



**GUIDELINES ON THE GRANTING OF EXCEPTIONS TO ARTICLE II,
PARAGRAPH 1, FOR THE PURPOSE OF NON-LETHAL *IN SITU* RESEARCH
IN THE AGREEMENT AREA**

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I. Introduction

1. Exceptions for scientific research under international instruments

Almost no species-based treaties have equivalent mechanisms to ACCOBAMS. Although the 1979 Agreement on the Conservation of Small Cetaceans of the Black and North Seas and the North Atlantic Marine Mammal Commission² promote scientific research, they do not provide for strict prohibitions/research exceptions nor do their institutions have specific powers to advise on national actions.

a. International Convention on the Regulation of Whaling (ICRW)

The nearest equivalent to the ACCOBAMS system is ICRW's permit review system with the key difference that its exception procedure covers lethal research.

Any Contracting Government may grant a "special permit" authorizing a national to kill, take and treat whales for purposes of scientific research: such actions are then exempt from the ICRW's operation³. It must immediately report such authorizations to the International Whaling Commission (IWC) and submit an annual report on the results of such research⁴.

Consolidated *Guidelines for the review of scientific permit proposals*⁵ call on Governments to seek the ICRW's Scientific Committee's advice before deciding on permits. Review criteria are whether:

- the permit adequately specifies its aims, methodology and the samples to be taken;
- the research is essential for rational management, the Committee's work or other critically important research needs;
- the methodology and sample size are likely to provide reliable answers to the questions asked;
- the questions can be answered using non-lethal research methods;
- the catches will have an adverse effect on the stock;
- there is the potential for scientists from other nations to join the research programme.

The IWC may comment on the permit proposal after receiving the Committee's report and pass Resolutions asking governments to refrain from issuing specific permits. However, responsibility for permit decision-making remains with the government concerned, as under the ACCOBAMS system.

The ICRW system has run up against two main difficulties: first, the need to streamline review procedure; second, the lack of consensus on general interpretational questions stemming from the Guidelines that call for more than purely scientific judgement (e.g. what comprises 'essential' for management? what constitutes 'reliable'? what counts as a 'critical' research need?).

¹ Document based on the preparatory study written by: Clare Shine, Consultant in Environmental Policy and Law

² Established under the Agreement on Cooperation in Research, Conservation and Management of Marine Mammals in the North Atlantic (Nuuk, 1992).

³ Art.VIII.1.

⁴ Art.VIII.3.

⁵ See generally <http://www.iwcoffice.org/conservation/permits.htm>



A Scientific Permits Working Group set up to improve the permit review process produced a draft Pro Forma in 2006⁶. One area of disagreement was whether review criteria should include the degree to which the research proposal addresses information relevant to IWC management needs or the Scientific Committee's work.

b. Post-exception reporting systems within European level

Two European instruments mandating strict protection of cetaceans provide for exceptions for scientific research⁷. National authorities are required to submit periodic reports⁸ on exceptions already granted. This kind of system lacks the up-front screening role built in to ACCOBAMS but if properly followed, can provide useful input (detection of abuses, areas in need for tightening up).

Two generic conditions must be met to justify the grant of an exception (the wording is taken from the more recent 1992 Habitats Directive, used in the European Union to implement the Bern Convention):

- there must be no satisfactory alternative;
- the exception must not be detrimental to "the maintenance of the populations of the species concerned at a favourable conservation status in their natural range".

Reports submitted to the European Commission⁹ must specify:

- the species subject to the derogations and the reason for the derogation, including the nature of the risk, a reference to alternatives rejected and scientific data used;
- the means, devices or methods authorized for the capture/killing of a protected animal and the reasons for their use;
- the circumstances of when and where such derogations were granted;
- details of the competent national authority and its relevant powers;
- the supervisory measures used and the results obtained.

2. Exceptions for scientific research at the national level

a. United States of America (US)

i. Legal framework and review process

The US has a long-established framework for strict protection of cetaceans. The competent agency, the National Marine Fisheries Service (NMFS), may authorise exceptions for scientific research:

- for species not listed as endangered/threatened under the Marine Mammal Protection Act¹⁰;
- for endangered/threatened species, stricter rules apply under the Endangered Species Act¹¹.

⁶ See *Report of the Scientific Committee IWC/58/Rep1* and Annex P (*Revised Suggestions for improved review of Special Permit proposals and results within the Scientific Committee*) at www.iwcoffice.org/commission/sci_com/screport.htm.

⁷ Art.9, Convention on the Conservation of European Wildlife and Habitats 1979 (Bern Convention); Art.16, Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

⁸ To the Bern Convention Standing Committee and the European Commission respectively.

⁹ Pursuant to Art.16(3) Habitats Directive.

¹⁰ Section 104 MMPA; 16 U.S.C. 1361 *et seq.*

¹¹ Section 10(a)(1)(A) ESA, 16 U.S.C. 1531 *et seq.* These incorporate and go further than the MMPA's provisions.



The MMPA's provisions apply to "any person, vessel or other conveyance subject to the jurisdiction of the United States regarding taking on the high seas or in waters or on lands under the jurisdiction of the United States"¹².

All research must meet two conditions:

- any taking during the research must be "humane" (the method of taking that involves the least possible degree of pain and suffering to animals practicable). There are no standard criteria to interpret this term;
- the proposed 'taking' must be for a "bona fide" scientific purpose¹³. There is no general agreement on precisely how this standard should be implemented, but the proposed research must *inter alia* be likely to yield something new and worthwhile.

The basic threshold for an MMPA permit is "taking", defined as "to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal".

In 1994¹⁴, a two-tier system was set up to distinguish between taking that may involve disturbance and taking that may involve injury and to simplify administrative procedures for the former category. The two types of authorisation are summarised below:

***Scientific Research Permits for Level A Harassment:**

A scientific research permit is required for research involving "Level A Harassment", defined as "*any act which has the potential to injure a marine mammal or marine mammal stock in the wild*", and for all research involving an ESA-listed species.

All permit applications must be reviewed by the Marine Mammal Commission (MMC) for consistency with applicable legal requirements and relevant regulations. The MMC provides non-binding recommendations to implementing agencies but does not have enforcement powers. It is advised by a nine-member Committee of Scientific Advisors on Marine Mammals¹⁵. Applications are subject to a 30-day public comment period.

About 30-40 applications are made per year, not including applications for amendments. The average processing time is a little over 100 days but may be much longer. NMFS recommends submitting applications at least 6 months in advance of the intended research start date for non-ESA listed species and at least 1 year in advance for research on ESA-listed species.

Lethal taking may be authorised under a scientific research permit but only where the applicant demonstrates that a non-lethal method of conducting the research is not feasible (similar to the ICRW standard). Lethal taking from a depleted species or stock may only be permitted if research results will directly benefit that species or stock or the research fulfils a critically important research need.

The MMC recognizes that accidental mortalities or injuries may occur in the course of conducting some types of activities (e.g., captures, tagging, sedation). It is common practice for permits to specify a low level of accidental mortalities in the course of the research. If that number is reached,

¹² s.102, MMPA; 16 U.S.C. 1372.

¹³ Defined to cover scientific research, the results of which (A) likely would be accepted for publication in a refereed scientific journal; (B) are likely to contribute to the basic knowledge of marine mammal biology or ecology; or (C) are likely to identify, evaluate, or resolve conservation problems (MMPA 1972: § 1362).

¹⁴ Following amendments to the MMPA.

¹⁵ Both these bodies were established under the MMPA 1972.



research activities must be stopped until the circumstances surrounding the mortalities are reviewed and authorisation to proceed is granted.

*“General authorization” for Level B Harassment for Scientific Research:

“Level B harassment” is defined as *“an act of pursuit, torment, or annoyance of marine mammals which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioural patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but does not have the potential to injure a marine mammal or marine mammal stock in the wild”*¹⁶.

The indicative list of activities likely to involve only Level B harassment¹⁷ currently includes photo-identification studies, behavioural observations, vessel surveys and aerial surveys over water or land. The only quantified standard under existing regulations is limited to pinniped rookeries¹⁸.

Collection of tissues, fluids or other cetacean parts naturally sloughed, excreted or otherwise discharged by a living marine mammal in the wild also counts as low-impact taking that does not require a permit. Holding, registration and transfer requirements for such parts are the same as for those salvaged from beached or stranded marine mammals¹⁹. NMFS indicates that approaches for collection purposes should generally respect the distances laid down for the general public e.g. for whalewatching.

The grey area regarding interpretation is where Level B-type activities present – independently or linked to other factors - a risk of Level A harassment. NMFS now routinely excludes from the General Authorization procedure:

- activities that meet the regulatory definition of “intrusive”²⁰;
- active acoustics (because it is difficult to ensure no ESA-listed species would be affected or that the impact would not exceed level B impacts); and
- procedures like remote biopsy sampling or tag attachment, as these could result in level A harassment under certain circumstances.

The General Authorization procedure does not involve review by MMC. It works as follows:

- researchers submit a Letter of Intent containing detailed information to enable NMFS to accurately determine whether the research is bona fide and its impacts are limited to Level B Harassment;
- if NMFS determines that the project is eligible, based on the information provided by the applicant, no public comment period is necessary;
- the researcher then receives a Letter of Confirmation that s/he is covered under the GA and may commence research activities immediately;

¹⁶ 16 U.S.C. 1374 Sec.104(c)(3)(C).

¹⁷ Listed in implementing regulations at 50 CFR 216.45(a)3.

¹⁸ Aerial surveys may only be carried out over rookeries at altitudes greater than 1,000 ft (305m). Flights at lower altitudes are considered to present a risk of potential injury (Level A harassment) and are thus subject to permit.

¹⁹ Implementing regulations (50 CFR part 216.26 as amended).

²⁰ 50 CFR 216.3: the definition includes any procedure that will break or cut the skin of an animal, the insertion of instruments, the use of substances on or near animals that are likely to contact the animal or be ingested and that are likely to affect the animal's tissues (e.g. eyes), or other types of stimuli that may involve a risk to the health or the welfare of the animal.



- Any taking not covered by the General Authorization, and conduct of activities causing Level A harassment, is an offence subject to penalties under MMPA.

16-20 General Authorizations are issued per year, representing a small subset of research activities. Researchers must notify the NMFS Regional Office at least two weeks before starting on-site activities and comply with any requirements for coordination.

Research activities conducted under General Authorizations are reviewed periodically to ensure that they do not individually or cumulatively result in takes other than by Level B harassment. Annual reports submitted by researchers are one of the tools used by NMFS and MMC for monitoring. NMFS indicates that there is no evidence that this system is being abused.

ii. Environmental impacts of research

Scientific research permitting count as a “decision-making process” for the purposes of the National Environmental Policy Act (NEPA²¹) which requires federal agencies to consider the environmental impacts of their proposed actions and reasonable alternatives to those actions. Agencies must prepare an Environmental Assessment, an Environmental Impact Statement or classify the action as “categorically excluded” from this requirement.

NMFS has developed guidance²² for applying NEPA requirements to permit decisions. Although scientific research permits generally qualify for a Categorical Exclusion, certain factors must first be considered. A more detailed assessment may be required for research involving:

- the presence of a geographic area with unique characteristics;
- public controversy;
- uncertain environmental impacts or unique or unknown risks²³;
- establishing a precedent or decision in principle about future proposals;
- the possibility of cumulatively significant impacts;
- the possibility of any adverse effects upon endangered or threatened species or their habitats.

The last factor means that a Environmental Assessment will usually be required before issuing permits affecting ESA-listed cetacean species.

NMFS must also consider the cumulative impacts on cetaceans from the total number of permits issued under Categorical Exclusions.

iii. Issues most relevant to ACCOBAMS

The US system is similar to ACCOBAMS to the extent that agency decision-making is preceded by independent scientific review by an advisory body.

Key problems are the length of time taken to process permit applications and bottlenecks in EIA procedures. Both problems mainly affect research involving ESA-listed species and/or invasive procedures with some risk of mortality or morbidity. A major internal review began in June 2006.

²¹ 42 U.S.C. 4321 et seq.

²² NOAA Administrative Order No. 216-6 (NAO 216-6), Environmental Review Procedures for Implementing the National Environmental Policy Act. See in particular section 5.05c (Exceptions for Categorical Exclusions).

²³ NMFS is currently working on environmental assessment of standards for acoustic exposure.

The main causes of delay include incomplete applications, applications not processed in order received and insufficient staff resources relative to workload: staff also recognise the need to better coordinate and prioritise EIA procedures.

NMFS and MMC do not yet have programmatic/quantitative standards for use in permit decision-making, although a NMFS-led panel has developed a checklist for reviews.²⁴ MMC reviews individual applications on an essentially case-by-case basis, building on members' experience. NMFS indicates that objective criteria or guidelines would be useful to strengthen consistency in the review process but would not remove the need to consider all factors associated with a proposal.

The MMC notes difficulties in tackling cumulative impacts of multiple research projects focused on similar areas/populations²⁵. The US currently has no formal procedure for deciding between or coordinating similar research projects, which may lead to a 'first come, first served' situation. One option under consideration is to prepare online EIA documentation to cover routine 'direct take' requests as well as a clear list of activities or procedures benefiting from Categorical Exclusion under MMPA and ESA permits. MMC identifies the need to prepare environmental impact statements that consider a broader range of environmental stressors in the context of cetacean research.

Sectoral programmes and non-cetacean research that may result in incidental disturbance or injury ('indirect take') are subject to separate permit procedures under MMPA. Applications are copied to NMFS staff responsible for research permits to help them monitor cumulative impacts (required for NEPA).

b. Australia

The Australian context is more straightforward because:

- the cetacean research community is relatively small and well-known to permit officials;
- research in Commonwealth waters is mainly focused on three whale species (blue, southern right and humpback) and to a lesser extent, dolphins;
- most research is government-funded which makes project coordination easier;
- environmental stressors are lower because of Australia's relative isolation.

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) requires a permit to "interfere with²⁶, injure, take, trade, keep, move, possess or treat²⁷ a cetacean", not only in the Australian Whale Sanctuary²⁸ but also in international waters. A permit may be granted for "actions that will contribute significantly to the conservation of cetaceans" including scientific research for this specific purpose. No permit may be issued to kill a cetacean²⁹.

Permits are determined by the Approvals and Wildlife Division, Department of the Environment and Heritage. Applicants must complete two forms which may be submitted simultaneously:

²⁴ Originally developed for use in a general review of humpback and killer whale research in the eastern North Pacific.

²⁵ See e.g. Reeves R.R and Ragen T.J. 2003. Future Directions in Marine Mammal Research (Report of the Marine Mammal Commission Consultation, August 4-7 2003).

²⁶ Defined as to "harass, chase, herd, tag, mark or brand"

²⁷ Defined as to "divide or cut up, or extract any product from, the cetacean."

²⁸ Includes all Commonwealth waters from the 3 nautical mile state waters limit out to the boundary of the Exclusive Economic Zone (i.e. out to 200 nautical miles and further in some places) as well as coastal waters of a State or territory that are "prescribed waters" (s.225 EPBC Act). NB All Australian states and territories also protect whales and dolphins within their waters.

²⁹ s.238 (4), EPBC Act.



- *Cetacean research and incidental impacts permit form*³⁰;
- *Cetacean Preliminary Information Form (required for environmental assessment)*.

Research applications are electronically notified to individuals and bodies listed in the public consultation register, who may make written submissions to the Minister. They are also published in a newspaper³¹ and on the Department website. The comment period varies from 5-20 days.

Applicants are required to seek approval from their university or State Animal Ethics Committee (AEC) for invasive research techniques (e.g. biopsies, tagging, controlled exposure experiments). AEC approval is not generally required for non-invasive techniques (photo-identification, collection of sloughed skin, faeces, blow samples unless this involves an approach much closer than that allowed for the general public under whale watching rules).

When determining permit applications and possible conditions, the Minister must consider:

- the precautionary principle³²;
- the environmental assessment report on the proposed action;
- all written comments received by the set deadline.

In addition to detailed implementing regulations³³, the Department has developed *Standard Conditions for Cetacean Permits* although these do not cover all types of potentially invasive procedure. The Department indicates the average time taken to process an application is 2-3 months, but may be 4-5 weeks. Where an applicant wishes to appeal (e.g. against refusal of a permit or against its conditions) it may request a statement of reasons. This has happened twice to date. Where unintentional death, injury, taking or harassment results from an action authorised under the permit, the permit holder must notify the Department within seven days of the incident³⁴.

A research permit application automatically triggers the Act's EIA provisions because cetaceans are categorised as a "matter of national environmental significance"³⁵. The Cetacean Preliminary Information Form is treated as a "referral" i.e. the applicant does not have to initiate separate procedures for the EIA component.

Five methods of assessment range from an accredited assessment process to full public inquiry³⁶. Information provided in the Form is usually sufficient for assessment. Applicants should submit relevant management/conservation plans along with the Form to simplify the public comment process. In potentially controversial cases, the Department encourages applicants to contact objectors directly.

Sectoral activities that may indirectly affect cetaceans, notably seismic surveys conducted by oil and gas exploration companies, are assessed by a separate division under separate provisions of the Act. The Department is generally consulted on the likelihood and timing of cetacean presence in the area concerned and on mitigation methods. Conditions may be attached to any consent where it is known that cetaceans may be present. The Department is currently revising Guidelines on consideration of cetacean impacts from such operations³⁷.

³⁰ See <http://www.deh.gov.au/coasts/species/cetaceans/permits/research-incidental.html>.

³¹ As no comments have ever been received in response to newspaper advertisements, DEH indicates that this requirement may be dropped as a result of the ongoing review of regulations.

³² s.391(2) EPBC Act.

³³ Environment Protection and Biodiversity Conservation Regulations 2000, as amended by Environment Protection and Biodiversity Conservation Amendment Regulations 2006 (No.1).

³⁴ s.232, EPBC Act.

³⁵ s.165. Such matters include actions affecting migratory species, threatened species and ecological communities.

³⁶ s.67. The Minister must consider information received before deciding on the appropriate approach for assessment (s.86).

³⁷ See <http://www.deh.gov.au/coasts/species/cetaceans/industry.html#petroleum>.

c. Examples in ACCOBAMS area

	Aim	Relevant Institutions	Timing	Relevant Documents
Albania	Authorization for research activities	Nature Protection Policies Directorate Ministry of Environment, Forests and Water Administration, Rruga e Durrësit, No.27 Tirana -	One to three months	Law 9587/2006 Law 7908/1995 Law 8870/2002
Croatia	Permits for research of strictly protected species, including cetaceans	Ministry of Culture, Nature Protection Directorate	1 year	Nature Protection Act 70/05, 139/08
Monaco	Authorization for marine research activities			Loi n°1.198 du 27/03/1998
Morocco		Ministère de l'Agriculture, du Développement Rural et des Pêches Maritimes Département des Pêches Maritimes BP 476 Agdal Rabat		
Portugal	Research permit	Ministry for the Environment Institute for the Nature Conservation and Biodiversity (ICNB)	The authorization must be issued within 45 days after the application has been received by ICNB	Decree – Law 49/2005 (24 th February)
Romania	Research permits - Permits for collection and transfer of samples	Romanian Ministry of Environment and Waters Management	1 month at least	
Slovenia	Permit in all marine areas under national jurisdiction is requested for research when using methods causing disturbance of species (e.g. through marking or blood samples or sampling parts of their dead bodies).	Ministry for the Environment and Spatial Planning, Environmental Agency of the Republic of Slovenia	1 or 2 months after a complete application is received	Decree on the protection of wild animal species (OJ RS, 41/04)
Spain	Navigation and Research permits	Subdirección General de Seguridad Marítima y Contaminación / Deputy Directorate-General for Maritime Security and Pollution, Ministerio de Fomento / Ministry of Public Works. Ruiz de Alarcón, 1. E-28071-Madrid (Spain). Fax: +34915979287	Around 2 months	Law 4/1989
Tunisia	Research permits	Competent Ministry	6 months before the beginning of the research activity	Décret n. 97- 1836/15 -09-97

3. Risks associated with potentially invasive research

Advances in technology have opened up new field research possibilities to a growing number of cetacean researchers. However, several of the procedures to collect data to fill critical information gaps carry risks of harm to the research subjects, i.e. the animals.

One example is non-lethal sampling of cetacean tissues in the wild, the samples being used to improve scientific knowledge generally and to facilitate worldwide scientific collaborations that will lead to better knowledge of cetaceans in the Agreement Area³⁸. Another is research that involves exposure to potentially harmful noise in order to determine maximum safe levels of exposure and thus ultimately to protect cetaceans from threats posed by sound-generating human activities in their natural environment.

Cetaceans are, like many other organisms, vulnerable to disturbance, which may disrupt normal behaviour and even trigger reactions comparable to those used to avoid predation³⁹. Research activities that disturb cetaceans may cause stress and place the animals at greater risk of injury or predation. Excessive stress resulting from harassment can reduce health, performance, immune function and reproduction and harassment may force cetaceans away from optimal habitat.

Potentially invasive research on cetaceans is thus a controversial subject, particularly in the Agreement Area where cetaceans benefit from strict legal protection, have high visibility and are held in considerable public esteem. Parties to ACCOBAMS recognise that non-lethal in situ research can provide a sound scientific foundation for their decisions but that “such activity entails risks to cetacean populations and impacts to individual welfare that may be difficult to evaluate or predict”⁴⁰.

This leads to a balancing act. Impacts on individual animals need to be weighed against the benefits of the research for conservation at the population, species or ecosystem level. Decisions to authorise research also need to consider the conservation status of the species involved and the possible cumulative impacts of separate research projects.

These draft Guidelines provide a framework for decision-makers to distinguish professionally conducted research with scientifically valid objectives and high welfare standards from unprofessional, irresponsible or superfluous studies carried out by individuals who lack the minimum necessary expertise. They also streamline the permitting process so that high-quality and urgently needed programmes do not get unreasonably delayed.

4. ACCOBAMS: relevant provisions and experience to date

The importance of research to improve knowledge of cetacean biology, ecology and population dynamics and support the implementation of conservation measures is a central tenet of the ACCOBAMS Agreement. However, research is not a right under the Agreement but a privilege, an exception to the general prohibition on deliberate taking⁴¹.

The Agreement imposes the following checks and balances on research:

³⁸ ACCOBAMS Resolution 2.10 (*Facilitation of exchange of tissue samples*).

³⁹ See eg Frid, A. and L. M. Dill. 2002. *Human-caused disturbance stimuli as a form of predation risk*. Conservation Ecology 6(1): 11 (<http://www.consecol.org/vol6/iss1/art11>).

⁴⁰ Resolution 2.8 (*Framework guidelines on the granting of exceptions for the purpose of non-lethal in situ research aimed at maintaining a favourable conservation status for cetaceans*).

⁴¹ Art.II.1.



- it must be non-lethal, *in situ* and aimed at maintaining a favourable conservation status for cetaceans⁴²;
- the precautionary principle should be applied to research activities in Annex II⁴³;
- advice should be obtained from the Scientific Committee before the Party concerned decides whether to issue a research permit⁴⁴.

A Party is not legally bound to follow the Committee's advice, although a general obligation of good faith applies to treaty implementation⁴⁵. It must immediately inform the Committee, through the Agreement Secretariat, of any research exception it has granted.

The ACCOBAMS system thus combines national decision-making with regional expertise and oversight. If properly implemented, it should deliver consistency in research permitting throughout the Agreement Area.

The Committee has adopted *Procedures for the evaluation of research and management proposals*⁴⁶ which cover submission of proposals, review by individual Committee members and the timeframe for providing opinions to the requesting Party. However, the Secretariat indicates that the Committee has never received a formal request for prior advice on research proposals from any Country Party or non Party. As a result, regional oversight and coordination of research is basically not operational.

Variations between Parties' regulations, definitions and procedures have caused long delays in obtaining multiple permits for international cooperative research projects. Resolution 2.11 (*Facilitation of scientific research campaigns and programs*) calls for improved coordination between States and with international organisations on ACCOBAMS-supported research and for provision to the Secretariat of information on national permit systems and competent authorities. These problems have been taken into account in the draft Guidelines.

5. Animal welfare and ethical guidance

There are sound scientific as well as ethical and legal reasons why research procedures should be humane. Disturbance may create biases that affect both gathering and analyzing of data⁴⁷. Ethically acceptable procedures that minimize interference to individual study animals, populations and their habitats may thereby increase the validity of the experimental data⁴⁸.

There are no international guidelines dealing specifically with welfare/ethical standards in cetacean research although two initiatives are under way:

- the Society for Marine Mammalogy (Ethics Subgroup) is developing Guidelines for the Treatment of Marine Mammals In Field Research to reflect internationally acceptable approaches and provide a resource for Animal Ethics Committees around the world. The preliminary draft was not available for citation when this report was prepared;

⁴² Article II.2.

⁴³ Art.II.4.

⁴⁴ The Committee's General Rules of Procedure provide (Rule 20) that "in application of Article II.2 of the Agreement, any Party may ask for advice on derogations. The Secretariat shall communicate the request to the members for advice within 30 days. The advice received within the 30 days will be immediately communicated to the requesting Party".

⁴⁵ With reference to international agreements, "every treaty in force is binding upon the parties to it and must be performed by them in good faith" (Vienna Convention on the Law of Treaties 1969, art. 26).

⁴⁶ At its second meeting (Istanbul, 20-22 November 2003).

⁴⁷ *Live animal capture and handling guidelines for wild mammals, birds, amphibians & reptiles*. 1997. Standards for Components of British Columbia's biodiversity; no.3.

⁴⁸ Animal Behavior Society & Association for the Study of Animal Behaviour (1997) Guidelines for the treatment of animals in behavioural research and teaching. <http://www.societies.ncl.ac.uk/asab/ethics.html>.

- The European Cetacean Society established an Ethical Advisory Committee in 2005. Its Steering Committee is developing guidelines to be approved by members before preparation of detailed recommendations on best scientific practice. The Society will reject material for publication if the research was not carried out consistently with the new guidelines (this was already the case informally but formal Guidelines are intended to improve compliance and transparency).

A range of codes and protocols on animal welfare⁴⁹ support three generally applicable principles:

- **Replacement**
Techniques that totally or partially replace the use of animals for research with other methods (not always feasible in the cetacean field research context).
- **Reduction**
Projects must use no more than the minimum number of animals necessary to ensure scientific and statistical validity, but this principle should not be implemented at the expense of greater suffering of individual animals. Studies must not be repeated unnecessarily.
- **Refinement**
Investigators must use the best available scientific and educational techniques to reduce the adverse impact on animals. Welfare of the animals must be a primary consideration in the provision of care, based on behavioural and biological needs, and projects should be designed to avoid or minimise pain and distress in animals.

In Canada, investigators using vertebrates in field research should adhere to humane principles and follow Canadian Council on Animal Care guidelines⁵⁰ when assigning a category based on the potential level of pain and distress. Research protocols must be submitted to an appropriate review committee where studies are classified in Categories B⁵¹ through E⁵². CCAC operates a precautionary approach when considering categorization of protocols.

Observational studies are generally categorized as Category A, provided that there is no disturbance of the animals. They may be assigned to a more invasive category if e.g. the investigator needs to approach the cetaceans more closely than standard whalewatching guidelines to better identify an individual using photo-identification.

In the US, an MMC-backed Advisory Committee is developing a discussion document on Ethical and Animal Welfare Aspects of Directed Acoustic Research on Marine Mammals. This has not yet obtained consensus within the working group.

⁴⁹ E.g. New Zealand's National Animal Ethics Advisory Committee's operations under the Animal Welfare Act 1999; Australian code of practice for the care and use of animals for scientific purposes, 7th Edition 2004, from which the following extracts are taken.

⁵⁰ E.g. Ethics of Animal Investigation; Guidelines on the care and use of wildlife; Categories of Invasiveness in Animal Experiments, all available from <http://www.ccac.ca/en/>.

⁵¹ "Experiments which cause little or no discomfort or stress".

⁵² "Procedures which cause severe pain near, at, or above the pain tolerance threshold of unanesthetized conscious animals".

II. Guidelines on the granting of exceptions for the purpose of non-lethal *in situ* research aimed at maintaining a favourable conservation status for cetaceans

1. Objectives

1.1 These Guidelines are intended to facilitate consistent and efficient implementation of the exception procedure established under Article II, paragraph 2, of the Agreement. According to this Article, four sets of Guidelines might be developed:

- a) guidelines for research permits
- b) emergency plan to be implemented in case of pollution (Resolution 4.16)
- c) emergency plan to be implemented in case of epizootics (Resolution 4.16)
- d) rescue operations for wounded or sick cetaceans (Resolution 4.16)

1.2 These Guidelines are designed to ensure that all scientific research on cetaceans in the Agreement Area:

- is conducted to high scientific and animal welfare standards;
- contributes to regional priorities for conservation and management;
- is undertaken with appropriate regional co-ordination and oversight in order to maximise the benefit of the research carried out in the Agreement area and minimise negative effects on individuals, populations and ecosystems.

1.3 These Guidelines are a living document maintained by the Scientific Committee of ACCOBAMS. That Committee may revise and clarify the Guidelines in the light of experience gained during their application and in accordance with new techniques or information that becomes available.

1.4 A list of definitions is presented in Appendix 1.

2. Target audience

2.1 The Guidelines are intended to provide advice to Parties and the Secretariat with respect to the granting of exceptions and to all wishing to engage in scientific research on cetaceans in the Agreement Area.

2.2 In addition, it is hoped that the Guidelines will prove valuable to the appropriate authorities in other Range States. To that end, the ACCOBAMS Secretariat should send them to all such authorities, both initially and whenever changes are made, with a request for consultation with the Secretariat before the nationals of such states undertake research in the Agreement Area.

3. Geographical scope

3.1 The Guidelines should be interpreted and applied in conformity with relevant rules of international law as reflected in the United Nations Convention on the Law of the Sea 1982, particularly Art 65, 77, 245 and 246.

3.2 Each Party should take the necessary legislative, regulatory or administrative measures to apply the Guidelines to all cetacean research activities:

- conducted in waters under its sovereignty and/or jurisdiction;
- conducted by its nationals on the high seas;
- conducted from any vessel subject to its jurisdiction.

3.3 Parties, other Range States, should cooperate to promote observance of the Guidelines, particularly in waters beyond national jurisdiction. The Parties should notify the Secretariat immediately if they become aware of unauthorised research activities that could disturb or injure cetaceans. The Secretariat should contact the competent authority of the Range State whose nationals/vessels are engaged in such activities.

4. Legal threshold for obligatory research permits

4.1 A permit is required for all research activities that involve potential harassment of cetaceans in breach of the prohibition on deliberate taking laid down by Article II.1 of the Agreement.

4.2 Harassment should be interpreted for the purpose of these Guidelines to mean disruption of a cetacean's normal behaviour or prior activity by deliberate or negligent acts of pursuit, dispersal, herding, interference, torment, tagging, marking, branding or other acts that annoy or trouble cetaceans, as well as attempts and repeated approaches for such purposes.

4.3 Research activities that fall within this category include but are not limited to:

- tagging of animals, irrespective of the method used;
- remote biopsy sampling;
- other activities involving invasive procedures;
- restraint or detention of a cetacean, even temporary;
- acoustic playback experiments;
- investigation of impacts of active and passive sonar systems, including controlled exposure experiments;
- experiments involving acoustic deterrent devices; and
- close-range behavioural observation and photo-identification.

4.4 All permit applications should be reviewed and determined in accordance with the criteria listed in these Guidelines and any technical indicators developed by the Scientific Committee.

4.5 Each Party should designate a competent authority to issue permits for scientific research on cetaceans in accordance with these Guidelines.

5. Notification of low-impact research

5.1 The following activities are considered to present low harassment risk, provided that the vessel involved does not deliberately approach live cetaceans closer than the minimum distances [laid down by Resolution 4.7]:

- behavioural observations;
- aerial surveys using aircraft or helicopters, including with photo-identification;
- boat-based surveys, including with photo-identification;
- collection of tissues, fluids or other cetacean parts naturally sloughed, excreted or otherwise discharged from a live cetacean in the wild;
- collection of dead cetaceans or parts thereof.

5.2 Activities listed in para. 5.1 can be carried out on the basis of a previous notification to the competent national authorities. Applicants should provide a written outline of the proposed project, objectives and techniques, giving enough information to determine whether the activity is *bona fide* scientific research and humane.

5.3 Activities conducted under notification should avoid chronic, low-grade or cumulative disturbance on research subjects resulting from techniques such as prolonged boat-based focal-follow photography. Where an authorised activity is found to present a risk of harassment, the competent national authorities should require the researcher(s) to apply for a research permit in accordance with these Guidelines.

5.4 Researchers carrying out activities under notification should submit an annual report of their activities to enable possible cumulative impacts to be anticipated and monitored.

5.5 Procedures conducted on live-stranded animals by professional staff or an attending veterinarian for purposes of animal care, as well as medical procedures that, in the reasonable judgement of the attending veterinarian, would not constitute a risk to the health or welfare of the captive animal, present low harassment risk.

6. Criteria for evaluating permit applications

6.1 Before issuing a permit, a Permit Authority should determine that the proposed research is:

- *bona fide* and does not involve unnecessarily duplicative research;
- humane; and
- is not likely to have significant adverse effects on other components of the marine ecosystem of which the target species or population is a part.

6.2 The Permit Authority should ensure compliance with relevant legal requirements for public consultation, environmental impact assessment and/or conservation of marine protected areas prior to the issue of a research permit.

6.3 The Permit Authority should have necessary powers to:

- attach conditions/research protocols to a permit;
- vary such conditions/protocols where necessary for technical or animal welfare reasons;
- transfer the permit to a new investigator where consistent with these Guidelines;
- suspend or cancel a permit in cases of non-compliance.

6.4 The Permit Authority should be consulted by the department(s) responsible for environmental impact assessment of sectoral programmes or activities that may incidentally disturb or injure cetaceans. It should have the right to make recommendations and propose mitigation measures prior to any decision being taken on the programme or activity concerned.

7. Factors to be examined in granting a permit

(i) Research team

7.1 The relevant qualifications and experience of the Principal Investigator (and where applicable, the Co-Investigator) and, where appropriate, other key participants in the research (e.g. boat skippers etc.) will be examined. Attention will be paid as to whether the personnel have the necessary skills and background to ensure that:

- the project has a high probability of meeting its scientific objectives; and
- stress on the animals is minimised and within current animal welfare standards.

7.2 The provision for capacity building, where applicable and appropriate, will be examined.

7.3 Underwater observations and operation or manoeuvring of a boat around cetaceans should not be conducted without appropriate training and/or the relevant experience and certification.

7.4. Projects conducted in areas where local expertise is lacking should contribute to capacity building by involving local researchers and/or students and providing opportunities for learning and professional growth.

(ii) Objectives of the research

- 7.5 The clarity and relevance of research objectives will be examined, taking into account:
- regional conservation and management priorities defined by Parties to the Agreement⁵³
 - research needs identified by the ACCOBAMS Scientific Committee;
 - the development of appropriate conservation and management measures at the national or regional level; and/or
 - the implementation of Recommendations adopted by relevant intergovernmental Organisations insofar as these are consistent with policies and Recommendations adopted by ACCOBAMS.

(iii) Quality of the project design

7.6 The proposed *temporal* and *geographical scope* of the project, the *field* and *laboratory methods* and the *analytical techniques* will be examined. The review will consider whether they are scientifically appropriate and have a realistic chance of meeting the project's objectives within the proposed timeframe. In considering this, due care will be given to reviewing whether:

- sample size (including age/sex class) is appropriate;
- the research is unnecessarily duplicative; and
- the proposed methods techniques are well understood and specified.

- 7.7 Project *location*, *timing* and *field methods* will also be examined to ensure that they:
- minimise potential negative effects on populations, ecosystems and individuals consistent with the research objectives – justification for use of techniques that involve potential negative effects will be carefully examined and alternative methods may be recommended if consistent with achieving the objectives of the study in an efficient manner;
 - are consistent with applicable legislation and current best practice for cetacean research and animal welfare as reflected in these Guidelines.

In examining the above, due consideration will be given to (a) the status of the population(s) concerned; (b) the potential value to the conservation of the population(s) concerned and (c) the potential value of the research to the overall goals of ACCOBAMS. Particular attention will be given to proposed new field methods and recommendations may be made regarding the need for further assessment of potential negative effects before recommending their use.

7.8 Plans for response to accidental death or serious injury will also be examined. These should include, at least, agreement to suspend research for a sufficient time to review the circumstances surrounding the incident and identify measures to reduce the risk of further incidents. This will normally include:

- agreement that the Principal Investigator will notify the Permit Authority and the ACCOBAMS Secretariat of any such incident as soon as possible and submit a written report within seven days describing the relevant circumstances and proposed mitigation measures;
- Provision for prompt review of the report by the Permit Authority and if necessary, revision of the research protocol under the permit before authorising the work to recommence.

⁵³ e.g.[Resolution 4. 5 "Work Programme 2011-2013"]

(iv) Archiving

7.9 The proposal will be examined to ensure that biological, photographic and other material will be archived appropriately, with regard for such aspects as:

- assurance that any samples remaining after the completion of initial research are deposited into an appropriate scientific collection (i.e. one that meets acceptable standards of curation and data cataloguing);
- assurance that optimal use is made of any tissues collected, e.g. the carrying out of other analyses not part of the primary research proposal, or the facilitation of tissue exchanges. Exchange of cetacean tissue samples collected during research activities should be facilitated, notably between competent laboratories registered with the CITES Secretariat, in accordance with Resolution 2.10 (Facilitation of exchange of tissue samples).⁵⁴

(v) Reporting procedures and presentation/use of final results

7.10 The proposal will be examined to determine whether there are adequate and timely reporting procedures:

- between the permit holder and the Permit Authority;
- between the permit holder and the scientific community (e.g. the ACCOBAMS Scientific Committee, other national or international bodies) in terms of progress and final reports;
- plans for publication of results in the scientific literature.

7.11 Consideration will also be given to plans for:

- using the results to develop practical recommendations for conservation and management;
- using the results to promote capacity building at the appropriate level;

8. Compliance

8.1 Activities conducted under a research permit must comply with:

- applicable requirements of the Country and/or in the marine area of research operations with regard to cetacean conservation, marine environmental protection, animal welfare and the import, transit or export of biological material;
- specific conditions laid down by the permit.

8.2 It should be an offence to carry out or attempt to carry out research or related activities without the necessary permit or in breach of permit conditions or applicable legislation, whether intentionally or negligently. National legislation should provide for meaningful penalties in the event of a conviction.

8.3. The Permit Authority should notify the Secretariat of cases of non-compliance.

9. Role of the Scientific Committee

9.1 The ACCOBAMS Scientific Committee is responsible for the granting of previous general advice on research activities requiring obligatory permit under these Guidelines and advises the relevant Permit Authority(ies) on how to handle the applications.

9.2 The Committee should advise the Secretariat on any experimentation, conducted by non-Party Range States in the context of cooperation with ACCOBAMS that may induce or risk cetacean harassment, indicating specific measures to prevent or minimise such risks.

⁵⁴ See ACCOBAMS Resolutions 2.10 (Facilitation of exchange of tissue samples) and 2.15 (Guidelines on tissue banks).

9.3 As an integral part of the Guidelines, the Committee has developed as a live document a guide to best practice with respect to research techniques, methods and equipment to address particular research questions and topics and to be amended regularly (Appendix 3). In developing this guide it will also indicate whether such techniques can normally be considered of 'potentially low impact' or of 'potentially significant impact' (see below), recognising the need to consider the frequency and duration of their use in any one application (or among applications).

APPENDIX 1

Definitions

Acute behavioural response – Repeated, prolonged or excessive actions of a cetacean whose normal behaviour has been disrupted as a result of harassment. It includes but is not limited to a rapid change in direction or speed; escape tactics such as prolonged diving, underwater course changes, underwater exhalation, or evasive swimming patterns; interruptions of breeding, nursing, or resting activities; attempts by a cetacean to shield a calf from a vessel or human observer by tail swishing or by other protective movement; or the abandonment of a previously frequented area.

Agreement Area: The geographical area defined under Article I.1.a) of ACCOBAMS

Approach - A continuous sequence of vessel manoeuvres involving a vessel, aircraft, or researcher's body in the water, including drifting, directed toward a cetacean or group of cetaceans for the purposes of conducting authorized research which involves one or more instances of coming closer than 100 m to that cetacean or group of cetaceans or closer than permitted under the common rules of cetacean watching as presented in Resolution 1.11.

Bona fide research - Scientific research on cetaceans that is (a) conducted by qualified personnel, the results of which are likely to contribute to basic knowledge of cetacean biology or ecology or to the identification, evaluation or resolution of conservation problems affecting cetacean populations, species or habitats in the Agreement Area, and (b) likely to be submitted to and accepted for publication in a refereed scientific journal. This definition excludes non-cetacean research that may incidentally lead to taking of cetaceans.

Co-Investigator - On-site representative of the Principal Investigator with comparable qualifications and responsibilities.

Harassment⁵⁵ – Disruption of a cetacean's normal behaviour or prior activity by deliberate or negligent acts of pursuit, dispersal, herding, interference, torment, tagging, marking, branding or other acts that annoy or trouble cetaceans, as well as attempts and repeated approaches for such purposes.

Humane - The method of taking that involves the least possible degree of pain and suffering practicable to the animal involved, consistent with the goal of the research and given the information being sought.

Invasive (intrusive) research –A procedure conducted for bona fide scientific research involving:

- A break in or cutting of the skin or equivalent;
- insertion of an instrument or material into an orifice, introduction of a substance or object into the animal's immediate environment that is likely either to be ingested or to contact and directly affect animal tissue (i.e., chemical substances); or
- a stimulus directed at animals that may involve a risk to health or welfare or that may have an impact on normal function or behaviour (i.e. audio broadcasts directed at animals that may affect behaviour).

⁵⁵ This proposed definition combines elements from Resolution 2.8 and the Australian, Canadian and American legislative definitions.



Normal behaviour - Behaviour of an animal in the wild in the absence of disturbance or threat resulting from human activities, including but not limited to migrating, breathing, nursing, breeding and feeding.

Permit Authority – Competent authority designated by a Contracting Party to consider and determine research permit applications.

Range State - Any State that exercises sovereignty and/or jurisdiction over any part of the range of a cetacean population covered by this Agreement, or a State, flag vessels of which are engaged in activities in the Agreement area which may affect the conservation of cetaceans.

Research permit – A general term covering any form of national procedure used to grant an exception to the prohibition on deliberate taking of cetaceans for the purpose of conducting specified scientific research in accordance with Article II.2 of the Agreement.

Permit Holder - Person, institution or agency that applies for the permit and has ultimate responsibility for the activities carried out by individuals under the authority of the permit.

Principal Investigator - The individual with primary responsibility for the work carried out under a research permit, including selection and supervision of research assistants (may also be the Permit Holder).

Research Assistant - Individual who works under the direct supervision of the Principal Investigator and/or Co-Investigator and is assigned responsibilities commensurate with his or her qualifications, knowledge and experience (including but not limited to data recording and serving as safety observer or boat tender).

Taking - Hunting, fishing, capturing, harassing, deliberately killing, or attempting to engage in any of these (CMS Article I.1.i, incorporated into the Agreement by Article I.3).

Unnecessarily duplicative research – Research for which the results are not necessary to verify the results of previous studies; can be reasonably and accurately predicted from the body of knowledge currently available in the scientific literature; or can be predicted from the expected results of ongoing or authorised studies.



APPENDIX 2

Pro forma for permits

The *pro forma* provides the format that should be used for applications for permits by Permit Authorities

PART A - SUMMARY OF APPLICATION

1. Project Title

2. Date of submission

3. Location of proposed research

Will the proposed research be conducted (tick more than one box where applicable):

In waters under national sovereignty and/or jurisdiction?

YES / NO

In international waters?

YES / NO

From vessels under the national jurisdiction?

YES / NO

4. Project abstract (maximum 200 words)

Summarise the problem or question to be addressed, the methods to be used, possible outcomes and the importance of the proposed research for advancing cetacean science and conservation in the Agreement Area.

5. Funding

How will the proposed research be funded?

PART B - RESEARCH TEAM

6. Permit holder

- Provide full name and contact details of the person, institution or agency making the permit application.
- Where applicable, is this institution an ACCOBAMS Partner Organisation?
- Where applicable, is this person the Principal Investigator?

7. Principal Investigator

- Provide full name and contact details of the person who will have primary responsibility for any taking and related activities carried out under the research permit.



- Specify qualifications, knowledge and experience relevant to the type of proposed activities, with particular reference to cetacean research already conducted in the Agreement Area.
- Indicate professional links to any ACCOBAMS Partner Organisation.
- Attach to the *pro forma* a copy of the curriculum vitae and a list of publications relevant to the objectives, methods or other aspects of the proposed research.

8. Co-Investigator

Where the research team includes a Co-Investigator (on-site representative of the Principal Investigator with comparable qualifications and responsibilities), please provide information as for Section 10.

9. Research assistants

- Provide name and contact details of each research assistant who will be working under the direct supervision of the Principal and/or Co-Investigator.
- Provide a brief summary of each assistant's role in the project and relevant experience, qualifications and training. Do not send full curriculum vitae.

10. Capacity building

- Does the project provide for participation of scientists from other Countries in the Agreement Area?
- For research involving waters under the jurisdiction of another State, what if any steps have been taken to involve local researchers and/or students?

PART C - DETAILED DESCRIPTION OF THE PROPOSED RESEARCH

11. Specific location of research activities

- Describe each marine area in which research activities will be conducted, including longitude and latitude, and attach an A4 sized map to show the boundaries of such area or areas.
- Is any part of these waters designated as a marine protected area or fisheries reserve? If so, indicate whether an additional permit is required to conduct research, from which agency or department and whether this has already been obtained.

12. Objectives of the proposed research

- State the broad goal and specific objectives of the research and where applicable, the hypothesis to be tested.
- Describe how the proposed research will contribute to maintaining a favourable conservation status for cetaceans in the ACCOBAMS Area, making specific reference where possible to:
 - conservation and management priorities defined by Parties to ACCOBAMS;
 - research needs identified by the ACCOBAMS Scientific Committee;

- relevant recommendations of other intergovernmental Organisations.
- What is the expected nature of the research results and how will success be evaluated?

13. Coordination with other research programmes

- What steps have been taken to identify:
 - complementary or overlapping research programmes in the ACCOBAMS Area?
 - activities in the research area that may affect the conduct or results of this research and/or increase the risk of adverse effects on the research subjects (i.e. cetacean species or populations)?
- How would the proposed research be coordinated with such programmes or activities to avoid duplication and minimise impacts on cetaceans?

14. Start date and duration of proposed research

- Indicate the start date and duration of the proposed research.
- Provide a timetable for fieldwork and analysis.

15. Sample size and design

- For each species covered by the study, please specify:
 - Common and scientific name;
 - Number of animals to be sampled or disturbed (only applies to certain types of research);
 - Age/size (e.g. are calves, mothers and/or pregnant females likely to be disturbed?);
 - Time of year when the research will take place.
- Justify the size and design of the sample by reference to statistical power or other aspects.

16. Research techniques

- For each technique that involves potential harassment of a cetacean, specify:
 - reasons for selection;
 - specific research questions being posed;
 - data required to answer these questions;
 - estimated accuracy of the data that will be collected;
 - how such data will address the project's overall objectives;
 - means that will be used to evaluate the project's success.
- Where a project involves multiple techniques (capture, marking, tagging, sampling etc.), indicate the number of procedures to which each animal may be subjected and the steps that will be taken to minimise re-use of the same animals.

17. Ethics and animal welfare considerations

17.1 Have non-invasive or less invasive techniques been considered for collecting the data necessary for this research? If so, on what basis were they rejected?

17.2 Describe the likely short- and long-term impacts on the welfare of the individual(s) and the population(s) under study? How will these be assessed and monitored?

17.3 Provide evidence to support the choice of invasive techniques (e.g. approval of research protocol by a competent Animal Ethics Committee, consistency with a code adopted by a professional association).

17.4 What steps will be taken to minimise pain or distress to the subjects of the research?

17.5 Has a contingency plan been prepared?

18. Aerial or boat-based surveys and/or photo-identification

- boundaries of the survey area(s);
- time(s) of year for the surveys;
- type of survey craft (e.g. fixed-wing, helicopter, etc.) or vessel.

For aerial surveys

- survey altitude;
- ground speed
- photo-ID altitude
- number of passes per animal or group;
- measures to minimize disturbance.

For boat-based surveys

- protocols for going “off track” to photo-id animals
- type/size of photo-id vessel
- vessel speed
- number of close approaches per animal or group
- measures to minimize disturbance.

19. Procedures involving collection of tissues or other samples from animals

Justification for selection of sampling technique

Remote biopsy sampling

- type of vessel and speed
- minimum approach distance
- number of close approaches per animal
- type of sample (blubber biopsy, muscle biopsy)
- size and kind of biopsy dart
- dart deployment method (e.g. cross bow, rifle, pole, etc.) including force of impact
- maximum depth of dart penetration
- preferred sampling site on animal (i.e. shoulder, back, hindquarter, etc.)
- target number of samples and sampling scheme
- size of individual sample (diameter x depth)
- measures to avoid serious injury or mortality.

Blood sampling

- method of collection
- location of sample (which blood vessel);
- total volume needed for assay;
- total volume to be collected.

Serial blood samples (e.g., total body water or metabolic rate measurements)

- total number of samples per animal
- sampling interval
- total volume per sample.

20. Procedures involving remote attachment of scientific instruments

- minimum approach distance
- approach method (i.e. type of vessel, vessel speed etc.)
- maximum number of close approaches per animal
- deployment method (i.e. pole, crossbow, shotgun etc.)
- attachment method (i.e. suction cup, implantable)
- if implantable, depth of penetration (blubber layer, implant in the muscle?) and composition of attachment device
- maximum duration of attachment (implications for tag design and battery requirements)
- method of removal/retrieval, if applicable
- location of attachment on animal
- type of instrument
- mass and total external dimensions of instrument
- if instrument emits signal, indicate frequency (Hz), intensity (dB), pulse rate and duration of signal
- maximum number and type of tags an individual animal would receive
- arrangements for monitoring the individual during tagging research (re-sights)
- post-tagging monitoring.

21. Procedures involving non-remote external attachment of scientific instruments

- attachment method (e.g., epoxy, harness, flipper or fin tag, etc.)
- location of attachment on animal
- type of instrument attached
- mass and total external dimensions of instrument
- if instrument emits signal, indicate frequency (Hz), intensity (dB), pulse rate and duration of signal
- maximum duration of attachment and implications for tag design and battery requirements
- method of removal/retrieval, if applicable
- arrangements for monitoring the individual during tagging research (re-sights)
- post-tagging monitoring.

22. Procedures involving active acoustics (playbacks or broadcasts):

- type of signal
- depth in water column

- power output
- source level
- frequency
- maximum intended received level
- signal duration and duty cycle
- inclusion of a propagation model is desirable.

RESULTS OF THE PROPOSED RESEARCH

23. Intended outputs

23.1 Describe the anticipated products of the research (e.g. articles for publication in peer-reviewed literature, reports, photographs, acoustic recordings, workshops, identification catalogues)

23.2 How will the research results contribute to technical recommendations to governments and/or management bodies?

23.3 Where and when will the research results be published or made available to the public?

23.4 Could the research results be used in capacity-building activities in other parts of the Agreement Area?

23.5 Disposal of biological material

23.6 Will biological material be collected under the research permit for laboratory or other analysis?

23.7 If so, describe the proposed arrangements for disposal or archiving of such material after completion of initial research goals.

APPENDIX 3

Technical indicators for acceptable research methods and equipment

Several jurisdictions outside the Mediterranean and Black Seas have established highly prescriptive conditions for observing and treating cetaceans under research permits (e.g. Standard Conditions for Cetacean Permits under Australia's Environment Protection and Biodiversity Conservation Act 1999). Some of those were reviewed during the preparation of this annex. They include, for example, specific limits on approach distances for tagging, biopsy sampling and photography; specifications on how many approaches are allowed during a unit of time; and requirements for work to be interrupted if the animals respond in specific ways.

It was decided that at the present stage of development of an ACCOBAMS strategy for dealing with the granting of exceptions, a less prescriptive approach was appropriate and that the technical indicators would be optimally presented as guidelines rather than as requirements. Also, it was agreed that this annex would be subject to ongoing review and revision by the Scientific Committee such that improvements could be made in the light of experience and new scientific findings.

Aerial survey

This is a generally low-impact activity, particularly as long as the aircraft is flying on a steady course along predetermined routes as in a line- or strip-transect survey. Circling over the animals, a procedure that is often necessary to obtain reliable identifications and accurate counts during surveys, is of most concern. Disturbance is caused mainly by noise from the aircraft's propeller rotation and engine although the shadow of an overflying craft can elicit a startle response on the part of cetaceans at the surface. The level of sound entering the water generally decreases with flight altitude, so as a general rule, the survey design should ensure that the searching altitude is 183 m (=600 feet) or higher – the chosen altitude will depend on the size of the target animals (e.g. 183 m for porpoises and other small cetaceans found in small groups; 230 m for larger cetaceans, e.g. fin whales). Circling over animals should only occur if it is necessary to confirm species identification and/or school size and it should be carried out as quickly and as high as possible whilst still meeting the scientific objectives.

Ship-based survey

This is also a generally 'low impact' activity. The main concern is how the animals are approached, if they are approached. The following Guidelines should be applicable in most circumstances:

- When approaching animals:
- Maintain an oblique angle in relation to their heading (ca. 110° to 160°) and do not attempt to cut them off; try to ensure that they are aware of the approaching vessel; establish a course parallel to theirs before closing to within 50 m.
- Reduce speed to accommodate to the animals' speed.
- Never make sharp turns or quick changes in speed when near the animals; all turns and speed changes should be progressive and slow to give the animals a chance to notice and react.
- Do not allow the vessel to come between a mother and calf.
- If animals show strong reactions to an approach, abandon it and move away.
- Do not chase the animals if they show an avoidance response.

Photo-identification

This too is a generally 'low impact' activity. The main concern is how the animals are approached (this is also a component in the evaluation of other techniques such as biopsy sampling and tagging/marking).

- Approach the animal(s) following the Guidelines for 'Ship-based survey' above, but once parallel to the individual or group, start closing slowly at a small angle until the necessary distance for obtaining suitable photographs has been achieved, then complete the photography session and move away deliberately and without revving the engine.
- Before closing in to cetacean(s) known to bow-ride, allow some time for animals to approach and bow-ride your boat, an act that will facilitate photographing as well as sampling/tagging.
- If the animals show strong reactions to the approach, abandon it and move away.
- Do not allow the vessel to come between a mother and calf.
- Do not chase the animals if they show an avoidance response.

Biological sampling

Small tissue (and faecal) samples collected from free-living cetaceans are used in a wide variety of studies, many with high relevance to conservation. In all cases, such sampling should be carried out only by experienced, trained researchers. Also, if the target animals show strongly negative reactions to repeated approaches (e.g. rapid movement away from the research vessel, changing their respiratory cycle in an obvious way), the procedures should stop and the animals left alone.

Biological samples are obtained in three main ways, as follows:

- *Biopsies*

Obtaining biopsies from live, free-ranging cetaceans should not be attempted unless it is well justified within the context of a bonafide research program. The use of biopsy darts fired from a rifle or crossbow is generally regarded as the most invasive non-lethal method of obtaining biopsies. It should be carried out only by experienced and trained researchers. As a general rule, biopsies from large cetaceans should be collected using a specially designed rifle, crossbow or pole; those from medium-sized cetaceans using a pole or, in special circumstances and with caution, a crossbow; and those from small cetaceans using only a pole. Some additional general guidelines for biopsy sampling are as follows:

- Avoid calves and mothers with small calves except when well justified by the importance of genetic or other information.
- For long-range biopsies (rifle, crossbow) do not fire at ranges of less than:
 - 7 m for large whales (baleen whales, sperm whale, adult male killer whale) and
 - 12 m for medium-sized whales (female and immature killer whale, pilot whales, Risso's dolphin, beaked whales).
- Rifles and crossbows should be avoided for smaller cetaceans (striped, common and bottlenose dolphins, and porpoises).
- If animals show strong reactions to repeated approaches, stop procedures and leave them.
- Try to avoid multiple sampling of the same animal during a single encounter, e.g. by always sampling from the same side of animals.
- Do not use oversized tips (e.g. large whales' tips for small cetaceans).
- Calibrate the strength of the rifle (e.g. according to species) and the distance according to the power of the device. Avoid using powerful crossbows (compound ones) at short distances (7 m); consider having different crossbows for different species of cetaceans (e.g. one for large ones and one for medium-sized ones).

- *Skin swabs*
 - Try to avoid small calves and mothers with small calves.
 - Try to avoid multiple sampling of the same animal during a single encounter.
- *Sloughed skin and faeces*
 - Try to use nets and avoid entering the water unless necessary.
 - Do not force animals to make shallow dives to encourage skin sloughing.
 - Do not place the boat between mothers and calves to collect faeces or sloughed skin.

Many of these suggestions are not much more than common sense. What is important is that researchers, when applying for an exception, provide an explicit rationale as to why any potentially disturbing or intrusive procedures are necessary to acquire data, and how the data will contribute to scientific understanding and cetacean conservation. It should be possible to demonstrate in the application that every reasonable effort has been made to minimize disturbance and the risk of harm to the animals themselves.

Tagging or marking

The application of tags to animals (or actively marking them in some way), whilst often being extremely informative, is among the most intrusive research methods. This is particularly true if deliberate live-capture to apply the tags or marks is proposed. As a result a great deal of effort has been made to develop devices and procedures to reduce, and minimize, the risk of harm. Any tagging or marking must be performed quickly, easily, and with minimal pain. While care for individual animals is always important, from a conservation perspective, it is especially important to take carefully into account the status of the population when deciding the appropriate research technique to use to answer questions. For endangered/severely depleted populations, the conservation benefits of learning more about the animals (and thus informing better mitigation against threats) must be weighed against the potential for damage to the health of an individual animal or animals.

Different tagging or marking techniques have different levels of 'invasiveness' and the choice of the most appropriate techniques should be considered carefully in relation to the questions being asked. Time-depth recorders (TDRs) attached by suction cups are often used for short-term monitoring of diving behaviour, while implanted or dart-attached satellite tags are often used to obtain longer-term data on movements and migration.

When applying for a permit, a detailed description of the method(s) selected and a justification for that selection should be included. If a more invasive technique is proposed (e.g. implanted tag instead of suction cup), the pros and cons should be reviewed thoroughly in order to justify one method over the other. If similar results can be obtained with a less intrusive attachment technique, priority should be given to it over any more invasive one.

When reviewing an application for tagging/marking, the following must be considered:

- the conservation status of the affected population;
- the approach will yield valuable results (especially from a conservation/management perspective);
- the process is not likely to result in immediate or long-term hindrance or irritation to the animal;
- the process is not likely to significantly affect an individual's survival or reproductive capacity.



Controlled Exposure Experiments (CEEs)

Controlled exposure experiments provide a way of testing the effects of various stimuli on wildlife. Such experiments, when carried out on free-ranging cetaceans, need to be carefully designed and rigorously executed to ensure that the information being sought is obtained efficiently but with minimal or no risk to the research subjects. ACCOBAMS particularly concerned about the potential proliferation of CEEs on beaked whales in areas of the Mediterranean Sea where circumstances are amenable (e.g. the animals are predictably present, logistics and environmental conditions are often favorable) has established clear guidelines for Parties contemplating such activities. These include prior notification to the Scientific Committee and requirements that (a) all possible alternative means of obtaining the needed information, e.g. opportunistic study of beaked whales exposed to measured types and levels of underwater sound, have been fully explored; (b) monitoring has a high probability of detecting both target and non target animals in real time across the area of potential exposure; and (c) the experimental design is sufficient to satisfy clear, specific management objectives and is part of a long-term study of population status and health.