of data.

Collating expert opinion in order to address a particular problem is widely used in the science and practice of conservation because of the complexity of ecosystem interactions, relative lack of data, and the imminent nature of many conservation decisions and their far-reaching effects. It may also be favoured in situations where there are constraints on time and costs or staff skill restrictions associated with collecting, analyzing and extrapolating data.

JNCC report 490 (<http://jncc.defra.gov.uk/page-6513>) examines the potential use of 'expert judgement' as a tool, or approach, within marine biodiversity status assessments. However, examples of its use that are extensively evaluated and explored cover several scientific disciplines. Pages 86 and 87 of report 490 provide recommendations for how expert elicitation processes should be carried out.

2. Confidence in expert opinion

2.1 Impartiality

Experts are not necessarily objective observers free from bias, whether subconsciously or purposefully. Expert opinion reflects, for the most part, personal experience which, by its very nature, will have its limits. The bias may be particularly true in conservation, where in many cases the people providing the expert advice are generally the same as those involved in implementing decisions informed by that advice. Scientists tend to have specialisms or preferences, be it for a particular habitat, species, or even a particular strategy and that will be reflected in their opinions and advice.

It is important that an expert is asked if they would prefer one outcome over another, to guard against the assumption that the opinion is neutral. It is important to remain aware that the selection of experts will affect the nature of opinions received and thus the outcome of the advice given. The selection and management of the elicitation of expert advice should be done in a way to maximise impartiality and obtain a balanced view as far as possible in order to increase assurance in the quality of the opinion.

2.2 Challenge

A key principle of using expert opinion (and often a legal requirement) is that it must be open to challenge by anyone with a stake in the outcome. Although it is not JNCC's intention to suppress critical questioning of its use of expert opinion, information has sometimes been presented in the past in a format that makes challenge and/or questioning difficult. It is important that challenge to expert opinion is facilitated (see the openness and transparency principles outlined in the JNCC Evidence Quality Policy p.4).

3. Risks and mitigation measures

3.1 Proportionality

Applying a 'risk model approach' (see the Evidence Quality Policy), it is possible to make logical decisions about the nature and degree of quality assurance that will be required for the processes of elicitation of expert opinion. For example, if the advice is given in response to statutory obligations (e.g. reporting under the Habitats and Wild Birds Directives) or is likely to affect important, high-profile decisions (e.g. designation of protected areas, such as Marine Conservation Zones); then it may be justifiable to invest more time in checking the quality and reliability of that expert opinion. In contrast, advice relating to lower impact issues, or where JNCC input is limited (in comparison to other bodies), does not require such a high level of time investment.

3.2 Transparency

The process used to evaluate expert opinion needs to be open and transparent, and should be structured to follow a clear set of steps. These steps should be recorded to enable the process to be clearly traced and monitored (see EQGN5). The record of the steps taken to acquire expert opinion should include the methods used, and decisions taken, and attribution of judgements to named individuals (unless anonymity is required; where this is the case the reason for anonymity should be recorded).

3.3 Defining requirements

Ahead of seeking input from experts, there are a number of steps to be taken which can increase clarity, and reduce uncertainty, in their responses. These include deciding how information will be used, determining what information to elicit from the experts, and defining the important terms and concepts involved and communicating this to the experts ultimately engaged. Not only will this inform choices of which experts are consulted, but will help to ensure that the experts chosen are familiar with requirements in advance.

In some circumstances, it may be appropriate to increase familiarisation of experts on the issues to be addressed (without introducing bias) to help streamline the quality of information that is provided.

3.4 Selecting experts

In order to minimise bias, opinions from two or preferably more experts (see section 3.5, below) should be sought, in order to 'normalise' potentially extreme views. By eliciting

multiple opinions from experts with a wide range of views and expertise, greater stakeholder confidence in the advice will be established.

To ensure a wide range of views are captured, it is good practice to involve non-government experts from academic, NGO and/or business communities. However, there are situations when the need for confidentiality means that seeking the views of a wide range of experts is undesirable. Such decisions should be clearly justified with recorded in sufficient detail to stand up to the scrutiny of auditors.

It is recommended that the identity of experts consulted is made clear, so that emanating advice is attributable, unless there is a genuine reason for anonymity; for example to reduce pressure from external sources to present a particular viewpoint that is not their own, or for reasons of personal security. Any such reasons should be clearly identified.

Although every effort should be made to recruit the most appropriate experts for the issues under study, they are not always going to offer (on further evaluation and analysis) good opinions. Their knowledge can be out of date, or individuals may be unfamiliar with the most recent research, or overconfident in their abilities. Experts, particularly scientists, are often asked to predict something based on their knowledge of a subject. The consequences of poor predictions can be dramatic and have profound implications. An assessment of the skill level of the experts engaged should be recorded (e.g. as a mini 'biopic').

3.5 Multiple opinions

Using groups of experts helps overcome limitations of employing a single expert, and the variability in expert knowledge. Taking an appropriate statistical average value or assimilated and synthesised standpoint from a larger group is likely to result in a more balanced opinion than from a small group or individual expert. Guidance on appropriate group size can be found at (<http://jncc.defra.gov.uk/page-6513>) [JNCC report 490].

In eliciting the opinions from a selected group of individuals, the *Delphi Method* can be a useful tool (see JNCC report 490). It aims to improve on use of a single individual's opinion by asking each group member to offer a response to the question at hand, then bringing the individual responses back to the whole group, discuss the views, and then make a second, potentially revised view individually, which again is then brought back to the group. The *Delphi Method* is an iterative process that is repeated until a group average is achieved (details of the process and its strengths and weaknesses are examined in JNCC report 490).

Sometimes it is advisable to 'calibrate' responses by asking some questions to which the answer is already known, to evaluate the level of expertise in individual experts. From this, it is possible to weight individual's opinions based on the particular levels of expertise in each expert.

3.6 Summary

The aim of the process of seeking expert opinion is to make it as robust as possible, that is to minimise bias and improve accuracy and hopefully get closer to the best possible answer, whilst recognising constraints of time and knowledge.

To this end, it is essential to provide:

- An indication of the level of expertise held by those providing the advice, and a measure of the applicability of the advice to the issue involved;

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- A judgement by the expert involved as to whether they are **reasonably certain** or **reasonably uncertain** that the advice is of high quality (reliability assessment);
- An indication of which elements of the advice are based upon a review of the evidence and information available, and which are based on the judgement of the expert.