



Policies and Procedures

Evidence Quality Assurance (EQA) Policy

2022

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Document control notes

Version 17: Previous version (16 (2018/19)) updated (Section 8 only) to provide guidance on publishing peer-revised literature.

<https://jncc.gov.uk/about-jncc/corporate-information/evidence-quality-assurance/>

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Summary

This Evidence Quality Assurance (EQA) policy provides a standard for JNCC staff to follow to help ensure that the quality of JNCC scientific advice and evidence is fit for purpose. The policy presents principles that must be adhered to by all staff when providing scientific advice and evidence. Evidence is defined here as a general term for expert opinion or advice, data, methodology, results from data analysis, interpretation of data analysis, and collations and interpretations of scientific information (including meta-analyses).

The Appendices provide additional information, practical guidance and tools to help staff make good choices about quality assurance; they are not intended to prescribe activities.

The policy is in line with *The Government Chief Scientific Adviser's Guidelines on the Use of Scientific and Engineering Advice in Policy Making* (2010) and *The Defra Joint Code of Practice for Research* (2012).

Compliance with this JNCC policy will be discussed at the Science Management Board (SMB) which reports to the Executive Leadership Team and Joint Committee. Monitoring will be carried out as an element of JNCC governance.

The Science Management Board will review this policy every three years as part of internal JNCC governance, and, if necessary, update it.

The 2018/19 policy (version 16) was reviewed by the Chief Scientist in 2022. Changes to Section 8 were approved by the SMB in March 2022, with final adjustments in April 2022. The main addition is the provision of a table to record permissions for submission of manuscripts to peer-reviewed journals.

1 What is evidence?

Evidence is a general term for expert opinion or advice, data (and the methodology used to obtain the data), results from data analysis, interpretation of data analysis, and collations and interpretations of scientific information (including meta-analyses).

JNCC generates evidence through its own activities, in partnership with others and through commissioned survey and research. Evidence from external sources also plays an important role in allowing JNCC to provide its scientific advice.

The work that we undertake and commission must follow good scientific practice:

- data are collected using repeatable systematic observation, measurement, and experiment;
- hypotheses are formulated and tested (and modified);
- data are stored securely;
- results are analysed;
- inferences are drawn regarding the meaning, importance and reliability of analyses;
- the work is published appropriately.

Evidence – quantitative and qualitative – is obtained from a variety of sources of which independently peer-reviewed and published studies are of particular value. There are numerous other sources including 'grey literature' like technical reports, systematic reviews, commissioned studies and case studies, as well as expert knowledge and opinion.

2 What is quality assurance?

Quality assurance (QA) signifies the various processes that ensure work abides by and meets specific quality standards. Monitoring and auditing are essential parts of the QA process.

Two principles included in QA are: "fit for purpose" (i.e. the product should be suitable for the intended purpose); and "right first time" (i.e. mistakes should be eliminated as far as possible).

This policy defines the QA process in JNCC. Guidance notes in the Appendices are provided here to help staff understand and implement the process but are not intended to be prescriptive.

3 Why is evidence quality assurance important?

3.1 Purpose

It is essential that good evidence (i.e. fit for purpose in scope and quality) is available to underpin decision-making, particularly in supporting policy and programme decisions made by government. Such evidence, when it is generated from assured scientific practice in research, is required to form judgements and deliberate response options and thereby make effective decisions. As a public body, JNCC must be able to assure the quality of its evidence and advice. This means that we are:

- able to understand the quality, assumptions and limitations of the data we collect or use (this may include collation/processing or interpretation);
- clear about the certainty and risks associated with our evidence and advice;

- able to document and trace the processes that provide evidence;
- honest, open and transparent about those processes.

3.2 Transparency

Transparency means being open about the scientific evidence and analysis underpinning our decisions, including confidence, uncertainties, data and knowledge gaps, assumptions, and how we have used scientific evidence and analysis, and any other factors, in our advice.

Government has set out the need for greater transparency across its operations to enable the public to trust in government services and hold public bodies and politicians to account.

3.3 Government guidelines on scientific advice

The Government Chief Scientific Adviser's Guidelines on the Use of Scientific and Engineering Advice in Policy Making ([GCSA Guidelines, 2010](#)) require the adoption of an open and transparent approach to the scientific advisory process. Evidence and analysis are published as soon as possible, alongside any public explanation of the reasons for policy decisions.

The JNCC Evidence Quality Policy is compliant with the GCSA Guidelines (2010).

Scientific advice is only one type of advice that may be taken into account by government decision-makers. Other types might involve social, political, economic, or ethical concerns.

Openness and transparency of the scientific advisory process are vital to ensure that all relevant streams of evidence are considered, so that the process has the confidence of experts and the public. The evidence for a particular policy should be published as early as possible, unless there are over-riding reasons for not doing so, for example, national security, or requirements to protect personal or commercial confidentiality. The evidence should be published in a way that is meaningful to the non-expert, using plain English and avoiding overly technical descriptions and jargon. The analysis and assumptions that went into its creation, and any important gaps in the data, should be clearly identified.

Defra's Aqua Book ([Defra Aqua Book 2015](#)) is a detailed guidance document on producing quality analysis for government. The section on analysing uncertainty (Chapter 8, page 49) may be especially useful for high risk analyses undertaken by JNCC.

3.4 Access to evidence and information

JNCC is committed to providing open access to the data and information we hold, publishing via our website.

The Freedom of Information Act 2000 (FOI) gives the public a right of access to information held by all public authorities in the UK. The Environmental Information Regulations 2004 (EIR) deal with environmental information held by public authorities in England, Northern Ireland and Wales. The [Information Commissioner's Office](#) is an independent authority promoting openness by public bodies. Scotland has its own Scottish Environmental Information Regulations and the Freedom of Information (Scotland) Act 2002. These are regulated by the [Scottish Information Commissioner](#).

The purpose of the legislation is to make public bodies, such as JNCC, more transparent and accountable. The right to information is subject to certain exemptions and exceptions which are considered on a case by case basis.

There are exceptional cases where JNCC will withhold access to some information and exemptions are listed under both pieces of legislation to allow this. All such decisions are based on a public interest test, which weighs up the balance of the interest to the public in releasing the data or information against the potential risk of damage if access were allowed.

For the types of data that we hold there are two exceptions (under the Environmental Information Regulations) that are particularly relevant:

- i. Protecting the interest of the data provider (especially in relation to data which has been voluntarily provided);
- ii. Protection of the environment to which the information relates (where the release of data or information could lead to environmental harm).

Guidance on both FOI and EIR requirements is available on the JNCC website under the heading '[Access to Information](#)'. Good QA practices can both help avoid the need for the public to make requests and enable more efficient responses to FOI or EIR requests.

4 Who is responsible for evidence quality assurance?

4.1 Internal responsibilities

JNCC employs specialists in a wide range of scientific disciplines across biological sciences, economics, geographic information and spatial analysis, statistics and data management. All these staff are responsible for evidence quality assurance, along with administrative staff who contribute to project management and evidence delivery.

Project managers have a particularly important role in implementing the EQA policy, with support from team leaders; both groups should have a good working knowledge of the policy and be able to provide leadership and guidance for other staff involved in evidence and advice delivery.

Groups working on evidence delivery within or for JNCC also have a role in supporting implementation of the EQA policy, for example, by providing peer review for major projects, monitoring implementation of the policy and suggesting policy improvements.

The Science Management Board (SMB) and Audit and Risk Assurance Committee (ARAC) both have responsibility for ensuring that the EQA policy works and is implemented to a satisfactory standard. The Executive Leadership Team (ELT), as advised by SMB, has overall organizational responsibility for budgets, making decisions over evidence spend including reviewing business cases for projects which are relevant to EQA in determining the evidence being funded. ELT and SMB are also responsible for ensuring that JNCC has the capabilities and capacity to deliver required EQA standards, via recruitment of staff with appropriate skills and provision of the appropriate training and professional development.

The Joint Committee is ultimately responsible for evidence standards and QA processes within JNCC. Members discuss strategic nature conservation and organisational issues as well as making high-level advice, strategy, funding and planning decisions. In setting strategic direction, the Committee helps determine the scope of evidence and advisory work undertaken, and through its scientific oversight provides scientific leadership, including challenge, scrutiny (including peer review) and support.

4.2 Working with others

JNCC staff have a responsibility to ensure partners and contractors employed to deliver evidence work understand our EQA standards and procedures and what we expect from them to support achievement of good practice.

In working jointly with partner organisations agreement must be reached, and the agreement recorded, concerning standards that will be adopted for any given project at the start of that project; the JNCC policy should be followed as closely as possible. Guidance is available for understanding the EQA practices of the government environment departments, the SNCBs and EU projects in Appendix 6.

Contractors will need to comply with standards set out in this policy.

5 Which advice or evidence should be quality assured?

5.1 Overview

Quality Assurance should be proportionate to the intended use of the advice or evidence.

Staff in JNCC produce different types of scientific advice and evidence ranging from short, rapidly produced advice notes to major data and evidence products delivered through contracts and partnerships. The QA approach for each of these products is necessarily very different, but all forms of scientific advice and evidence should undergo some level of QA.

Deciding on a suitable QA procedure should be based on a simple assessment of risk associated with use of the evidence; see the EQA flow chart (Figure 1).

JNCC EVIDENCE QUALITY ASSURANCE

GETTING STARTED WITH EQA

Evidence is a general term for expert opinion or advice, data, methodology, results from data analysis, interpretation of data analysis, and collations and interpretations of scientific information. Before you start you should read the [EQA Policy](#), then decide on the appropriate level of EQA for your project using the decision tree below. Ensure our [EQA Policy](#) has been shared with external partners and contractors.

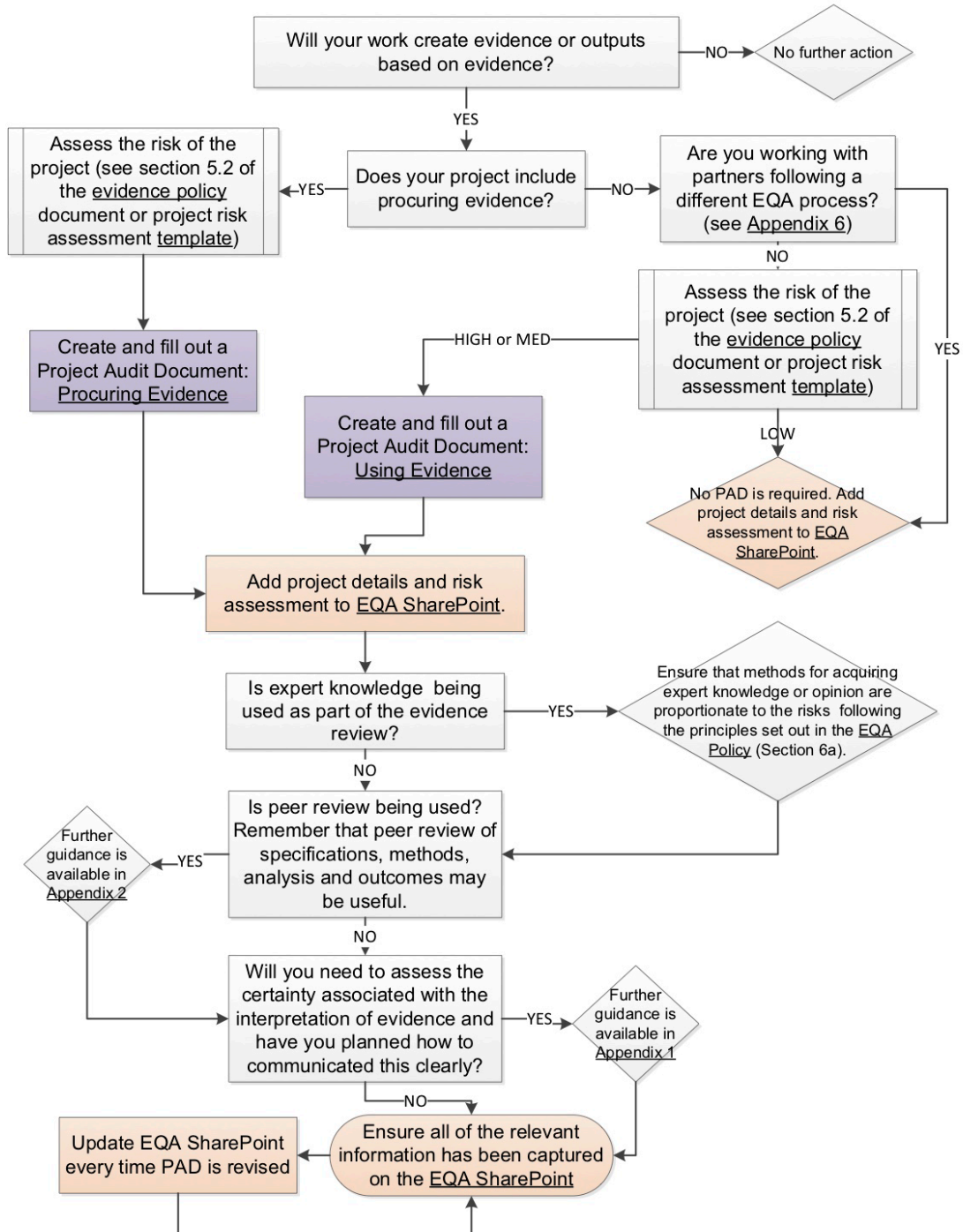


Figure 1. EQA Flowchart: decision tree for making EQA choices and recording them.

5.2 Assessing risks associated with the use of advisory and evidence products

Risk can be defined and categorised in many ways. Risk is typically measured as ‘size of impact multiplied by likelihood of occurrence of an event’. For an advisory or evidence product this can be defined as:

Impact = use of the evidence (i.e. significance of potential decision or policy application), and scale of change that is likely to result from this use;

Likelihood = contribution of the evidence to the use (i.e. how significant is the evidence likely to be as a driver of the decision or policy change), including as part of a larger evidence-driven process.

In order to assign to a High, Medium or Low category, multiply impact and likelihood then use the matrix below to categorise risk. The examples below the matrix demonstrate the levels of risks for different types of product.

Risk Scoring matrix

Likelihood of use of the evidence in making significant decisions		Impact: significance of potential decision or policy application, and scale of change that is likely to result from this use	
1	Small chance	1	Small impact
2	Realistic possibility	2	Moderate short-term impact
3	Likely to happen over the longer term	3	Moderate longer-term impact
4	Likely in the short term	4	Major impact
5	Likely and imminent	5	Extremely significant

Risk scores assigned to low, medium or high risk categories:

Likelihood	5 Low	10 Medium	15 Medium	20 High	25 High
	4 Low	8 Low	12 Medium	16 Medium	20 High
	3 Low	6 Low	9 Medium	12 Medium	15 Medium
	2 Low	4 Low	6 Low	8 Low	10 Medium
	1 Low	2 Low	3 Low	4 Low	5 Low
	Impact				

Risk assessment is rarely precise, and a general rule is that as risk increases the QA of the advice and evidence should be more rigorous. There will be exceptions to this rule, usually as a result of the time available to provide advice or evidence (see below). Risk can also change during the life of a project and in this situation should be re-assessed and QA adapted accordingly.

Special cases relating to 'contribution to decision' also exist in which the advice is the sole basis for decision-making, for example evidence-based protocols and criteria. In such cases, the risk of using poor evidence and/or creating poor protocols will always be moderate to high, varying only in relation to scale of use, and so both the underlying evidence and the protocols themselves should be subject to sufficiently rigorous QA.

Examples of high-risk applications might include: designation of European protected sites; national and official statistics; advisory options for supporting development of EU law; evidence in support of government response to EU legal challenges.

Moderate risk applications might include: technical advice to support UK negotiations in international agreements (although these might be high risk in some circumstances); conservation advice packages for protected areas; strategy development; operational policy development.

Lower risk applications might include: scoping exercises to specify additional evidence gathering needs; expert inputs to workshops; responses to Parliamentary Questions.

Project managers should make risk assessments at the start of the project process and, if necessary, check risk assessments with colleagues, including team leaders. Evaluation of the risk should be recorded in the EQA SharePoint database and also in the PAD when the risk assessment indicates use of a PAD.

Staff should also be aware that risks relevant to users of our advice and evidence include reputational risk and risk of legal challenge, that may need to be taken into consideration when deciding on the best evidence quality assurance procedures. Precautionary approaches to EQA may also be helpful in situations where risks are very hard to assess.

5.3 Time-limited responsive advice

Where JNCC advice is sought on tight timescales, such as license consents under the Convention on International Trade in Endangered Species (CITES) and advice on regulated activities (OIA) in offshore marine waters, a more strategic approach (at programme or project level) to QA is necessary. This approach relies on competency of staff and quality control is achieved through effective systems, training, within-team checks (including peer review), and use of advice from non-team experts (usually specialists in JNCC or the SNCBs, or suitable external experts). Systems have been set up under the guidance of our internal auditors to review and spot-check a proportion of the decisions made in CITES and OIA over stipulated time periods. The EQA standard in place must be based on the principles set out for use of expert knowledge or opinion (see Section 6.2), and must include a monitoring plan to allow quality audits.

6 General principles for evidence quality assurance

6.1 Introduction

The following sections provide a set of principles associated with different forms of evidence production, from expert knowledge to procured evidence: these principles must be adhered to by all staff providing, or involved in the provision of, scientific advice and evidence.

To help staff implement the actions required to meet these principles, various Appendices are provided here for guidance. They are not prescriptive but include tools and forms for staff to use.

6.2 Expert knowledge and opinion

Expert knowledge and opinion are important and frequently used for providing advice, supporting development of response options, and checking quality of evidence (through peer review). [Martin et al. \(2012\)](#) provide an introduction to and evaluation of expert consultation.

Expert knowledge or opinion should not be relied upon as a sole source of evidence when there is relevant evidence of suitable quality to support advice, unless there are good and demonstrable reasons why published evidence cannot be reviewed (for example, short deadlines imposed by others or as part of a function-specific strategic EQA standard; see Section 5.3).

Assessing the quality of expert knowledge and opinion can be difficult, although maintenance of expertise through training and professional development and selection of experts are key controls (see Appendix 2 on peer review). Some principles should be followed to increase confidence in use of expert knowledge and opinion, both when used to complement evidence reviews and when used without supporting evidence. These principles are based partly on Barnard & Boyes (2013; [JNCC Report 490](#)).

6.3 Principles for using expert knowledge and opinion

JNCC staff when using in-house expert knowledge or opinion to provide rapid advice will:

- Ensure quality assurance of expert advice is proportionate to the use and likely impact of the advice;
- Comply with any function-specific strategic QA procedures, or:
- Check advice or opinion with a suitably qualified colleague within JNCC, or if appropriate a colleague in an SNCB or partner organisation;
- Support advice or opinion with review of relevant peer-reviewed or trusted evidence (evidence based on peer-reviewed and published methods), citing evidence sources;
- Ensure that potential users are made aware that the advice is based on expert knowledge or opinion.

JNCC staff when using externally sourced expert knowledge or opinion to provide advice will:

- Ensure quality assurance of expert advice is proportionate to the use and likely impact of the advice;
- Obtain opinions from two or more experts;
- Select experts with an appropriately wide range of views and expertise, involving generalists as well as specialists;

- As best practice, typically involve non-government experts from academic, NGO and/or business communities, but when this is not acceptable for reasons of confidentiality then document decisions;
- Ensure that experts involved in an exercise do not have relevant conflicts of interest;
- Define key terms and concepts ahead of an information-gathering exercise to help clarify what is being asked for and reduce uncertainty and 'noise' in experts' responses;
- When appropriate, use training or familiarisation of experts on the issues to be addressed in order to help reduce uncertainty and improve the quality of information provided;
- Use different methods to check consistency, for example well-designed questionnaires paired with workshops, iterative consensus development methods, Delphi method;
- Use a transparent and structured process to evaluate expert opinion, documenting methods used and decisions taken;
- When appropriate, weight opinions from different experts in accordance with the experts' self-assessments of their degree of expertise;
- Give experts opportunities to reflect on and refine their opinions in the light of information from the other experts.

Both internal and external expert opinion may be sought simultaneously and guidance to help staff fully understand and meet all of these principles is provided in Appendix 3.

6.4 Reviews and assessments: using multiple sources of evidence

6.4.1 Introduction

Review of evidence from multiple sources, including that produced by JNCC and externally, is an important method for analysing evidence and providing advice. This section focuses on using results and conclusions from existing evidence sources.

Meta-analysis of multiple data sets, or re-analysis of data, to create new evidence products (in-house research) should follow good scientific practice and the principles included in Section 7 below on procurement of evidence must be followed.

The interpretation of evidence collations can be biased by a number of factors, including for example:

- lack of evidence and/or poor transferability of evidence;
- selective choice of evidence to underpin advice;
- dismissal of evidence that conflicts with other evidence;
- inclusion of evidence that is not relevant for the intended use;
- failure to account for the quality of evidence included and its associated uncertainty;
- poor choice of meta-analysis methods;
- poor information management underpinning meta-analyses;
- combining evidence and expert opinion.

In order to reduce bias in evidence reviews and meta-analyses the following set of principles must be followed.

6.4.2 Principles for undertaking evidence reviews and assessments

JNCC staff when undertaking in-house reviews or assessments of evidence will:

- Make reasonable attempts to collate all relevant evidence of good or high quality to include in an assessment, documenting search methods used;
- Include any relevant evidence of suitable quality that conflicts with other evidence in the assessment, but clearly describe the effect of this evidence on the overall certainty of the assessment;
- Correctly and consistently cite all evidence sources so that users are clear about origin and would be able to find the evidence if it is published or request it if not;
- Select fit for purpose meta-analysis methods, testing this through peer review (see Appendix 2) and document the reasons for the methods chosen;
- Follow existing JNCC/programme-level data management approaches, ensuring other users are able to understand the data and would be able to use the data to obtain repeatable results;
- Assess expert opinions used for an assessment (see Appendix 3), documenting the methods used and outcomes to ensure transparency;
- Provide assessments of certainty in the overall conclusions drawn from the evidence and associated likely risks for any response options provided, using the terminology given in Appendix 1;
- Peer review products according to the risk-based approach (Section 5) and Appendix 2, documenting methods chosen, reviewers involved and storing reviews in original form.

See Appendix 1 for guidance to help staff more fully understand and meet these principles.

Systematic review can reduce bias but is costly and time-consuming. Guidance on systematic reviews and other knowledge synthesis methods is available from various sources, for example the [Centre for Evidence-Based Conservation](#) and the [Eclipse project](#) which reviews 21 different knowledge synthesis methods.

7 EQA in procurement

7.1 Procurement practice and evidence quality

The JNCC procurement process includes steps to help project managers ensure that the quality of commissioned work is fit for purpose. It provides guidance on creating a project specification, choosing contractors and defining required products.

The procurement process needs to consider evidence quality (see Project Audit Document Procuring Evidence; PAD2). The project specification (known as the Annex A) is central to the process. It is used to establish the scope of the work (framing the questions to be addressed) and is a key document for establishing quality assurance requirements.

To help embed good evidence quality assurance practice in procurement we recommend the following documents are created:

- i. An Annex A – for internal use only (not published), to include information to help us test and understand the requirement (including through peer review) and provide context for tender evaluation. Annex A is the vehicle for providing information about how the tender will be evaluated and will include EQA specifications as appropriate;
- ii. Invitation to Tender (ITT) specification – derived from the Annex A, to set out the problem and any specific requirements (published);

- iii. Contract specification – derived from the Annex A and successful tender documents, agreed with the contractor, and for contract use only (not published).

A standard Annex A form available from Finance (via the JNCC intranet) embeds EQA requirements. Additional information on how to assess and describe the specific EQA for a project in an Annex A is provided below in Table 1, along with guidance on how this could then be translated into an invitation to tender (ITT). These are based on the following additional principles to ensure that the evidence we procure is of fit-for-purpose quality, and hence value for money.

7.2 Additional principles and standards for ensuring that procured evidence is of 'fit-for-purpose' quality

JNCC will ensure that the following requirements are met when procuring evidence:

- Research/survey methods will be fit for purpose, and when innovative and novel methods are used, or developed, adequate risk management, including peer review processes, will be implemented;
- Interpretation of new data and other evidence is based on best scientific practice, and analytical methods and sources of other evidence are cited clearly;
- Evidence quality and the uncertainty associated with its interpretation are clearly communicated in reports and other relevant products;
- Internal peer review is used in the procurement process, including during development of the specification, multiple independent evaluations to determine the best contractor to achieve value for money, and in ensuring that reports and other products are of the required quality (see Appendix 2);
- Procurement decisions and contract management processes are documented in a way that allows monitoring and evaluation of compliance with the JNCC EQA Policy.

JNCC will procure evidence only from contractors who satisfactorily demonstrate that they have the required:

- Capacity, capability and credibility – the staff resources available, including sub-contractors, the competency of those actually doing the work and track record of the contractor will be assessed for suitability to deliver the specified work;
- Quality management systems, either accredited or self-designed, in place and in use;
- Data management capability and relevant and adequate data access policies in place for the specified work.

Project managers are required to comply with these principles and use the guidance in Table 1 for creating a project specification (an Annex A) and invitation to tender. Contract documents must reflect the agreed approach to EQA, including addressing these principles.

7.3 Elements for inclusion in an Annex A and invitation to tender document

To help staff ensure consistency in approach to evidence quality assurance key elements of an Annex A, ITT and contract are described in the table below (Table 1).

Table 1: Guidance on effective inclusion of EQA in procurement documentation.

Matching section in Annex A	Specification (the Annex A)	Invitation to tender
(5) Project objectives: detailed tasks - research/survey methods	Annex A should cite the required and/or desired methods, if known, for delivering the project objectives; this will help in tender evaluation. Peer review of methods may be appropriate (see EQA Policy Appendix 2); in cases where peer review of methods is undertaken a description should be provided in Annex A.	The specification used for inviting tenders should avoid being prescriptive of the methods that are required so as to ensure effective competition, unless conformity is required. The applicant must state what research and/or survey methods will be used and whether these are already peer reviewed (published sources should be cited). They must state why the chosen methods are fit for purpose. When methods are not published or a non-published variation of a method is being proposed, the possible risks to quality of evidence associated with the innovative methods should be described and a contingency plan for managing these risks provided.
(5) Project objectives: detailed tasks - peer review	Choice of peer review approaches should be based on risk assessment (section 5). The Annex A should describe the desired approach, based on EQA Policy Appendix 2, and reasons for this decision. Any requirements deemed mandatory, including the need for a steering or advisory group, should be clearly described and included in the invitation to tender.	Plans for peer review of the specification (if required) and of project progress and outputs should be described and accounted for in the delivery timetable. Approaches to any specified mandatory peer review must be clearly described and timetabled. If JNCC intends to undertake an independent review outside of the project then this should be mentioned.
(13) Instructions for tender submission - capacity, capability and credibility	Annex A should include a basic estimate of staff resource and the competency requirements to meet the objectives. This is not for inclusion in the invitation to tender, but to help clarify likely costs and in tender evaluation.	The applicant is required to propose a breakdown of staff resources and how these will be met, including any subcontracting. The competencies and experience of those actually doing the work must be provided (for example, short CVs, publication records) and must be relevant to the specified work. Examples of previous relevant work completed by the applicant and any sub-contractors should also be provided.
(13) Instructions for tender submission - Quality Management (QM) systems	Any requirements for the contractor to have an accredited QM system in place must be specified. Requirements for compliance with recognised codes of practice should also be given, for example Code of Practice for Official Statistics .	Any recognised QM systems in use by the applicant should be specified and current certification demonstrated. If not accredited, the applicant must provide evidence that they have a QM system in place (documentation should be provided) and in use or provide a quality assurance plan. The QM system or plan must include adequate monitoring and audit practices.

Matching section in Annex A	Specification (the Annex A)	Invitation to tender
(7) Outputs - data management and access	Set out management and storage requirements related to the data generated from the project and the relevant policy for data access.	The applicant is required to describe the approach that they will take to data management and storage and demonstrate that they have the required capability. They must indicate that they can comply with any specified data access requirements.
(14) Evaluation criteria	A short list of evaluation criteria and the ways in which they will be scored must be included in the Annex A, based on the standard criteria. They must include criteria relevant to the other headings in this table.	The tender evaluation criteria, plus scoring approach (weightings), must be specified in invitations to tender.

8 Publishing evidence and communicating evidence quality

JNCC publishes evidence and scientific advice in many forms, including through the JNCC Report Series, books, papers, data sets, code and geographic information. Quality assurance of products prior to publication is important, especially through peer review.

Peer review should be proportionate to the kind of evidence being published. Staff should assess the need for peer review, conduct the required review and respond to it, and document the process and outcomes (Appendix 2). Evidence products likely to have a major role in significant decision-making (i.e. high risk) should undergo independent peer review. The peer review process should be transparent and the names of reviewers cited in publications when appropriate and permitted (see Appendix 2 for more information).

Evidence that is of sufficient scope and/or novelty should be considered for submission to a scientific journal for publication, although this should not delay use of the evidence for decision-making. Realistic time and resources will need to be allocated, ideally during initial project planning and certainly if the evidence is gained through procurement. If seeking to publish procured evidence in a scientific journal, JNCC staff should assess their contributions to the paper and seek co-authorship if this is appropriate. A simple set of rules for determining authorship is available in Annex 4 of Appendix 5.

Submission of manuscripts with JNCC authors (lead or contributing authors) to peer-reviewed journals is strongly encouraged. Providing your JNCC address as your current address for work carried out in previous organizations is also highly desirable to increase our profile. Peer reviewing is normally high quality and knowledgeable scientists (experts in the field) freely provide their time to move the research area forward. However, potential JNCC authors of peer-reviewed papers, including those arising from work done elsewhere, need to be aware that:

- (1) If the work has been carried out in JNCC, there must be an internal approval process prior to the submission of the manuscript, preferably much earlier in the management of the project. For work carried out in previous organizations, the first step requiring approval is the addition of JNCC as your present address, and the considerations are as for work originating in JNCC. The majority of JNCC-authored, peer-reviewed papers are non-controversial (e.g. straightforward assessments/descriptions of data analyses such as habitat mapping outputs or development of new indicators). Line

managers will be aware of the work and can approve the publication plans. However, those papers that express opinions that might conflict with official JNCC advice bear a potential risk of loss of reputation and could represent conflicts of interest. We do not envisage that the risk is that of publishing poor science, as our QA procedures are robust. These manuscripts should be discussed with line managers/Team Leaders initially, and if there is any doubt or difference of opinion, Directors should be consulted. These considerations should be recorded in the PAD, where this exists, in Section 4.1 Publication of Evidence. For papers published outside a JNCC-run project, such as studentship or partner-led work, confirmation of evidence quality assurance should be recorded in the SMB Open SharePoint site column for this.

- (2) The peer-reviewed manuscript must be logged in the SMB Open SharePoint site, in the relevant file where papers are recorded by year. The SharePoint site has provision to register manuscripts at different stages, and to record their process.
- (3) This should be seen as a mandatory element of publishing peer-reviewed papers in JNCC, provides transparency and allows communication.
- (4) The list of papers will be available for use in the Annual Report and Accounts.
- (5) It is JNCC policy that articles must be published Open Access if at all possible – journal publication fees apply to the majority of OA journals which therefore need to be budgeted for.

Reports published as part of the [JNCC Report Series](#) and major papers must include a short statement on the evidence quality assurance process undertaken during the project and in refining the report (the Communications Team will advise on how best to do this for a particular type of report).

Whatever the form in which evidence is published, it is critical that the way in which a product has been quality assured is communicated clearly. In addition, staff must provide some assessment of certainty of the findings, using the terminology in Appendix 1.

9 Public consultation on JNCC evidence

JNCC undertakes public consultations on a range of evidence products, especially in relation to European and international reporting. Consultation can provide a valuable additional peer review opportunity, but is not necessarily relevant to all of our evidence work. However, it should not replace peer review; it typically follows once expert peer review of evidence is completed.

Decisions on if, when and how long to consult the public on evidence should be made at the beginning of any project and adequately planned. The requirement to consult is often pre-determined by government, and JNCC might not always be responsible for running consultations, but when we do lead a consultation then project managers should consult with programme leaders or project steering groups on the appropriateness of public consultation. Evidence products likely to have a major role in significant decision-making (i.e. related to high environmental risk) would usually undergo public consultation either alone or more typically as part of that decision-making process.

10 Record keeping, monitoring, auditing and reporting

Adequate records of decisions and actions must be kept for purposes of monitoring, assessment (audit) and reporting of compliance with this EQA policy. All projects where EQA is relevant should have an initial risk assessment recorded (see Figure 1, EQA Flowchart).

1. To determine whether a Project Audit Document (PAD) is required, see the Flowchart, which determines which of the following PAD templates should be used: PAD1 (Using Evidence), or PAD2 (Procuring Evidence), see also Appendix 5. When required the PAD must be created at the beginning of the work and used through to completion. The PAD should set out clearly who is responsible for tracking and recording the agreed evidence quality assurance process for the project. Where a function-specific strategic QA standard is in use this must specify record-keeping requirements.

Project documentation should be managed and retained in accordance with the guidance set out in Appendix 5. PADs should be recorded in the EQA SharePoint database, which will be checked twice annually by the JNCC Governance Manager.

JNCC will monitor the quality of its evidence and advice on a regular basis and implement changes necessary to address any identified shortfall in compliance with this policy or the adequacy of the policy. Monitoring will include twice-annual updates for central reporting and quality audits. The approach to any additional monitoring will be defined by the Science Management Board at the start of each business year. Information on evidence quality management, including methods and outcomes, will be audited and reported to ELT and Joint Committee (annually), and summary information published.