Agenda Item 8.1	Funding of Projects and Activities Progress of Projects Supported by ASCOBANS
Document Inf.8.1.b	**Project Report: Preparations for SCANS-III**
Action Requested	• Take note
Submitted by	Secretariat / University of St. Andrews

NOTE:
DELEGATES ARE KINDLY REMINDED
TO BRING THEIR OWN COPIES OF DOCUMENTS TO THE MEETING

Project Report – ASCOBANS Small Scale Funding Agreement (SSFA/ASCOBANS/2014/1)

Following submission of a research proposal to the ASCOBANS AC20 in 2013, a Small Scale Funding Agreement was contracted between ASCOBANS and the University of St Andrews to provide funding to support the preparation of a proposal for a SCANS-III survey to be submitted to the LIFE funding stream of the European Union.

The following objectives were identified in the agreement:

1) Establish a focal point for organisation and communication at SMRU, St Andrews
2) Coordinate all administrative and technical preparatory work on behalf of project partners
3) Organise and support a workshop to discuss and finalise project work (administrative and technical)
4) Undertake analysis of existing data to determine how much survey effort (and therefore resources) are required
5) Secure support (financial and in-kind) from range states
6) Liaise with other survey initiatives (T-NASS 2015; ACCOBAMS Mediterranean survey)
7) Draft and submit proposals to the European Commission, Eurofleets and other bodies as appropriate
8) Preparation of interim project report
9) Preparation of final project reports (Technical and financial).

Establish a focal point for organisation and communication at SMRU, St Andrews

This objective was achieved very early on in the process. Professor Philip Hammond of the University of St Andrews was designated as the Principal Investigator, and Claire Lacey was employed as the project coordinator, also based at SMRU. Project partners were identified and contacted, with all communications stemming from the SCANS-III Project team at SMRU.

Coordinate all administrative and technical preparatory work on behalf of project partners

The University of St Andrews was named as the Coordinating Beneficiary on the SCANS-III proposal which was submitted to LIFE. Proposal coordination was conducted by the project team, Lacey and Hammond.

Organise and support a workshop to discuss and finalise project work (administrative and technical)

The initial start-up workshop (organised by Hammond and Lacey and held in Edinburgh) had taken place prior to the initiation of the SSFA (April 2014). However, a technical workshop was organised and supported to consider technical aspects of the aerial survey parts of the proposal. This took place in Amsterdam in May 2014. Full details can be found within the associated workshop report.

Undertake analysis of existing data to determine how much survey effort (and therefore resources) are required

This proved to be unnecessary for the proposal to be submitted to LIFE and will be undertaken at a later date.

Secure support (financial and in-kind) from range states

In order for the proposal for SCANS III to be submitted to the EU LIFE funding stream, there is a requirement for a minimum of 40% match-funding to be secured. Support was secured by project participants within their own range states, as well as centrally by Hammond and Lacey. In-kind support was not eligible for inclusion within this 40%, consequently the focus was on securing financial support.

The breakdown of financial support secured from range states was as follows:

Range State	Department	Contribution (Euros)
Denmark	Danish Nature Agency	200,000
France	French Ministry of Ecology and Sustainable Development and Energy	100,000
Ireland	Department of Arts, Heritage and the Gaeltacht	25,000
Netherlands	Ministerie van Infrastructuur en Milieu, Rijkswaterstaat Water Verkeer en Leefomgeving	200,000
Portugal	Instituto da Conserva ção da Natureza e das Florestas	50,000
Sweden	Swedish Agency for Marine and Water Management	100,000
Uk	Department for Environment, Food and Rural Affairs	795,600

In addition, financial support was also secured from project participants. These contributions are shown below:

Range State	Project Partner	Contribution (Euros)
Denmark	Aarhus University	10,000
Ireland	University College Cork	40,020
Netherlands	IMARES	5,000
UK	JNCC	58,538
UK	Newcastle University	56,95
Uk	University of St Andrews	87,480

The total financial support secured was €1,671,638. The total value of the submitted proposal was €4,141,906. Germany and Spain are contributing to the work of the project but the financial support for this contribution is not included for national accounting reasons.

Liaise with other survey initiatives (T-NASS 2015; ACCOBAMS Mediterranean survey)

Hammond participated in a T-NASS planning meeting in Copenhagen, 1-2 October 2014. Some funding is confirmed for T-NASS to be conducted in 2015 but the outcome of some applications for funding will not be known until early 2015. It was confirmed that there will be a common boundary between the SE survey blocks of T-NASS 2015 and the NW blocks of SCANS-III.

There was little progress in the ACCOBAMS survey initiative and, therefore, no formal liaison. Panigada participated in the aerial survey workshop referred to above.

Draft and submit proposals to the European Commission, Eurofleets and other bodies as appropriate

The proposal to the LIFE programme was drafted and submitted by the Co-ordinating Beneficiary, the University of St Andrews, to the European Commission on 24th October 2014. A copy of the proposal is included with this report.
No other proposals were submitted. The fieldwork in SCANS-III is scheduled to take place in 2016. Any Eurofleets or other proposals for ship time will be submitted in 2015 if the SCANS-III proposal is successful.

Preparation of interim project report

An interim report was not submitted because changes to the expected timelines for the LIFE proposal submission dates meant that little of the work covered by the SSFA had been done at this time.

Preparation of final project reports (Technical and financial).

This document represents the final technical report. A workshop report and a copy of the LIFE proposal are also included for reference. A financial report has been prepared by the University of St Andrews.

Meeting Minutes

Meeting title: SCANS-III Aerial Survey Team Meeting

Date: 7th May 2014

Venue: Exchange Avenue, Schiphol Airport, Amsterdam

In attendance:

Phil Hammond (Chair), David Borchers, Anita Gilles, Helena Herr, Claire Lacey, Simone Panigada, Meike Scheidat, Vincent Ridoux

1) Introductions

Hammond welcomed participants and reminded them that the meeting was a follow up to discussion had by the Aerial Survey Actions Working Group set up in 2013.

Timelines associated with the 2014 LIFE Call for Funding were:

Likely date that the Call for Funding will be announced: 16th June 2014

Likely submission date for proposal: Mid October 2014

Likely earliest available start date for successful project: July 2015

Questions arising from the Aerial Survey Actions Working Group 2013 discussions formed the basis of the discussions for this meeting. These were:

1) Survey area: preliminary discussions have focussed on the SCANS III survey encompassing both the CODA and SCANS II area. If this is the case, it is possible for financial reasons that the SCANS II area will be covered by air (figure 1). Is this approach appropriate?

2) If SCANS III surveyed all of the SCANS II area by air, a larger variety of species will be encountered than during the SCANS II aerial surveys. For some species, such as white-beaked dolphin – the majority of sightings may be made by air. If this is the case, which methodology should be used to correct availability bias for species other than harbour porpoise? Species likely to fall into this category include minke whale, white-beaked dolphin, common dolphin, striped dolphin, white-sided dolphin and bottlenose dolphin.

3) Do we want to use the circle back/racetrack methodology again for harbour porpoise?

4) Do we require any additional surfacing or diving data to inform analysis?

5) Will any aerial surveys undertaken be conducted using digital methodologies?

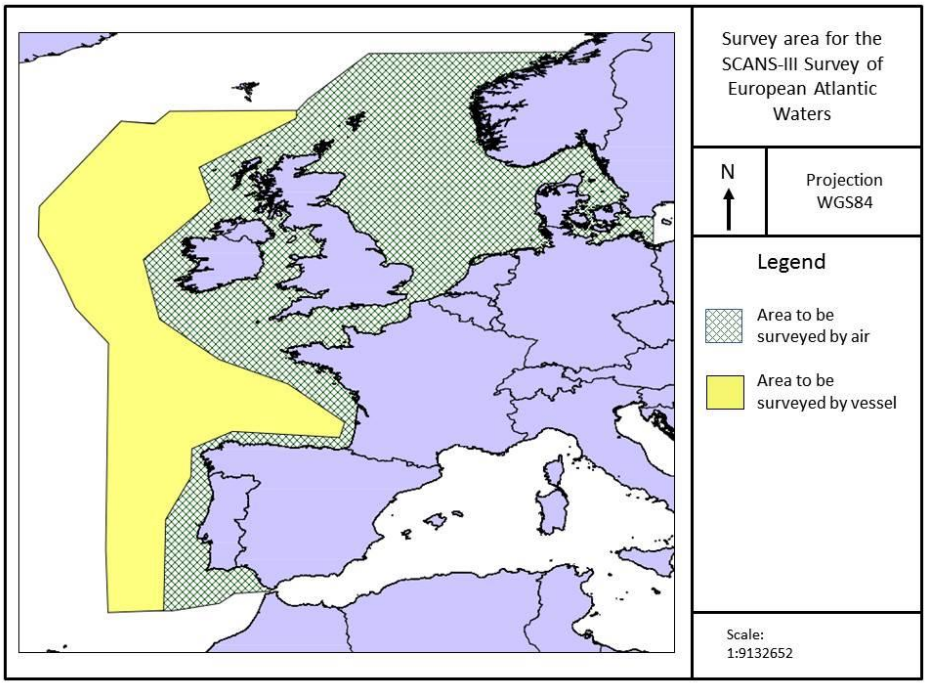

Figure 1: Proposed area for SCANS III survey, showing potential aerial and vessel strata.

It was noted that a large, multi-year data set now exists for aerial surveys which could be made available for testing analysis methodologies if this would be helpful.

2) Update on current work

David Borchers presented work that he has been conducting on investigating different ways of dealing with availability bias and g(0), a summary of which is presented below. This summary also forms part of a review undertaken for Scottish Government (Hammond, PS, Lacey, C & Borchers, DL 2014, Availability bias in aerial surveys of cetaceans).

Current Methods

From a single platform survey, apart from the circle-back method, existing methods to correct for availability on marine mammal surveys use additional data on the proportion of time the animal is available to be seen. Such data are typically from observations of surfacing/diving behaviour or from telemetry. Two analytical methods are currently available:

1. Instantaneous method, which assumes that animals are available to the observer only for a snapshot in time and corrects for availability bias using the estimated probability that an animal is available at a randomly chosen instant.
2. Methods that correct for availability bias using the estimated probability that an animal is available *at least once* while within detectable range. These include the methods of Laake et al. (1997) and Richard et al. (2010).

However, accurate correction for availability when animals are in view for more than a very short time relative to their dive cycle duration also depends on how far in front of the observer the

animals become available and how often they become available while within detectable range; the farther ahead of the observer they are, they less likely they are to be seen. None of these methods take this into account. Method 1 above only works well when animals are in view for a very short time relative to their dive cycle duration. Method 2 can lead to very biased estimates and is sensitive to assumptions made about what the detectable range is (see Borhcers et al., 2013) – and the data are not used in any rigorous or consistent way to estimate detectable range. (Method 2 reduces to Method 1 when detectable range becomes very short, so that Method 2 also works well when animals are in view for a very short time relative to their dive cycle duration.)

Forward distance data contain information about detectable range and how detectable animals are at any distance ahead of the observer. If the analysis also uses information on the forward distance of a sighting, the probability of detection as a function of forward (as well as perpendicular) distance can be estimated. Moreover, the distribution of forward detection distances contains information about g(0) as well as some information about the availability process (See Borchers et al, 2013 and Langrock et al, 2013). If animals typically remain undetected until close to the observer, g(0) is likely small. If, however, animals at or close to perpendicular distance zero are usually detected well ahead of the observer, this indicates that that g(0) is closer to 1.

Current aerial survey data collection protocols encourage observers to search close to the track line and not very far ahead. In typical harbour porpoise surveys, animals are available to be seen for about 4 seconds and dive cycles of the order of 120 seconds, so the sighting process is close to instantaneous and existing methods are appropriate. There is therefore no advantage to using the forward distance approach. The options are to use (i) circle-back or (ii) one of the above methods together with estimates of diving/surfacing times obtained external to the aerial survey.

However, in multispecies surveys, searching in this way (focusing search effort only a short distance ahead of the aircraft) will not allow forward distance data to be collected for use with other species. Larger species tend to be detectable much further ahead of the aircraft (e.g. up to 30 seconds in surveys of bowhead whales) and for long diving species a forward window of 10s of seconds may be required because of the low probability of surfacing in small search windows. In order to collect forward distance data on multispecies surveys, a change of survey protocol may be required. One possibility may be to use two observer teams, one team searching close by for harbour porpoise and a second team searching farther ahead for other species.

For species other than harbour porpoise, and in particular species that are detectable for more than a very short time relative to their dive cycle duration, estimation methods that use forward distances are needed to avoid availability bias in estimation. These methods currently require the probability of seeing an animal directly underneath the aircraft to be 1 ($g(r=0 \mid \text{available})=1$, where r is radial distance). If this is not the case (i.e. not all animals are certain to be detected directly underneath the aircraft), $g(r=0 \mid \text{available})$ can be estimated if there are double-observer data and may be able to be estimated from a single team if forward distance data are available – see Langrock et al. (2013) and Borchers et al (in revision); more work is necessary to determine the circumstances in which this is possible.

Forward distance methods can be used with mean surfacing and dive times (i.e. using the same data on availability as are used in the Laake et al. (1997 method). However, a more realistic model for availability can be obtained by fitting a stochastic hidden Markov model or Markov modulated

Poisson process model to time series of surfacings and dives (or depths). In this case it is possible to estimate the uncertainty in the availability model parameters when fitting the availability model to the time series data. Depending on the data from which the simple mean surfacing and dive times were estimated, it may be possible to estimate the uncertainty in these parameters too. In both cases it is possible to incorporate the uncertainty in availability parameter estimates into the uncertainty estimates for g(0) and density. The hidden Markov model methods of Borchers et al. (2013) and the Markov modulated Poisson process methods of Langrock et al. (2013) and Borchers et al. (in revision) also allow individual random variation in availability model parameters. This is important because there may be very substantial variation in availability between individuals. (For example, Borchers et al. (2013) found the mean proportion of time bowhead whales were available varied from 14% to 47% between individuals, and mean times they were available varied from 21 to 123 seconds.)

The above methods that use forward distances have been shown to work well when the availability process parameters are estimated from surfacing/diving data external to the aerial survey. It would, however, be better to use the aerial survey data to estimate (or help estimate) availability model parameters, where this is possible, because the surfacing/diving data used to estimate availability process parameters are likely to be from a different time/place, and may therefore not be representative of surfacing/diving behaviour at the time and place of the aerial survey. When double-observers are used and/or when it is possible to detect multiple surfacings of the same individual, it is possible in some circumstances to estimate both detection function parameters and availability process parameters from a single pass of a single aircraft (see Langrock et al., 2013, and Borchers et al., (in revision)).

New Methods Using Forward Distance Data

From a single platform survey, apart from the circle-back method, existing methods to correct for availability on marine mammal surveys use additional data on the proportion of time the animal is available to be seen. Such data are typically from observations of surfacing/diving behaviour or from telemetry. Two analytical methods are currently available:

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Simulation studies

Some limited simulations have been run (by Borchers and Langrock) to test the robustness (ability to generate unbiased estimates of detection probability in the presence of stochastic animal availability due to surfacing/diving) of forward distance methods to various levels of input data: single or double observer teams; full, partial or no knowledge of the availability process from surfacing/diving data; initial sightings only or multiple resightings available. Simulations have been run for scenarios designed to mimic shipboard surveys of minke whales using two "true" values of the effective strip half width, ESW, narrow (251m) and wide (1618m). All simulations have so far been run assuming that the probability of detecting an animal that is available for detection at radial distance zero is <u>not</u> equal to 1. This is a more difficult scenario that assuming it is equal to 1 so the methods should perform better if this assumption can be made. Borchers et al. (2013) and Langrock et al. (2013) show that when the probability of detecting an animal that is available for detection at radial distance zero is equal to 1, the methods estimate detection probability and hence animal density unbiasedly.

Results from scenarios in which the probability of detecting an animal that is available at radial distance zero is <u>not</u> equal to 1 can be summarised as follows:

With double observer teams, all scenarios generate unbiased estimates of availability (less than 5% and typically less than 2% bias) except when (a) only initial sightings are used and the distribution of forward distances of detected animals has a spike at or close to forward distance zero and the is no knowledge of the availability process form surfacing/diving data.

With a single observer team, and a wide ESW, with the distribution of forward distances of detected animals having a maximum well ahead of forward distance zero, all scenarios generate unbiased estimates of availability (less than 5% bias) except when only initial sightings are used and there is no knowledge of availability from surfacing/diving data.

With a single observer team, and a narrow ESW, with the distribution of forward distances of detected animals having a spike at or close to forward distance zero, none of the simulations generate unbiased estimates of availability (15-50% bias).

These simulations were run with quite large datasets (>100 sightings), but were not designed to mimic aerial surveys. More work needs to be done to see how well these methods perform under scenarios that mimic aerial surveys of various species with smaller sample sizes. More work also needs to be done to generalise the simulations to use different patterns of sighting/diving data and different assumed detection probabilities. Nevertheless, the results are encouraging.

These methods with a single observer, using only initial sightings have been applied to aerial surveys of bowhead whales with some success (Borchers et al., 2013; Rekdal et al., 2014).

Digital Surveys

In aerial surveys using digital cameras (video or still photography), it can be assumed that all animals available are seen, i.e. there is no perception bias on the transect line and no need to estimate detection probability as a function of perpendicular distance. Animals are only in view for a very short time so it is possible to use an instantaneous correction for availability. However, because forward distance data are unavailable this requires the use of additional surfacing/diving data.

Digital aerial surveys typically have a narrow strip width, and so circle-back or tandem aircraft methods are difficult to implement because it is practically impossible to ensure sufficient overlap of the (typically narrow) strips searched. If there is little overlap there can be only a very small chance of a re-sighting. A narrow strip has the additional problem of increased probability of "leakage" of animals out of the strip between coverage by the original and second pass.

Given the unavailability of forward distance data from the current digital aerial survey set up, could two camera systems be used (one pointing forward and one pointing backwards) to provide double team data? If sufficient duplicates could be identified, double-platform methods may be able to be used to estimate availability *in situ* from a single aircraft digital aerial survey. The strips surveyed would be identical eliminating the problem of limited overlap.

A short time delay between the two cameras would have a limited chance of detecting duplicate resightings because of the pattern of surfacing/diving; this chance is higher for species with short dive times, such as harbour porpoise. However, there is a physical limit to the length of this time delay from having two camera systems on one aircraft. The key question is therefore how short can the time delay be for the method to work? Preliminary investigations indicate that a time delay of 10 seconds could generate the required data for harbour porpoise but more work is needed before any conclusions can be made.

The method will work best if duplicate sightings can be identified. However, if they cannot be identified, the methods proposed by Hiby and Lovell (1998) can be adapted for the double camera survey data to estimate availability *in situ*. Preliminary simulation results (by Borchers) suggest that this might be possible, but the method has not yet been fully developed and tested.

In conclusion, further work is required to complete these simulations and demonstrate fully the conditions under which these methods should generate unbiased estimates of availability but preliminary work shows good potential.

Discussion of presented work

It was noted that this methodology would work for all species (depending on dive length – it works best for short dive length) but that it could be more difficult to implement for minke whales, for which current g(0) estimates are quite low. However, there are no alternatives for minke whales at present.

The circle-back method works well logistically and analytically for harbour porpoise (assuming there are sufficient sightings) and is the current default for surveys of this species in European waters. However it has not been implemented for other species where there are rarely sufficient data. It is much harder to implement for species with larger schools and it requires a minimum number of circle-backs to work. Due to the difficulty in estimating forward distances, if aerial surveys are being conducted using observers, the circle-back method is still the only option.

The ensuing discussion raised the following points:

Methodological considerations

- It would be possible, for SCANS III, to implement the same circle-back methodology as in SCANS II. This should result in sufficient porpoise data.
- There may not be a need to utilise these methods everywhere but probably important to implement sufficiently in turbid and non-turbid waters.
- For other species it might be possible to group all dolphin species together and get an estimate of g(0) for all of them together. This could be investigated.
- It may be possible to use dive data and group size data from the literature to correct for species for which circle-back methods may not work; in particular bottlenose dolphin, striped dolphin and minke whale.
- There may be a need to collect more dive data.
- There remains no good way to optimise surveying minke whales and harbour porpoises from the air at the same time. However, surveys have previously been conducted using the less-than-optimal methods for minke whales, which work but are not efficient.
- In SCANS II, for dolphins, an instantaneous correction for availability was used from published sources. Should this be repeated, it is possible that the new work on forward sighting distance could be incorporated, but it will depend on the survey protocol. Some simulations of dolphin data would be required to see how many sightings would be required.
- There is no current information on the extent of forward distance; it is likely that 5 seconds is the absolute maximum time for harbour porpoise.
- For minke whales, perception bias may be more important than availability bias; this has not been discussed.
- The concept of combining the entire 10-year North Sea dataset together was discussed; this may inform discussions of parameters.
- There is a requirement to understand how the current software program (developed by Lex Hiby) works. Christine Kaschner has experience of using this and may be able to work with David Borchers on this. It is imperative that SCANS III analysis can be undertaken independently.

Logistical considerations

- Regarding forward distance data collection, the instrument panel obstructs forward vision in a Partenavia, even when sitting next to pilot.
- It may be possible to use two sets of bubble windows in a Partenavia to collect data to estimate perception bias. This has been undertaken by Simone Panigada but data analysis is not complete.
- On the Britten Norman aircraft, which is larger, it is possible to get a better separation of observer teams in order to conduct double team surveys from one aircraft. However, it still isn't possible to see out of the front window. The charter costs of these planes are also approximately 70% higher (800 Euro per hour) than those of the Partenavia (540 Euro per hour).
- One possible configuration of observers could be to search for dolphins from a front set of bubble windows and for porpoises from a rear set. However, this may not be possible because of the positioning of the wheels on these aircraft.
- Current work being conducted in Italy is utilising two pairs of observers in a Partenavia, with the SCANS II software for the front pair, and a Dictaphone being used for the back pair of observers. Matching sightings has proved to be very difficult using a Dictaphone. In addition, the angle from front and back windows to an animal can be very difficult to match.
- Some consideration must be given to certain survey areas, in particular, the Norwegian fjords.
- Part of the Waddensee has extremely turbid waters; this is a small part of the overall area, but needs to be considered.

Action Points

- David Borchers to run simulations to investigate whether his new methodology would work using a forward distance of 5 seconds for harbour porpoises, if resources are available.
- David Borchers to send out an email to all meeting attendees requesting the information he needs to complete his simulations for other species. This is likely to include: average dive cycle length, dive cycle duration, average group size and maximum forward distance.
- Anita Gilles to enquire about the possibility of using dive data from Iceland for inclusion in simulations.
- Phil Hammond to discuss survey of Norwegian waters with Nils Øien.

Equipment: if we were doing visual observer surveys– what would be required?

- New data collection software – old version doesn't work on 64bit computer.
- Vincent Ridoux has a potential candidate program which is being developed but isn't yet available.
- Electronic declinometers could be an important improvement - variation in recording downward angles is currently a likely source of error.
- The use of a Go Pro type camera taped to bubble window was suggested as a way of counting pixels to the horizon. This could work in a similar way to the Video Range Estimation software which Russell Leaper has developed for ship surveys.

- The above could be tested during experimental survey work.

3) Digital surveys:

There is an increase in interest in the use of high-definition digital surveys for surveying marine mammals. They fly higher and are therefore safer as well as being able to utilise wider weather windows and survey above wind farms. However, it is not yet demonstrated whether these surveys can actually provide a robust estimate of animal abundance.

It was noted that ICES will be recommending that wide-scale surveys should be conducted every six years in order to fit in with the reporting schedule. The methods used for these surveys will need to be logistically practical as well as robust.

It was considered important by all meeting attendees that any comparison work between digital and conventional aerial survey methods should be conducted during the experimental survey work and not during the main SCANS III survey.

It was agreed that digital surveys will likely become more and more prevalent in the future, and so it would be desirable to find a methodology to calculate an *in situ* g(0) using these methods.

It was noted that a complete change in methodology would leave the project open to the criticism that any changes in estimated abundance of animals could be attributed to alterations in methodology and not to true changes animal abundance and distribution. This would need to be addressed by work conducted during the experimental survey.

It was agreed that, at present, digital aerial surveys are not suitable as a general replacement for conventional visual aerial surveys because analysis techniques to not yet exist to allow robust estimation from digital surveys.

It is difficult to compare methods in the field because "truth" is unknown and because small differences in estimates may be swamped by estimation error. A first step should be a series of simulated tests. Any digital methods will need to perform at least as well as the existing methods in these tests in order to make it worth pursuing field tests further. However, simulation alone will not be sufficient; field tests will be required.

It is currently assumed that digital surveys see everything; i.e. that there is no perception bias. This will need to be thoroughly tested, particularly if changes in camera angle are implemented.

There are serious concerns about the costs of digital aerial survey. For SCANS III, it was agreed that it could be worth budgeting based on these higher costs as these could be reduced should an alternative method be deployed.

Current discussions have focussed on the company HiDef as the digital provider; however, this is not the only company to conduct these surveys. APEM should be contacted as well.

Action: contact APEM regarding the SCANS III surveys (Claire Lacey).

Action: investigate the cost of using HiDef for SCANS III surveys (Claire Lacey)

The way forward

It is too early to make the methodological switch completely to digital, but this methodology will be used at other sites regardless of what is used for SCANS, so there is a risk of being left behind if it is ignored completely.

It was agreed that it would be worth finding the money to test the 2-camera digital methodology. It is possible that this may be able to come from JNCC (UK) or from a Netherlands knowledge exchange mechanism.

Conclusion: Digital surveys can't be ignored – something needs to be done to improve these methods.

To progress the work, David Borchers was encouraged to continue his simulation work. In addition, HiDef should be given help, where possible, to field test the 2-camera methodologies.

Methods should be compared in a realistic manner – it will not be sufficient just to fly the same transect with each type of method. HiDef methodology results in the same area being viewed only for about a quarter of the time compared to a visual survey so there is no reason to expect that g(0) would be the same. In addition, strip widths will be different. Full development of the analytical framework is required to compare properly.

Can digital image analysts actually see all porpoises in the images? These must appear very small from the flight height used. This can be tested by running the footage past multiple analysts. Camera angles should also be investigated. There is a need for these trials to be conducted. Results should be able to be incorporated in the same way as any other type of method for estimating perception bias.

Action: Anita Gilles has prepared a document for the German Government outlining the pros and cons of these methodologies. She agreed to circulate this around the group.

Current work being undertaken:

- No Italian surveys are currently planned for 2014/15. If funding becomes available, there will be four surveys in the planning. Italy is also involved in the ACCOBAMS Mediterranean basin survey initiative.
- There are no surveys currently planned for French waters
- The Netherlands will be surveying the Dutch EEZ for harbour porpoise in July using visual methods. A potential second survey is also scheduled, which may be done using HiDef.
- Germany is conducting surveys this year from March to July. Surveys will cover the coastal areas of the North Sea and southern part of the Danish North Sea. This will continue into 2015-16. This is done as part of the Habitat Regulations monitoring during spring and summer. Germany is awaiting the outcomes of SCANS III regarding recommendations for digital surveys, although new wind farm guidance (Nov 2013) states that digital surveys should be used.
- Aarhus University is conducting a modelling project, sponsored by Vattenfall, combining all German and SCANS data. This resource may be available for simulations required by SCANS III.

- The UK is not currently conducting any aerial surveys.

Data gaps:

Harbour porpoise: sufficient surfacing rates and dive times likely exist in the literature

White-beaked dolphin: there is a published paper providing information on surfacing rates for Icelandic dolphins

Minke whale: there is a need for surfacing rate and dive time data for this species; these should exist from Norwegian tagging work.

Common dolphin: No surfacing rate data are available but an estimated availability correction is available in the literature for striped dolphin.

Bottlenose dolphin and Risso's dolphin: there will likely be too few sightings of this species to warrant the need for surfacing rate information. However, there is an availability correction estimate in the literature for bottlenose dolphin.

LIFE Nature and Biodiversity

TECHNICAL APPLICATION FORMS

Part A – administrative information

LIFE 2014

FOR ADMINISTRATION USE ONLY

LIFE14 NAT/UK/001146

LIFE Nature and Biodiversity project application

Language of the proposal:

English (en)

Project title:

Small Cetaceans in European Atlantic waters and the North Sea (SCANS-III)

Project acronym:

SCANS-III_LIFE2014

The project will be implemented in the following Member State(s) and Region(s) or other countries:

Denmark	All regions
Germany	Schleswig-Holstein
	Mecklenburg-Vorpommern
	Bremen
Ireland	Donegal
	East
	North East
	North West (IRL)
	South East (IRL)
	South West (IRL)
	West
Netherlands	Groningen
	Friesland
	Flevoland
	Noord-Holland
	Zuid-Holland
	Zeeland
Portugal	Algarve
	Lisboa e vale do Tejo
	Centro
	Norte
Spain	Andalucía
	Galicia
	Asturias
	Cantabria
	Navarra
	Aragón
	Cataluña
Sweden	Baltic Sea Sverige (S)
United Kingdom	East Anglia
	North
	North West (UK)
	Northern Ireland
	Scotland
	South East (UK)
	South West (UK)
	Wales

	Yorkshire and Humberside
Norway	All regions

Expected start date: 20/07/2015 **Expected end date:** 31/03/2018

LIST OF BENEFICIARIES

Name of the **coordinating** beneficiary: The University Court of the University of St Andrews

Name of the associated beneficiary:	Aarhus University
Name of the associated beneficiary:	1)IMARES Institute within the legal entity Stichting Dienst landbouwkundig Onderzoek
Name of the associated beneficiary:	JNCC Support Co.
Name of the associated beneficiary:	University of Newcastle Upon Tyne
Name of the associated beneficiary:	University College Cork, National University of Ireland, Cork

LIST OF CO-FINANCERS

Name of the co-financer:	Defra
Name of the co-financer:	French Ministry of Ecology, Sustainable Development and Energy
Name of the co-financer:	Department of Arts, Heritage and the Gaeltacht
Name of the co-financer:	Ministerie van Infrastructuur en Milieu, Rijkswaterstaat Water Verkeer en Leefomgeving
Name of the co-financer:	Instituto da Conservação da Natureza e das Florestas, I.P.
Name of the co-financer:	Swedish Agency for Marine and Water Management (SwAM)

PROJECT BUDGET AND REQUESTED EU FUNDING

Total project budget:	4,141,906 Euro		
Total eligible project budget:	4,141,906 Euro		
EU financial contribution requested:	2,413,673 Euro	(= 58.27%	of total eligible budget)

SECTOR

Nature

Coordinating Beneficiary Profile Information

Legal Name	The University Court of the University of St Andrews			
Short Name	St Andrews	**Legal Status**		
VAT No	GB 607 6064 48	**Public body**	**X**	
Legal Registration No		**Private commercial**		
Registration Date		**Private non- commercial**		
Pic Number				

Legal address of the Coordinating Beneficiary

Street Name and No	College Gate, North Street		
Post Code	KY16 9AJ	**PO Box**	
Town / City	St Andrews, Fife		
Member State	United Kingdom		

Coordinating Beneficiary contact person information

Title	N/A	**Function**	Principal Investigator
Surname	Hammond		
First Name	Philip		
E-mail address	psh2@st-andrews.ac.uk		
Department / Service	Scottish Oceans Institute		
Street Name and No	Gatty Marine Lab, East Sands		
Post Code	KY16 8LB	**PO Box**	
Town / City	St Andrews		
Member State	United Kingdom		
Telephone No	441334463472	**Fax No**	441334463443

Website of the Coordinating Beneficiary

Website	http://soi.st-andrews.ac.uk/default.aspx

Brief description of the Coordinating Beneficiary's activities and experience in the area of the proposal

In 1993-95, the University of St Andrews coordinated the LIFE project Small Cetacean Abundance in the North Sea and Adjacent Waters (SCANS) to provide the first robust estimates of cetacean abundance to allow harbour porpoise bycatch in gill and tangle net set fisheries to be put into context (Hammond et al. 2002). In 2004-06, it coordinated LIFE project SCANS-II, which extended the study area to estimate cetacean abundance over all shelf waters of the European Atlantic (Hammond et al. 2013), undertook an exercise in comparing ship and aerial monitoring methods for cetaceans, and developed the first approach to calculating safe limits to harbour porpoise bycatch (SCANS-II 2008).

As well as coordinating the SCANS and SCANS-II projects, Hammond was active in developing the data collection and analysis methods for robust estimation of cetacean abundance. He was a long-standing and active member of the sub-committees of the IWC Scientific Committee, which developed the Catch Limit Algorithm approach to setting safe limits to whale catches – the basis of all removal limit algorithm approaches. He is a member of the ICES Working Group on Marine Mammal Ecology that has been considering Indicators, Targets, and monitoring methods for cetacean species for OSPAR and MFSD. He advises the UK Joint Nature Conservation Committee that puts together Article 17 reports under the Habitats Directive. Northridge is a member of ICES Working Group on Bycatch that collates data on bycatch and fishing effort to estimate cetacean bycatch and considers methods of mitigation. He runs the bycatch observer programme in the UK for Defra. Hammond and Northridge are members of the IUCN Cetacean Specialist Group and Red List Authority.

Hammond, PS et al. (2002). Journal of Applied Ecology 39: 361-376.
Hammond, PS et al. (2013). Biological Conservation 164: 107-122.

SCANS-II (2008). http://biology.st-andrews.ac.uk/scans2/.

COORDINATING BENEFICIARY DECLARATION

The undersigned hereby certifies that:

1. The specific actions listed in this proposal do not and will not receive aid from the European Structural and Investment Funds or other European Union funding programmes. In the event that any such funding will be made available after the submission of the proposal or during the implementation of the project, my organisation will immediately inform the Contracting Authority.
2. My organisation The University Court of the University of St Andrews has not been served with bankruptcy orders, nor has it received a formal summons from creditors. My organisation is not in any of the situations listed in Articles 106(1) and 107 of Council Regulation No 966/2012 of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union (OJ L298 of 26.10.2012).
3. My organisation (which is legally registered in the European Union) will contribute 87,480.00€ to the project. My organisation will participate in the implementation of the following actions: A1, A2, A3, C1, C2, C3, C4, C5, C6, C7, D1, D2, D3, E1, F1. The estimated total cost of my organisation's part in the implementation of the project is 771,973.00 €.
4. My organisation will conclude with the associated beneficiaries and co-financers any agreements necessary for the completion of the work, provided these do not infringe on their obligations, as stated in the grant agreement with the Contracting Authority. Such agreements will be based on the model proposed by the Contracting Authority. They will describe clearly the tasks to be performed by each associated beneficiary and define the financial arrangements.
5. I am aware that my organisation is solely legally and financially responsible to the Contracting Authority for the implementation of the project.

I am legally authorised to sign this statement on behalf of my organisation.

I have read in full the Model LIFE Grant Agreement with Special and General Conditions and the Financial Guidelines (provided with the LIFE application files).

I certify to the best of my knowledge that the statements made in this proposal are true and the information provided is correct.

At St Andrews, Fife on 21st October 2014

Signature of the Coordinating Beneficiary:

Name(s) and status of signatory: Hana Polaskova
Deputy Head of Research Business Development & Contracts

University of St Andrews
600 YEARS

Research Business Development & Contracts
University of St Andrews

* When this form is completed, please print, sign, scan and upload it in eProposal

ASSOCIATED BENEFICIARY PROFILE

Associated Beneficiary profile information					
Legal Name	Aarhus University				
Short Name	Aarhus	**Legal Status**			
VAT No	31119103		**Public body**	**X**	
Legal Registration No			**Private commercial**		
Registration Date	01/10/1964		**Private non- commercial**		
Pic Number					

Legal address of the Coordinating Beneficiary					
Street Name and No	Nordre Ringgade 1			**PO Box**	
Post Code	DK-8000	**Town / City**	Aarhus C		
Member State	Denmark				

Legal address of the Associated Beneficiary	
Website	http://www.au.dk

Brief description of the Associated Beneficiary's activities and experience in the area of the proposal

Aarhus University (AU) is responsible for the Danish marine mammal monitoring program under the Ministry of Environment. AU has during many years monitored marine mammals in Danish waters by air and ship surveys (partner in the previous SCANS surveys) as well as by static acoustic equipment. Other priority areas are studies of effects of underwater noise on both individual and population scale and comprehensive satellite tagging of harbour porpoises during the last 18 years and still continuing. These data are used to develop statistical tools to model spatial distribution and individual based population models. Monitoring data and modelling tools are essential for the management of harbour porpoises in relation to the EU Habitats and Marine Stategy Framework Directives by pointing out important habitat areas and determining the effects from bycatch, ship traffics and offshore construction work on population level.

ASSOCIATED BENEFICIARY PROFILE

Associated Beneficiary profile information					
Legal Name	1)IMARES Institute within the legal entity Stichting Dienst landbouwkundig Onderzoek				
Short Name	IMARES		**Legal Status**		
VAT No	NL 806511618B01		**Public body**		
Legal Registration No			**Private commercial**		
Registration Date			**Private non- commercial**	X	
Pic Number					

Legal address of the Coordinating Beneficiary					
Street Name and No	Haringkade 1			**PO Box**	
Post Code	1976 CP	**Town / City**	IJmuiden		
Member State	Netherlands				

Legal address of the Associated Beneficiary	
Website	http://

Brief description of the Associated Beneficiary's activities and experience in the area of the proposal

IMARES conducts standardized aerial surveys of cetaceans in the North Sea to estimate abundance estimates since 2008. IMARES staff has been involved in the previous SCANS surveys either as observer, team leader or action co-ordinator.

ASSOCIATED BENEFICIARY PROFILE

Associated Beneficiary profile information					
Legal Name	JNCC Support Co.				
Short Name	JNCC	**Legal Status**			
VAT No	GB 854529109		**Public body**	**X**	
Legal Registration No			**Private commercial**		
Registration Date	02/03/2005		**Private non- commercial**		
Pic Number					

Legal address of the Coordinating Beneficiary					
Street Name and No	Monkstone House, City Road			**PO Box**	
Post Code	PE1 1JY	**Town / City**	Peterborough		
Member State	United Kingdom				

Legal address of the Associated Beneficiary	
Website	http://www.jncc.defra.gov.uk

Brief description of the Associated Beneficiary's activities and experience in the area of the proposal

JNCC was a partner in SCANS-II (2005) and will play a key role in the new project. JNCC is actively contributing to the success of the science and delivery of key outputs and our involvement is broadly in three activities: i) active member of the Project Steering Group ii) part of the working groups for four actions/tasks and iii) Leader for one Action. Our main financial contribution comes from the provision of experienced cetacean observers to both the main shipboard surveys and also the experimental monitoring surveys. JNCC has built up a wealth of surveying expertise in its Seabirds and Cetaceans team with individual staff having hundreds of hours of at sea experience. Two members of JNCC were also involved with the previous SCANS survey and are therefore trained in appropriate methodologies.

JNCC will also lead an Action that will deliver outputs directly linked to assessment and reporting needs for the Marine Strategy Framework and Habitats Directive. JNCC is active within OSPAR’s intersessional correspondence groups for the coordination and progression of activities between Member States for MSFD. They are therefore able to ensure collaboration between such activities and those of the project.

ASSOCIATED BENEFICIARY PROFILE

Associated Beneficiary profile information					
Legal Name	University of Newcastle Upon Tyne				
Short Name	Newcastle	**Legal Status**			
VAT No	GB499672470		**Public body**	**X**	
Legal Registration No			**Private commercial**		
Registration Date			**Private non- commercial**		
Pic Number					

Legal address of the Coordinating Beneficiary					
Street Name and No	Kings Gate			**PO Box**	
Post Code	NE1 7RU	**Town / City**	Newcastle		
Member State	United Kingdom				

Legal address of the Associated Beneficiary	
Website	http://www.ncl.ac.uk

Brief description of the Associated Beneficiary's activities and experience in the area of the proposal

Dr Per Berggren (the technical contact at Newcastle University) was a key collaborator (he was then based at Stockholm University, Sweden) on the two previous SCANS surveys (SCANS 1994 and SCANS-II 2005) and will play a key role in the new project where Newcastle will lead on three Actions (A3, C5 & C6). Newcastle is a very active research University with its own research vessel (R/V Princess Royal) which will be used during the planned surveys in Action A3.
Newcastle University will actively contribute to the success of the science and delivery of key outputs of the proposed SCANS-III project and will be involved in three activities: i) active member of the Project Steering Group ii) part of the working groups for a total six actions/tasks and iii) Leader for three Actions.

ASSOCIATED BENEFICIARY PROFILE

Associated Beneficiary profile information					
Legal Name	University College Cork, National University of Ireland, Cork				
Short Name	UCC	**Legal Status**			
VAT No	IE00006286E		**Public body**	**X**	
Legal Registration No			**Private commercial**		
Registration Date			**Private non- commercial**		
Pic Number					

Legal address of the Coordinating Beneficiary					
Street Name and No	Western Road			**PO Box**	
Post Code	-	**Town / City**	Cork		
Member State	Ireland				

Legal address of the Associated Beneficiary	
Website	http://www.ucc.ie

Brief description of the Associated Beneficiary's activities and experience in the area of the proposal

The School of Biological Earth and Environmental Sciences at University College Cork (UCC) is Ireland's leading centre for Marine Mammal Research. Since 1994 the School has had 30 marine mammal projects funded to a value of approx. 2.3m€, supporting a large number of PhD, MSc and postdoctoral researcher, resulting in over 70 peer reviewed publications. Researchers from UCC have been involved in the previous SCANS surveys, with Dr Rogan acting as cruise leader on both SCANS II and CODA surveys. Prior to that she co-ordinated a Cetacean and Seabird at Sea team, where observers joined ships of opportunity and hired large vessels to do offshore surveys on two occasions. As such, she is ideally placed to co-ordinate the ship survey action in the present proposal. She has also been responsible for highlighting fisheries where marine mammal bycatch occurs, running observer programmes on fishing vessels and is currently involved in a project examining appropriate ways to incorporate an ecosystem approach to fisheries management, specifically focussed on evaluating the risk to cetaceans from fishing gears, designing a clear and transparent ecological risk assessment for cetaceans in relation to gear types and reducing the interactions of cetaceans with fisheries. This work and her experience will fit very well into the C5 action – assessment of pressures and threats to cetaceans.

LIFE14 NAT/ - A4

ASSOCIATED BENEFICIARY DECLARATION and MANDATE

I, the undersigned, Hanne Bach (1), representing, Aarhus University Aarhus, Public body, , Nordre Ringgade 1, Aarhus C, DK-8000, Denmark, VAT number 31119103, hereinafter referred to as "the associated beneficiary", for the purposes of the signature and the implementation of the grant agreement Small Cetaceans in European Atlantic waters and the North Sea (SCANS-III) with the Contracting Authority (hereinafter referred to as "the grant agreement") hereby:

1. Mandate The University Court of the University of St Andrews (St Andrews), Public body, , College Gate, North Street, St Andrews, Fife, KY16 9AJ, United Kingdom, VAT number GB 607 6064 48, represented by Hana Polaskova (hereinafter referred to as "the coordinating beneficiary") to sign in my name and on my behalf the grant agreement and its possible subsequent amendments with the Contracting Authority.
2. Mandate the coordinating beneficiary to act on behalf of the associated beneficiary in compliance with the grant agreement.

I hereby confirm that the associated beneficiary accepts all terms and conditions of the grant agreement and, in particular, all provisions affecting the coordinating beneficiary and the associated beneficiaries. In particular, I acknowledge that, by virtue of this mandate, the coordinating beneficiary alone is entitled to receive funds from the Contracting Authority and distribute the amounts corresponding to the associated beneficiary"s participation in the action.

I hereby accept that the associated beneficiary will do everything in its power to help the coordinating beneficiary fulfil its obligations under the grant agreement, and in particular, to provide to the coordinating beneficiary, on its request, whatever documents or information may be required.

I hereby declare that the associated beneficiary agrees that the provisions of the grant agreement, including this mandate, shall take precedence over any other agreement between the associated beneficiary and the coordinating beneficiary which may have an effect on the implementation of the grant agreement.

I furthermore certify that:

1. The associated beneficiary has not been served with bankruptcy orders, nor has it received a formal summons from creditors. My organisation is not in any of the situations listed in Articles 106(1) and 107 of Council Regulation No 966/2012 of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union (OJ L298 of 26.10.2012).
2. The associated beneficiary will contribute 210,000 € to the project. My organisation will participate in the implementation of the following actions: A1, A3, C6, C7, E1. The estimated total cost of my organisation's part in the implementation of the project is 638,689 €.
3. The associated beneficiary will conclude with the coordinating beneficiary an agreement necessary for the completion of the work, provided this does not infringe on our obligations, as stated in the grant agreement with the Contracting Authority. This agreement will be based on the model proposed by the Contracting Authority. It will describe clearly the tasks to be performed by my organisation and define the financial arrangements.

This declaration and mandate shall be annexed to the grant agreement and shall form an integral part thereof.

I am legally authorised to sign this statement on behalf of my organisation. I have read in full the Model LIFE Grant Agreement with Special and General Conditions and the Financial Guidelines (provided with the LIFE application files). I certify to the best of my knowledge that the statements made in this proposal are true and the information provided is correct.

At Roskilde, Denmark on 23 th October 2014

Signature of the Associated Beneficiary:

DCE - Danish Centre for Environment and Energy
Aarhus University
Frederiksborgvej 399
PO Box 358
DK-4000 Roskilde, Denmark

Name(s) and status/function of signatory:

Hanne Bach
Director, DCE

Peter Henriksen
Head of Dept. of Bioscience, AU

1. Forename and surname of the legal representative of the future associated beneficiary signing this mandate.
2. When the form is completed, please print, sign, scan and upload it in eProposal

Page 1 of 1

ASSOCIATED BENEFICIARY DECLARATION and MANDATE

I, the undersigned, I. O. Fresco and W.J.H. Brakenhoff (1), representing, 1)IMARES Institute within the legal entity Stichting Dienst landbouwkundig Onderzoek IMARES, Private non-commercial, , Haringkade 1, Ijmuiden, 1976 CP, Netherlands, VAT number NL 806511618B01, hereinafter referred to as "the associated beneficiary", for the purposes of the signature and the implementation of the grant agreement Small Cetaceans in European Atlantic waters and the North Sea (SCANS-III) with the Contracting Authority (hereinafter referred to as "the grant agreement") hereby:

1. Mandate The University Court of the University of St Andrews (St Andrews), Public body, , College Gate, North Street, St Andrews, Fife, KY16 9AJ, United Kingdom, VAT number GB 607 6064 48, represented by ....., (hereinafter referred to as "the coordinating beneficiary") to sign in my name and on my behalf the grant agreement and its possible subsequent amendments with the Contracting Authority.
2. Mandate the coordinating beneficiary to act on behalf of the associated beneficiary in compliance with the grant agreement.

I hereby confirm that the associated beneficiary accepts all terms and conditions of the grant agreement and, in particular, all provisions affecting the coordinating beneficiary and the associated beneficiaries. In particular, I acknowledge that, by virtue of this mandate, the coordinating beneficiary alone is entitled to receive funds from the Contracting Authority and distribute the amounts corresponding to the associated beneficiary''s participation in the action.

I hereby accept that the associated beneficiary will do everything in its power to help the coordinating beneficiary fulfil its obligations under the grant agreement, and in particular, to provide to the coordinating beneficiary, on its request, whatever documents or information may be required.

I hereby declare that the associated beneficiary agrees that the provisions of the grant agreement, including this mandate, shall take precedence over any other agreement between the associated beneficiary and the coordinating beneficiary which may have an effect on the implementation of the grant agreement.

I furthermore certify that:

1. The associated beneficiary has not been served with bankruptcy orders, nor has it received a formal summons from creditors. My organisation is not in any of the situations listed in Articles 106(1) and 107 of Council Regulation No 966/2012 of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union (OJ L298 of 26.10.2012).
2. The associated beneficiary will contribute 5,000 € to the project. My organisation will participate in the implementation of the following actions: A1, A3, C1, C7, E1. The estimated total cost of my organisation's part in the implementation of the project is 812,984 €.
3. The associated beneficiary will conclude with the coordinating beneficiary an agreement necessary for the completion of the work, provided this does not infringe on our obligations, as stated in the grant agreement with the Contracting Authority. This agreement will be based on the model proposed by the Contracting Authority. It will describe clearly the tasks to be performed by my organisation and define the financial arrangements.

This declaration and mandate shall be annexed to the grant agreement and shall form an integral part thereof.

I am legally authorised to sign this statement on behalf of my organisation. I have read in full the Model LIFE Grant Agreement with Special and General Conditions and the Financial Guidelines (provided with the LIFE application files). I certify to the best of my knowledge that the statements made in this proposal are true and the information provided is correct.

At Wageningen on 23 October 2014

Signature of the Associated Beneficiary: Stichting Dienst landbouwkundig Onderzoek

Name(s) and status/function of signatory: Prof. Dr. Ir. Louise O. Fresco, President Executive Board / Dr. Ir. J.H. Brakenhoff, Member Executive Board

1. Forename and surname of the legal representative of the future associated beneficiary signing this mandate.
2. When the form is completed, please print, sign, scan and upload it in eProposal.

LIFE14 NAT/ - A4

ASSOCIATED BENEFICIARY DECLARATION and MANDATE

I, the undersigned, ... SUSAN BENNETT ..... (1), representing, JNCC Support Co. JNCC, Public body, , Monkstone House, City Road, Peterborough, PE1 1JY, United Kingdom, VAT number GB 854529109, hereinafter referred to as "the associated beneficiary", for the purposes of the signature and the implementation of the grant agreement Small Cetaceans in European Atlantic waters and the North Sea (SCANS-III) with the Contracting Authority (hereinafter referred to as "the grant agreement") hereby:

1. Mandate The University Court of the University of St Andrews (St Andrews), Public body, , College Gate, North Street, St Andrews, Fife, KY16 9AJ, United Kingdom, VAT number GB 607 6064 48, represented by ....., (hereinafter referred to as "the coordinating beneficiary") to sign in my name and on my behalf the grant agreement and its possible subsequent amendments with the Contracting Authority.
2. Mandate the coordinating beneficiary to act on behalf of the associated beneficiary in compliance with the grant agreement.

I hereby confirm that the associated beneficiary accepts all terms and conditions of the grant agreement and, in particular, all provisions affecting the coordinating beneficiary and the associated beneficiaries. In particular, I acknowledge that, by virtue of this mandate, the coordinating beneficiary alone is entitled to receive funds from the Contracting Authority and distribute the amounts corresponding to the associated beneficiary''s participation in the action.

I hereby accept that the associated beneficiary will do everything in its power to help the coordinating beneficiary fulfil its obligations under the grant agreement, and in particular, to provide to the coordinating beneficiary, on its request, whatever documents or information may be required.

I hereby declare that the associated beneficiary agrees that the provisions of the grant agreement, including this mandate, shall take precedence over any other agreement between the associated beneficiary and the coordinating beneficiary which may have an effect on the implementation of the grant agreement.

I furthermore certify that:

1. The associated beneficiary has not been served with bankruptcy orders, nor has it received a formal summons from creditors. My organisation is not in any of the situations listed in Articles 106(1) and 107 of Council Regulation No 966/2012 of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union (OJ L298 of 26.10.2012).
2. The associated beneficiary will contribute 58,538 € to the project. My organisation will participate in the implementation of the following actions: A1, A3, C2, C4, C5, C7, E1. The estimated total cost of my organisation's part in the implementation of the project is 108,649 €.
3. The associated beneficiary will conclude with the coordinating beneficiary an agreement necessary for the completion of the work, provided this does not infringe on our obligations, as stated in the grant agreement with the Contracting Authority. This agreement will be based on the model proposed by the Contracting Authority. It will describe clearly the tasks to be performed by my organisation and define the financial arrangements.

This declaration and mandate shall be annexed to the grant agreement and shall form an integral part thereof.

I am legally authorised to sign this statement on behalf of my organisation. I have read in full the Model LIFE Grant Agreement with Special and General Conditions and the Financial Guidelines (provided with the LIFE application files). I certify to the best of my knowledge that the statements made in this proposal are true and the information provided is correct.

At ..... on ..... 15 October 2014 .....

Signature of the Associated Beneficiary: S. Bennett

Name(s) and status/function of signatory: SUSAN BENNETT
HEAD OF FINANCE + PLANNING

1. Forename and surname of the legal representative of the future associated beneficiary signing this mandate.
2. When the form is completed, please print, sign, scan and upload it in eProposal

ASSOCIATED BENEFICIARY DECLARATION and MANDATE

I, the undersigned, Mr David Hill ..... (1), representing, University of Newcastle Upon Tyne Newcastle, Public body, , Kings Gate, Newcastle, NE1 7RU, United Kingdom, VAT number GB499672470, hereinafter referred to as "the associated beneficiary", for the purposes of the signature and the implementation of the grant agreement Small Cetaceans in European Atlantic waters and the North Sea (SCANS-III) with the Contracting Authority (hereinafter referred to as "the grant agreement") hereby:

1. Mandate The University Court of the University of St Andrews (St Andrews), Public body, , College Gate, North Street, St Andrews, Fife, KY16 9AJ, United Kingdom, VAT number GB 607 6064 48, represented by ....., (hereinafter referred to as "the coordinating beneficiary") to sign in my name and on my behalf the grant agreement and its possible subsequent amendments with the Contracting Authority.
2. Mandate the coordinating beneficiary to act on behalf of the associated beneficiary in compliance with the grant agreement.

I hereby confirm that the associated beneficiary accepts all terms and conditions of the grant agreement and, in particular, all provisions affecting the coordinating beneficiary and the associated beneficiaries. In particular, I acknowledge that, by virtue of this mandate, the coordinating beneficiary alone is entitled to receive funds from the Contracting Authority and distribute the amounts corresponding to the associated beneficiary''s participation in the action.

I hereby accept that the associated beneficiary will do everything in its power to help the coordinating beneficiary fulfil its obligations under the grant agreement, and in particular, to provide to the coordinating beneficiary, on its request, whatever documents or information may be required.

I hereby declare that the associated beneficiary agrees that the provisions of the grant agreement, including this mandate, shall take precedence over any other agreement between the associated beneficiary and the coordinating beneficiary which may have an effect on the implementation of the grant agreement.

I furthermore certify that:

1. The associated beneficiary has not been served with bankruptcy orders, nor has it received a formal summons from creditors. My organisation is not in any of the situations listed in Articles 106(1) and 107 of Council Regulation No 966/2012 of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union (OJ L298 of 26.10.2012).
2. The associated beneficiary will contribute 56,595 € to the project. My organisation will participate in the implementation of the following actions: A1, A3, C4, C5, C6, C7, E1. The estimated total cost of my organisation's part in the implementation of the project is 471,009 €.
3. The associated beneficiary will conclude with the coordinating beneficiary an agreement necessary for the completion of the work, provided this does not infringe on our obligations, as stated in the grant agreement with the Contracting Authority. This agreement will be based on the model proposed by the Contracting Authority. It will describe clearly the tasks to be performed by my organisation and define the financial arrangements.

This declaration and mandate shall be annexed to the grant agreement and shall form an integral part thereof.

I am legally authorised to sign this statement on behalf of my organisation. I have read in full the Model LIFE Grant Agreement with Special and General Conditions and the Financial Guidelines (provided with the LIFE application files). I certify to the best of my knowledge that the statements made in this proposal are true and the information provided is correct.

At University of Newcastle upon Tyne on 22.10.14

Signature of the Associated Beneficiary:

Name(s) and status/function of signatory:

UNIVERSITY OF NEWCASTLE UPON TYNE

1. Forename and surname of the legal representative of the future associated beneficiary signing this mandate.
2. When the form is completed, please print, sign, scan and upload it in eProposal

ASSOCIATED BENEFICIARY DECLARATION and MANDATE

I, the undersigned, PROF. ANITA R. MAGUIRE (1), representing, University College Cork, National University of Ireland, Cork UCC, Public body, , Western Road, Cork, -, Ireland, VAT number IE00006286E, hereinafter referred to as "the associated beneficiary", for the purposes of the signature and the implementation of the grant agreement Small Cetaceans in European Atlantic waters and the North Sea (SCANS-III) with the Contracting Authority (hereinafter referred to as "the grant agreement") hereby:

1. Mandate The University Court of the University of St Andrews (St Andrews), Public body, , College Gate, North Street, St Andrews, Fife, KY16 9AJ, United Kingdom, VAT number GB 607 6064 48, represented by KELLY MAHER, (hereinafter referred to as "the coordinating beneficiary") to sign in my name and on my behalf the grant agreement and its possible subsequent amendments with the Contracting Authority.
2. Mandate the coordinating beneficiary to act on behalf of the associated beneficiary in compliance with the grant agreement.

I hereby confirm that the associated beneficiary accepts all terms and conditions of the grant agreement and, in particular, all provisions affecting the coordinating beneficiary and the associated beneficiaries. In particular, I acknowledge that, by virtue of this mandate, the coordinating beneficiary alone is entitled to receive funds from the Contracting Authority and distribute the amounts corresponding to the associated beneficiary''s participation in the action.

I hereby accept that the associated beneficiary will do everything in its power to help the coordinating beneficiary fulfil its obligations under the grant agreement, and in particular, to provide to the coordinating beneficiary, on its request, whatever documents or information may be required.

I hereby declare that the associated beneficiary agrees that the provisions of the grant agreement, including this mandate, shall take precedence over any other agreement between the associated beneficiary and the coordinating beneficiary which may have an effect on the implementation of the grant agreement.

I furthermore certify that:

1. The associated beneficiary has not been served with bankruptcy orders, nor has it received a formal summons from creditors. My organisation is not in any of the situations listed in Articles 106(1) and 107 of Council Regulation No 966/2012 of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union (OJ L298 of 26.10.2012).
2. The associated beneficiary will contribute 40,020 € to the project. My organisation will participate in the implementation of the following actions: A1, A2, C2, C4, C5, E1. The estimated total cost of my organisation's part in the implementation of the project is 1,338,602 €.
3. The associated beneficiary will conclude with the coordinating beneficiary an agreement necessary for the completion of the work, provided this does not infringe on our obligations, as stated in the grant agreement with the Contracting Authority. This agreement will be based on the model proposed by the Contracting Authority. It will describe clearly the tasks to be performed by my organisation and define the financial arrangements.

This declaration and mandate shall be annexed to the grant agreement and shall form an integral part thereof.

I am legally authorised to sign this statement on behalf of my organisation. I have read in full the Model LIFE Grant Agreement with Special and General Conditions and the Financial Guidelines (provided with the LIFE application files). I certify to the best of my knowledge that the statements made in this proposal are true and the information provided is correct.

At CORK, IRELAND on 16/10/2014

Signature of the Associated Beneficiary:

Name(s) and status/function of signatory:

PROF. ANITA R. MAGUIRE, VICE PRESIDENT FOR RESEARCH & INNOVATION

1. Forename and surname of the legal representative of the future associated beneficiary signing this mandate.
2. When the form is completed, please print, sign, scan and upload it in eProposal

CO-FINANCER PROFILE AND COMMITMENT FORM

Legal Name and full address on the co-financer				
Legal Name	Defra			
Street Name and No	Nobel House, 17 Smith Square		**PO Box**	
Post Code	SW1P 3JR	**Town/City**	Westminster, London	
Member State	United Kingdom			

Financial commitment	
We will contribute the following amount to the project:	795,600 Euro

Status of the financial commitment	
Confirmed	■
To be confirmed	☐

Comments

Financial contribution of £600k is confirmed subject to annual budget agreements within Defra. Stated value is based on current exchange rate of 1.36.

Signature of the authorised person

At 1700 hours, Defra on 8 October 2014.

Signature of the Co-financer: .....

Name(s) and status of signatory: Head of Marine Biodiversity, Defra

* When the form is completed, please print, sign, scan and upload it in eProposal

CO-FINANCER PROFILE AND COMMITMENT FORM

Legal Name and full address on the co-financer					
Legal Name	French Ministry of Ecology, Sustainable Development and Energy				
Street Name and No	Grande Arche Paroi Sud, La Defense Cedex			**PO Box**	
Post Code	92055	**Town/City**	Paris		
Member State	France				

Financial commitment	
We will contribute the following amount to the project:	100,000 Euro

Status of the financial commitment	
Confirmed	☐
To be confirmed	■

Comments

The Ministry match funding is subject to the availability of funds dedicated to LIFE projects, which is inevitably dependent on the number of requests received for prospective match-funding.

Signature of the authorised person

MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE ET DE L'ÉNERGIE
DGALN/DEB/SDEN/EN
La Grande Arche - Paroi Sud
92055 La Défense Cedex

At ..... on 13 OCT. 2014

Le Directeur de l'eau et de la biodiversité

Signature of the Co-financer: .....

Laurent ROY

Name(s) and status of signatory: .....

* When the form is completed, please print, sign, scan and upload it in eProposal

CO-FINANCER PROFILE AND COMMITMENT FORM

Legal Name and full address on the co-financer				
Legal Name	Department of Arts, Heritage and the Gaeltacht			
Street Name and No	7 Ely Place		**PO Box**	
Post Code	-	**Town/City**	Dublin 2	
Member State	Ireland			

Financial commitment	
We will contribute the following amount to the project:	25,000 Euro

Status of the financial commitment	
Confirmed	■
To be confirmed	☐

Comments

null

Signature of the authorised person

At 7, ELY PLACE, DUBLIN 2 on 8/10/2014

Signature of the Co-financer: Frank Donohoe

Name(s) and status of signatory: FRANK DONOHOE, ASSISTANT PRINCIPAL OFFICER

* When the form is completed, please print, sign, scan and upload it in eProposal

CO-FINANCER PROFILE AND COMMITMENT FORM

Legal Name and full address on the co-financer				
Legal Name	Ministerie van Infrastructuur en Milieu, Rijkswaterstaat Water Verkeer en Leefomgeving			
Street Name and No	Zuiderwagenplein 2,	**PO Box**		
Post Code	8224AD	**Town/City**	Lelystad	
Member State	Netherlands			

Financial commitment	
We will contribute the following amount to the project:	200,000 Euro

Status of the financial commitment	
Confirmed	■
To be confirmed	☐

Comments

The ministries of Economic Affairs and Infrastructure and the Environment fully supports the proposal for SCANS III and intends to support the project with a contribution of €300.000 (funding €200.000 and €100.000 in kind by the support of IMARES). SCANS III will be of significant added value to the MSFD Monitoring Programme for small cetaceans. SCANS III is a cross boundary initiative that will enhance international cooperation between member states and give a real insight in the abundance of the habitat of small cetaceans in their international habitat, the North East Atlantic (North Sea, Kattegat, Skagerrak, western Baltic, English Channel and Celtic Sea).

Signature of the authorised person

At Lelystad on 16-10-2014

Signature of the Co-financer:

Name(s) and status of signatory: R Attewijn, director

* When the form is completed, please print, sign, scan and upload it in eProposal

CO-FINANCER PROFILE AND COMMITMENT FORM

Legal Name and full address on the co-financer				
Legal Name	Instituto da Conservação da Natureza e das Florestas, I.P.			
Street Name and No	Av. da República 16 - 16B		**PO Box**	
Post Code	1050-191	**Town/City**	Lisboa	
Member State	Portugal			

Financial commitment	
We will contribute the following amount to the project:	50,000 Euro

Status of the financial commitment	
Confirmed	■
To be confirmed	☐

Comments

null

Signature of the authorised person

At Lisboa on 16 out 2014

Signature of the Co-financer: .....

A Presidente do Conselho Diretivo
PAULA SARMENTO

Name(s) and status of signatory: .....

* When the form is completed, please print, sign, scan and upload it in eProposal

LIFE14 NAT/ - A6

CO-FINANCER PROFILE AND COMMITMENT FORM

Legal Name and full address on the co-financer					
Legal Name	Swedish Agency for Marine and Water Management (SwAM)				
Street Name and No	Gullbergs Strandgata 15			**PO Box**	11 930
Post Code	SE-404 39	**Town/City**	Göteborg		
Member State	Sweden				

Financial commitment	
We will contribute the following amount to the project:	100,000 Euro

Status of the financial commitment	
Confirmed	■
To be confirmed	☐

Comments

null

Signature of the authorised person

At Swedish Agency for Marine and Water Management on 2014-10-16

Signature of the Co-financer: .....

Name(s) and status of signatory: INGEMAR BERGLUND, Dep. director General.

* When the form is completed, please print, sign, scan and upload it in eProposal

OTHER PROPOSALS SUBMITTED FOR EUROPEAN UNION FUNDING

Please answer each of the following questions:

- Have you or any of your associated beneficiaries already benefited from previous LIFE cofinancing? (please cite LIFE project reference number, title, year, amount of the co-financing, duration, name(s) of coordinating beneficiary and/or partners involved):

Coordinating Beneficiary Involvement

The Coordinating Beneficiary, the University of St Andrews, has been coordinating beneficiary for two previous LIFE funded projects. These were

1) Reference Number: LIFE92 ENV/UK/000065

Project Title: Distribution and abundance of the harbour porpoise and other small cetaceans in the North Sea and adjacent waters

Project start date: 01/01/1993

Project end date: 31/03/1995

Duration: 27 Months

Amount of EU Contribution: €704,500

Coordinating Beneficiary: University of St Andrews

Partners:

Christian Albrechts University of Kiel (Germany)

Zoological Institute, University of Stockholm (Sweden)

Centre de Recherche sur les Mammifères Marins, Musée Océanographique, La Rochelle (France)

Danbiu ApS (Denmark)

Institute for Forestry and Nature Research (Netherlands)

2) Reference Number: LIFE04NAT/GB/000245,

Project Title: Small Cetaceans in the European Atlantic and North Sea (SCANS-II).

Project start date: 01/04/2004

Project end date: 31/12/2006

Duration: 33 months

Amount of EU contribution: €1.537M

Coordinating Beneficiary: University of St Andrews

Partners:

Natural Environmental Research Institute (Denmark)

University of La Rochelle (France)

Ministry of Environment and Sustainable Development (france)

Christian Albrechts University of Kiel (Germany)

University College Cork (Ireland)

Ministry of Agriculture, Food and Nature Quality (Netherlands),

Institute of Marine Research (norway)

University of Gdansk (Poland)

Institute for Nature Conservation (Portugal)

Spanish Cetacean Society (Spain)

Joint Nature Conservation Committee (UK).

In addition, the University has been a sub-contractor on project **LIFE08NAT/S/000261**.
Title: SAMBAH

Project Start: 2009.

Project End: 2015

Coordinating Beneficiary: Kolmårdens Djurpark (Sweden)

EU Contribution: estimated at €2,131,915 Euros, but this is not yet completed.

Partners:

Swedish Agency for Marine and Water Management (Sweden)

Turku University of Applied Sciences (Finland)

Ministry of Environment (Finland)

University of Gdansk (Poland)

Institute of Meteorology and Water Management (Poland)

Chief Inspectorate for Environmental Protection (Poland)

Aarhus University (Denmark)

Danish Forest and Nature Agency (Denmark)

Associated Beneficiary involvement in LIFE Projects

Newcastle University has not previously taken part in any LIFE projects.

University College Cork has previously participated in **LIFE04NAT/GB/000245** as described above, but no other LIFE projects

Aarhus University (formerly National Environment Research Institute) has participated as a Partner in **LIFE04NAT/GB/000245** as described above. In addition, they are an Associated Beneficiary of the SAMBAH Project **LIFE08NAT/S/000261,** also described above

IMARES has not previously taken part in any LIFE projects.

Joint Nature Conservation Committee (JNCC) was a partner in project **LIFE04NAT/GB/000245** as

described above.

- Have you or any of the associated beneficiaries submitted any actions related directly or indirectly to this project to other European Union funding programmes? To whom? When and with what results?

No aspects of this work have been submitted to other EU funding programmes.

- For those actions which fall within the eligibility criteria for financing through other European Union funding programmes, **please explain in full detail** why you consider that those actions are better suited to financing through LIFE and are therefore included in the current project:

The actions covered by this project do not fall within the eligibility criteria for financing through other EU funding programmes.

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DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Optional: in addition to the support of the necessary competent authorities as described in the guidelines for applicants, this form may also be used to indicate any other support to the project by important stakeholder bodies, administrative bodies or individuals that may be concerned by the project.

Name and legal status: Department of Arts, Heritage and the Gaeltacht (Public Body)

Full address: 7 Ely Place, Dublin 2, Ireland.

Tel: +353 (0)1 8883215 Fax: +353 (0)1 8883272 E-mail: frank.donohoe@ahg.gov.ie

Contact person (name and function): Mr Frank Donohoe, Assistant Principal Officer

Please specify whether, why and how you will support this project:

The Department of Arts, Heritage and the Gaeltacht will support this project as a Co-financier and will also be providing expert scientific and technical staff time towards key project Actions. The Department considers that this project will form an important milestone in the investigation and development of coherent monitoring and management actions to conserve and protect cetacean species and marine biodiversity in European waters. The project also has the potential to be an important scientific & policy driver where Member States' implementation of obligations under the Marine Strategy Framework Directive, the Habitats Directive and wider European marine policy (e.g., Common Fisheries Policy) are concerned and for these reasons the Department is committed to giving it support.

Signature and date: Frank Donohoe 8/10/2014

Name and status of signatory: FRANK DONOHOE
ASSISTANT PRINCIPAL OFFICER

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DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Optional: in addition to the support of the necessary competent authorities as described in the guidelines for applicants, this form may also be used to indicate any other support to the project by important stakeholder bodies, administrative bodies or individuals that may be concerned by the project.

Name and legal status:
Instituto da Conservação da Natureza e das Florestas, I.P.

Full address:
Av. da República, 16 – 16 B
1050-191 Lisboa
PORTUGAL
Tel: .+ 351 21 350 79 00. E-mail: icnf@icnf.pt

Contact person (name and function):
Ana Zúquete, head of the Department for Nature Conservation and Natural Resources

Please specify whether, why and how you will support this project:

This project will allow the collection of relevant data on cetacean populations present along the Portuguese coast. It will update data on abundance and distribution of small cetaceans, particularly of harbour porpoises (Phocoena phocoena), common dolphins (Delphinus delphis), striped dolphins (Stenella coeruleoalba) and bottlenose dolphins (Tursiops truncatus) on the Portuguese continental coast. Results obtained will allow for a better assessment of the impact of bycatch on these species and also for the implementation of specific protective and management measures which will hopefully contribute to a sustainable fishing industry.
Also by supporting and participating in the action entitled "*Integration of information on distribution, abundance and threats to assess good/favourable environmental/conservation status of cetaceans at European Atlantic level*" ICNF will contribute to develop 1) a framework and template for assessment and reporting of GES for cetaceans, as required by the Marine Strategy Framework Directive (MSFD) and 2) develop tools to promote trans-boundary reporting of Article 17 of the Habitats Directive.
Portugal's financial contribution will be used in both the aerial and boat survey actions as well as in action D3 (*Assessment of Environmental Status*).

Signature and date:

Lisboa, 13 October 2014

Name and status of signatory:
Paula Sarmento, President of ICNF

A Presidente do Conselho Diretivo
PAULA SARMENTO

LIFE+ Nature & Biodiversity 2013 - A8

DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Optional: in addition to the support of the necessary competent authorities as described in the guidelines for applicants, this form may also be used to indicate any other support to the project by important stakeholder bodies, administrative bodies or individuals that may be concerned by the project.

Name and legal status: Ministère de l'Ecologie, du Développement Durable et de l'Energie

Full address:
Arche Sud 92055 La Défense cedex
France

Tel: .33 1 40 81 71 87..... Fax: 33 1 40 81 71 87..... E-mail: helene.syndique@developpement-durable.gouv.fr

Contact person (name and function): Hélène Syndique
Chef du bureau des Milieux Marins, Sous-direction du Littoral et des Milieux Marins
Direction de l'Eau et de la Biodiversité

Please specify whether, why and how you will support this project:
My department is the administration responsible for the conservation of biodiversity and specially the conservation of cetaceans. France, through the Ministry of Ecology and also Ministry of Defence has already participated to the previous surveys: SCANS I and II. These last one having been completed by the CODA survey, outside European funding. We recognise the importance of large surveys for the enhancement of knowledge on distribution and population of marine migratory species. In the case of SCANS, the periodicity since 1994 brings information on the evolution of populations at the appropriate scale: North Sea and Nord-East Atlantic areas and should enable European countries to estimate the impact of human activity such as by-catch, shipping, noise, etc... In this framework, we believe that the results of the project will help us, as a EU Member State, to fullfill our committments to the MSFD, specially the assesment of the conservation status overtime.

Signature and date:

Le Directeur de l'eau et de la biodiversité

1 3 OCT. 2014

Laurent ROY

Name and status of signatory:

Laurent Roy, directeur de l'eau et de la biodiversité

DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Optional: in addition to the support of the necessary competent authorities as described in the guidelines for applicants, this form may also be used to indicate any other support to the project by important stakeholder bodies, administrative bodies or individuals that may be concerned by the project.

Name and legal status: **Department for the Environment, Food and Rural Affairs**

Full address: **Nobel House, 17 Smith Square, London SW1 3JR**

Tel: **020 7238 3124**..... Fax:**N/A** ..... E-mail: **richard.findon@defra.gsi.gov.uk**

Contact person (name and function): **Richard Findon, LIFE UK Policy Lead**

Please specify whether, why and how you will support this project:

Defra, the Welsh and Scottish Governments and Northern Ireland Executive strongly support this project which is in line with commitments to cetacean conservation and international agreements, particularly the Marine Strategy Framework Directive and Habitats Directive. SCANS III will also further our knowledge of cetacean distribution and abundance in the North East Atlantic and will generate information on populations and the impacts of anthropogenic activities that will enable Member States to report under the Marine Strategy Framework Directive and the Habitats Directive in 2018.

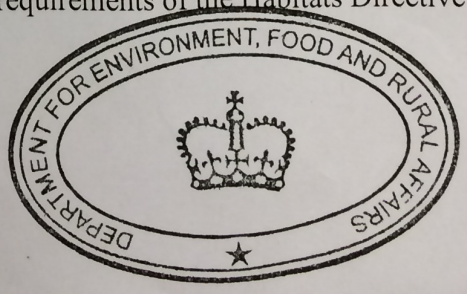
The project will generate estimates of MSFD Descriptor 1 common indicators (abundance, distribution and bycatch) as identified by OSPAR's ICG-COBAM for cetaceans. When compared to outputs from previous SCANS, information on changes in populations can be assessed and the development of a European wide 'threat assessment' tool will enable changes to be put into context of anthropogenic activities and their impacts. Impacts at the population level will be measured against thresholds determined by further development of a bycatch management framework and it will deliver an assessment of Good Environmental Status based on the new information.

The outputs will also be used to develop a trans-boundary report on Favourable Conservation Status for Article 17 Habitats Directive Reporting; the European wide outputs from SCANS-III and broad support from other EU MS will facilitate this activity. It will further support the UK's marine mammal monitoring strategy as a means of getting new, up-to-date population abundance for species whose ranges cross international maritime borders. SCANS-III is integral to the UK's approach to meeting Article 11 requirements of the Habitats Directive.

Signature and date:

pp Paul Ballinge 9 October 2014
(approved by and signed in his absence)

Name and status of signatory:
Richard Findon, LIFE UK Policy Lead



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DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Optional: in addition to the support of the necessary competent authorities as described in the guidelines for applicants, this form may also be used to indicate any other support to the project by important stakeholder bodies, administrative bodies or individuals that may be concerned by the project.

Name and legal status:

Directorate General for the Sustainability of the Coast and the Sea
Ministry of Agriculture, Food and Environment

Full address:
Plaza San Juan de la Cruz s/n
28071 Madrid
Spain

Tel: 91 597 60 41/63 44 Fax: 91 597 69 02 E-mail: bzn-biomarina@magrama.es

Contact person (name and function): Pablo Saavedra Inaraja, Director General

Please specify whether, why and how you will support this project:

The Directorate General for the Sustainability of the Coast and the Sea is the public body responsible at State level of implementing measures contributing to the sustainability of the coast and the sea. Its functions related to the protection of the marine environment include the implementation of Marine Strategies, the management of Marine Protected Areas, marine species and habitats in Spain and the participation in international Conventions regarding the protection of the marine environment, among others.

We express strong support to the transnational proposal "Small Cetaceans in European Atlantic waters and the North Sea (SCANS-III)" submitted by the University of St. Andrews, UK to LIFE funding in 2014. This support will be demonstrated through participation in the project action entitled 'Integration of information on distribution, abundance and threats to assess good/favourable environmental/conservation status of cetaceans at a European Atlantic level' and through the inclusion of the Spanish jurisdictional waters within the project area.

The Directorate General for the Sustainability of the Coast and the Sea is also currently participating as associated beneficiary in a proposal of an Integrated Project for the Management of the Natura 2000 Network under State Administration competence in the Marine Environment. This proposal is submitted to LIFE funding in 2014 by the Biodiversity Foundation of the Ministry of Agriculture, Food and Environment. It aims at the implementation of the Prioritised Action Framework elaborated pursuant to article 8 of the Habitats Directive and includes a broad range of measures towards effective implementation of the Habitats Directive in the marine environment and the Marine Strategy Framework Directive. Measures foreseen with respect to cetaceans include large scale surveys in shelf waters and oceanic waters beyond national jurisdiction in the Atlantic, in coordination with the SCANS LIFE III project. This coordination is needed to ensure a common methodology and an efficient approach to cetaceans monitoring and assessment at EU level. This means that a specific action is foreseen within the Integrated LIFE Project for cetaceans monitoring in Spanish Atlantic waters following this methodology, which will be planned and implemented in full coordination with SCANS III beneficiaries as if it was part of the "Small Cetaceans in European Atlantic waters and the North Sea (SCANS-III) project".

Signature and date: October 14th, 2014

Name and status of signatory: Pablo Saavedra Inaraja
Director General for the Sustainability of the Coast and the Sea
Ministry of Agriculture, Food and Environment
Spain

LIFE+ Nature & Biodiversity 2013 - A8

DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Optional: in addition to the support of the necessary competent authorities as described in the guidelines for applicants, this form may also be used to indicate any other support to the project by important stakeholder bodies, administrative bodies or individuals that may be concerned by the project.

Name and legal status:
Dr. Christiane Paulus
Deputy Director Nature Protection
On behalf of the Federal Ministry for
Environment, Nature Conservation Building and Nuclear Safety (BMUB)

Full address:
BMUB
Robert.-Schuman-Platz 3
D-53179
Germany

Contact person (name and function):
Oliver Schall as Deputy Head of the Division "Species protection" of the BMUB
Tel: .+49-228-3052632 Fax:+ 49-228-3052684 E-mail: oliver.schall@bmub.bund.de

Please specify whether, why and how you will support this project:
The SCANS III project is highly appreciated as an excellent possibility of the continuation of a long-term monitoring within the North Sea.
In particular Germany is interested in the results of SCANS III as a possibility to reconfirm with a view to the progressing constructions of wind-energy plants within the German part of the North Sea, whether there are (already) considerable changes in the distribution patterns of marine mammals –in particular harbour porpoises – visible.
The Ministry is examining to support this project by a complementary own research project 2016 -2017 beside and beyond this LIFE project financed entirely by Germany for the German part of the North sea in the framework of the regular research means of our Ministry and entirely within the respective national procedures.
Signature and date:

Done in Bonn 10.10.2014

Dr. Christiane Paulus
on behalf of the German Ministry
for Environment, Nature Conservation, Building and Nuclear Safety

Bundesministerium für Umwelt,
Naturschutz, Bau und Reaktorsicherheit
Postfach 12 06 29
53048 Bonn

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DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Name and legal status:

Ministry van Economic Affairs
Dept Nature en Biodiversity

Full address:
Bezuidenhoutseweg 73
P.O. Box 20401
2500 EK Den Haag
Tel: +31(0)638825335
Fax: +31(0)70 3786120

Ministry van Infrastructure and the Environment
Dept Water and Subsoil

Plesmanweg 1-6
Postbus 20901
2500 EX Den Haag
Tel: +31(0)70-4561248

Contact person (name and function):
mw. drs. W.S. Olivier
E-mail: w.s.olivier@minez.nl
Policycoordinator LIFE
Directie Nature and Biodiversity
Ministry van Economic Affairs

Please specify whether, why and how you will support this project:
The Ministry of Economic Affairs and the Ministry Infrastructuur and the Environment strongly supports the SCANS-III project, proposed by the University of St Andrews and its partners.

The five project objectives will provide up to date abundance estimates of cetaceans within the European Atlantic, collate available data on shipping and bycatch mortality, create a common European Atlantic database of abundance data from systematic surveys, assess the impact of human induced mortality on cetaceans and, through a focussed experimental trial, recommend best practice for monitoring cetacean populations. Integrated together, these objectives will provide essential information for the implementation of the Habitats Directive, the Dutch conservation plan for harbour porpoises, the ASCOBANS North Sea conservation plan and the Marine Strategy Framework Directive.

These Ministries will support this initiative through the provision of resources and a financial contribution.

Signature and date:

Name and status of signatory:
Drs. R.P. van Brouwershaven
Director Nature and Biodiversity

Signature and date:

Name and status of signatory:
drs. E.B. Alwayn
Director Water and Subsoil

LIFE Nature & Biodiversity 2014 - A8

DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Optional: in addition to the support of the necessary competent authorities as described in the guidelines for applicants, this form may also be used to indicate any other support to the project by important stakeholder bodies, administrative bodies or individuals that may be concerned by the project.

Name and legal status: Danish Nature Agency, Governmental agency

Full address: Haraldsgade 53, DK-2100 Copenhagen Ø, Denmark

Tel: +45 72 54 30 00 Fax: +45 39 27 98 99 E-mail: nst@nst.dk

Contact person (name and function): Camilla Uldal, Biologist

Please specify whether, why and how you will support this project:
The Danish Nature Agency supports the project. The project supports actions and recommendations stated in the Danish national action plan for harbour porpoises. It will provide new information on the distribution, population size and impact of shipping and bycatch on harbour porpoises in the North Sea, together with recommendations for best practise for monitoring. This information is useful in relation to implementation of the Habitats Directive and the Marine Strategy Framework Directive.

The Danish Nature Agency cooperates with the Danish AgriFish Agency on protecting harbour porpoises, and the information gathered in this project will be important when agreeing on the future management.

Signature and date: 8/10-14 Trine Fugmann

Name and status of signatory: Trine Fugmann, Head of Division

LIFE+ Nature & Biodiversity 2013 - A8

DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Optional: in addition to the support of the necessary competent authorities as described in the guidelines for applicants, this form may also be used to indicate any other support to the project by important stakeholder bodies, administrative bodies or individuals that may be concerned by the project.

Name and legal status: Swedish Agency for Marine and Water Management (SwAM), Org. no: 202100-6420. SwAM is a government agency.

Full address:
Box 11 930
SE-404 39 GOTHENBURG
Sweden

Tel: +46 (0)10 698 60 00 Fax: +46 (0)10 698 61 11 E-mail: havochvatten@havochvatten.se

Contact person (name and function):
Erland Lettevall, Analyst, Environmental Monitoring, Science Affairs Department, erland.lettevall@havochvatten.se

Please specify whether, why and how you will support this project:
For Sweden it is of most importance to achieve abundance estimation of harbour porpoises in the Skagerrak and Kattegat. SwAM is the responsible authority for MSFD. Regarding the HD the Swedish EPA is overall responsible; however SwAM is responsible for the monitoring and assessment. Sweden has based previous assessments of Favourable Conservation Status under HD of the Skagerrak and Kattegat on the previous SCANS surveys. For the next reporting period of Favourable Conservation Status under the HD and Good Environmental Status under the MSFD, Sweden will mostly base the assessment on data from SCANS III.

SwAM will contribute to support in the process of providing and disseminating data and results. We will also encourage a coherent assessment in waters shared between Sweden, Denmark and Germany. Within the EU Life+ project SAMBAH we are involved in assessing threats and impact on harbour porpoises in the Baltic Sea as well as in the Skagerrak–Kattegat area, why action D2 and D3 is of relevance. For future monitoring we also would like to contribute in the evaluation process and develop recommendations (D1).

Signature and date:

2014-10-13

Name and status of signatory:
Bertil Håkansson
Head of Unit, Science Affairs Department

LIFE Nature & Biodiversity 2014 - A8

DECLARATION OF SUPPORT FROM THE COMPETENT AUTHORITY

Optional: in addition to the support of the necessary competent authorities as described in the guidelines for applicants, this form may also be used to indicate any other support to the project by important stakeholder bodies, administrative bodies or individuals that may be concerned by the project.

Name and legal status:
Federal Public Service: Health, Food Chain Safety and Environment, Marine Environment

Full address:
Eurostation
Victor Hortaplein, 40/10
1060 Brussels, Belgium
Tel: +32 2 524 96 27 Fax: +32 2 524 96 43
E-mail: michael.kyramarios@environnement.belgique.be
Contact person (name and function): Michael Kyramarios, Head of Department

Please specify whether, why and how you will support this project:

We, the Federal Public Service for Health, Food Chain Safety and Environment, Marine Environment, Belgium, are in support of the SCANS III project.
This project will provide essential trans-boundary baseline information for setting up concrete indicators and targets for cetaceans in the Framework of the Marine Strategy Framework Directive. As these concern highly mobile animals, an internationally coordinated action in the form of a well-coordinated and managed project is needed to collect the necessary information that will allow each nation to set its national, but internationally coherent, detailed background and target for cetaceans.
As well as strongly supporting and encouraging the project, scientists from the Royal Belgian Institute of Natural Sciences, with a shared competence for marine environmental monitoring, will contribute directly to the final Concrete Conservation Action –"Assessment of Environmental Status" that brings together the new information on abundance, threats and impacts of anthropogenic activities on cetaceans to develop a framework and template for assessment and reporting of Good Environmental Status (GES) for cetaceans, as required by the MSFD. The report will contribute to Belgium's assessment of GES, to be submitted to the Commission in 2018. In parallel, these scientists will contribute to further developing tools to promote trans-boundary reporting for Article 17 of the Habitats Directive, which will enable more efficient assessment of the conservation status of cetaceans at a European Atlantic level.

Signature and date:

Name and status of signatory: Michael Kyramarios, Head of Department

MICHAEL KYRAMARIOS
DIENSTHOOFD MARIEN MILIEU
FOD VVVL - DG LEEFMILIEU
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LIFE14 NAT/UK/001146

TECHNICAL APPLICATION FORMS

Part B - technical summary and overall context of the project

SUMMARY DESCRIPTION OF THE PROJECT (Max. 3 pages; to be completed in English)

Project title:

Small Cetaceans in European Atlantic waters and the North Sea (SCANS-III)

Project objectives:

SCANS-III comprises five linked objectives, which together will move Member States forward several important steps towards effective implementation of the Habitats Directive and the Marine Strategy Framework Directive with respect to cetaceans.

Objective 1 – Assessment of FCS and GES for cetaceans in the European Atlantic

Develop a framework to assess Favourable Conservation Status (FCS) and Good Environmental Status (GES) for cetacean species in the European Atlantic. Assess FCS and GES status using new, and newly collated, information on: abundance and distribution; assessment of pressures and threats; evaluation of monitoring methods; and new calculations of safe limits to removals (Objectives 2-5). The results will identify any management measures necessary to achieve GES or FCS for these species.

Objective 2 - Estimate the abundance of cetaceans in waters of the European Atlantic

This objective will provide new information on abundance and distribution essential for status assessment at the necessary large spatial scale and also provide essential updates to previous results from 1994 and 2005. The objective will be achieved through a multinational survey for cetaceans in European Atlantic waters in July 2016 using a combination of aircraft.

Objective 3 - Assess the impact of current and likely future anthropogenic activities on cetaceans in the European Atlantic

Pressures and threats to cetacean populations in the European Atlantic (and elsewhere) are increasing as the human population makes increasing use of the sea. This Objective will assess the impact of pressures and threats on cetacean populations in the European Atlantic using newly collated data on threats and new abundance and distribution data (Objective 2) to inform assessment of status (Objective 1).

Objective 4 - Conduct an intensive, rigorous trial of methods for monitoring cetacean abundance

Monitoring is an essential core activity for EU Member States but different methods currently used cannot readily be combined to assess status at the necessary spatial scale. This objective will inform best practice for a common approach to monitoring species under EU Directives. .

Objective 5 – Determine safe limits to removals from small cetacean populations

Management procedure approaches using rigorously tested removal limit algorithms will be developed and implemented to generate safe limits to human-induced cetacean mortality for all relevant cetacean species at a European Atlantic level.

Actions and means involved:

Objective 1 will be achieved through Action C7 – Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans, which will integrate new information from Actions C3, C4, C5 and C6 (see below). This new information will be used to develop a framework and template for assessment and reporting of GES for cetaceans under the MSFD. This Action will report on whether or not GES has been achieved through assessment of relevant OSPAR MSFD common indicators for cetaceans against pre-defined targets in pre-defined assessment units.

Objective 2 will be achieved through a large-scale multinational survey for cetaceans in European Atlantic waters in summer 2016 using a combination of ships and aircraft (implemented through Actions C1 – Aerial Survey of Shelf Waters and C2 – Ship Survey of Offshore Waters, and analysis of data under Action C3 – Estimation of Abundance and Modelling Distribution. Methodology will follow best practice developed in LIFE projects SCANS and SCANS-II but technical improvements will be made

to improve efficiency and reliability.

Objective 3 will be achieved through: (a) the creation of a purpose-generated database of pressures and threats (including new cetacean data from Action C3) that will allow easy generation of datasets for analysis and information for presentation at a European Atlantic scale, and (b) assessing the impact of estimated levels of human-induced mortality against estimates of safe limits to anthropogenic removals (Action C4 – see below), thus providing up to date information on the status of impacted populations. This Objective will be implemented through Action C5 (Creation of Database and Assessment of Pressures & Threats).

Objective 4 will be achieved through small-scale, focussed surveys to generate data to allow a robust comparison of the effectiveness of a comprehensive suite of monitoring techniques. The work (implemented through Actions A1/A3 – Testing and Comparing Monitoring Methodologies for Harbour Porpoise/Dolphins) will involve ship and aerial surveys, static and towed passive acoustic techniques. Monitoring methods will be compared using robust data analysis implemented through Action C6 – Best practice Monitoring Methods, which will recommend a common approach to monitoring cetaceans under EU Directives.

Objective 5 will be achieved through further development of a management procedure approach, implemented in Action C4 – Determining Safe Limits to Removals from Small Cetacean Populations.

Expected results (outputs and quantified achievements):

Objective 1 – Assessment of FCS and GES for cetaceans in the European Atlantic

Report on approaches trialled and the framework and template for assessing Good Environmental Status for cetaceans at the appropriate spatial scales under MSFD.

Trans-boundary test assessment report on Favourable Conservation Status of a number of cetacean species (harbour porpoise, common dolphin, minke whale and, dependent on data available, other small cetaceans).

Tools (templates, matrices etc) to assist future collaborative reporting and assessment of cetacean populations of conservation interest to the EU.

Objective 2 - Estimate the abundance of cetaceans in waters of the European Atlantic

Estimates of absolute abundance for: harbour porpoise; bottlenose, common, striped, white-beaked and white-sided dolphins; pilot, sperm and beaked whales; minke and fin whales.

Distribution maps generated from density surface / habitat-use modelling for most of the above species.

Comparison of how distribution and abundance have changed in 2016 compared to 1994 and 2005/07.

Objective 3 - Assess the impact of current and likely future anthropogenic activities on cetaceans in the European Atlantic

A comprehensive database of information on pressures and threats, including GIS layers of pressures and threats.

A comprehensive spatial and temporal assessment of multiple pressures & threats (fisheries bycatch, ship strikes and multiple noise sources) to cetacean species/populations within the European Atlantic.

A tool to use the database to assess management options.

Objective 4 - Conduct an intensive, rigorous trial of methods for monitoring cetacean abundance

A database containing data for all monitoring methods from focussed intensive surveys.

A cost-benefit analysis will further provide information on which method is most cost effective to achieve a stated monitoring objective for particular species.

An expert good practice guide for monitoring cetacean abundance between major decadal-scale

surveys, based on rigorously tested experimental protocols.

Objective 5 – Determine safe limits to removals from small cetacean populations

A description of the methods developed and used to generate safe limits to removals.

Safe limits to removals, calculated for species of cetacean that are subject to removals from bycatch and other anthropogenic activities.

Is your project significantly climate-related? Yes ☐ No ☒

This is not a climate related project.

The proposal addresses the following project topic(s):

Reasons why the proposal falls under the selected project topic(s):

(a) completing and finalising national inventories for setting up the offshore marine Natura 2000 network of sites

Although not a formal objective, the SCANS-III surveys will provide a large amount of new information highly relevant to this task; harbour porpoise and bottlenose dolphin are two of the focal species. While some Member States have collected good data within their EEZ for much of the European Atlantic, offshore data are very poor. Data from SCANS surveys are the only data collected systematically over a large spatial scale, necessary to assess the location of offshore sites, and will significantly aid national inventories for this task.

(c) actions addressing species-, habitat- or site-related conflicts between marine conservation and fishermen or other "marine users"

Addressing this task is one of the primary aims of the SCANS-III project. Recognising that pressures and threats to cetacean populations in the European Atlantic (and elsewhere) are increasing as the human population makes increasing use of the sea, we aim to assess the impact of current and likely future anthropogenic activities on cetaceans in this region by (1) creating a comprehensive database of information on pressures and threats, including GIS layers of pressures and threats; (2) conducting a comprehensive spatial and temporal assessment of multiple pressures & threats (fisheries bycatch, ship strikes and multiple noise sources) to cetacean species/populations; and (3) creating a tool to enable the database to be used to assess management options.

(d) demonstrative or innovative approaches to assess or monitor the impact of human activities on critical marine habitats and species as a tool to guide active conservation measures

Addressing this task is also one of the primary aims of the SCANS-III project. Recognising that there are insufficient data and inadequate pan-European integration either to monitor or to assess the impact of pressures and threats on cetaceans at the necessary large spatial scale, we aim to test and assess a wide range of monitoring techniques to generate recommendations for best practice monitoring, and to (1) trial frameworks and templates for assessing GES for cetaceans at the appropriate spatial scales under MSFD; (2) make a test trans-boundary assessment of FCS for key cetacean species; and (3) create tools (e.g. templates, matrices) to assist future collaborative reporting and assessment of cetacean populations of conservation interest to the EU.

SUMMARY DESCRIPTION OF THE PROJECT (Max. 3 pages; to be completed in national language)

Project title:

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Objective 4 will be achieved through small-scale, focussed surveys to generate data to allow a robust comparison of the effectiveness of a comprehensive suite of monitoring techniques. The work (implemented through Actions A1/A3 – Testing and Comparing Monitoring Methodologies for Harbour Porpoise/Dolphins) will involve ship and aerial surveys, static and towed passive acoustic techniques. Monitoring methods will be compared using robust data analysis implemented through Action C6 – Best practice Monitoring Methods, which will recommend a common approach to monitoring cetaceans under EU Directives.

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surveys, based on rigorously tested experimental protocols.

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A description of the methods developed and used to generate safe limits to removals.

Safe limits to removals, calculated for species of cetacean that are subject to removals from bycatch and other anthropogenic activities.

Is your project significantly climate-related? Yes ☐ No ☒

This project is not considered to be climate related.

The proposal addresses the following project topic(s):

Reasons why the proposal falls under the selected project topic(s):

(a) completing and finalising national inventories for setting up the offshore marine Natura 2000 network of sites

Although not a formal objective, the SCANS-III surveys will provide a large amount of new information highly relevant to this task; harbour porpoise and bottlenose dolphin are two of the focal species. While some Member States have collected good data within their EEZ for much of the European Atlantic, offshore data are very poor. Data from SCANS surveys are the only data collected systematically over a large spatial scale, necessary to assess the location of offshore sites, and will significantly aid national inventories for this task.

(c) actions addressing species-, habitat- or site-related conflicts between marine conservation and fishermen or other "marine users"

Addressing this task is one of the primary aims of the SCANS-III project. Recognising that pressures and threats to cetacean populations in the European Atlantic (and elsewhere) are increasing as the human population makes increasing use of the sea, we aim to assess the impact of current and likely future anthropogenic activities on cetaceans in this region by (1) creating a comprehensive database of information on pressures and threats, including GIS layers of pressures and threats; (2) conducting a comprehensive spatial and temporal assessment of multiple pressures & threats (fisheries bycatch, ship strikes and multiple noise sources) to cetacean species/populations; and (3) creating a tool to enable the database to be used to assess management options.

(d) demonstrative or innovative approaches to assess or monitor the impact of human activities on critical marine habitats and species as a tool to guide active conservation measures

Addressing this task is also one of the primary aims of the SCANS-III project. Recognising that there are insufficient data and inadequate pan-European integration either to monitor or to assess the impact of pressures and threats on cetaceans at the necessary large spatial scale, we aim to test and assess a wide range of monitoring techniques to generate recommendations for best practice monitoring, and to (1) trial frameworks and templates for assessing GES for cetaceans at the appropriate spatial scales under MSFD; (2) make a test trans-boundary assessment of FCS for key cetacean species; and (3) create tools (e.g. templates, matrices) to assist future collaborative reporting and assessment of cetacean populations of conservation interest to the EU.

GENERAL DESCRIPTION OF THE AREA / SITE(S) TARGETED BY THE PROJECT

Name of the project area:

European Atlantic

Surface area (ha): 310,000,000.000

Surface description: The area is extensive and entirely offshore.

EU protection status:

SPA ☐ **NATURA 2000 Code :**

pSCI ☐ **NATURA 2000 Code :**

Other protection status according to national or regional legislation:

Due to the size of the project area, which includes territorial waters of ten Member States, there is no uniform protected status across the entire region.

The area does cover some Special Areas of Conservation for cetaceans, and these are shown in the attached figures. It also incorporates Marine Protected areas, SPAs and SACs for other, non-target species - but there is insufficient character allowance to list those in full here.

Main land uses and ownership status of the project area:

The project area comprises all European shelf waters in the North Atlantic and also offshore waters out to the 200nm fishing limit. It is thus entirely marine and covers a large area. Activities currently taking place within this area include fishing, shipping, oil and gas exploration and extraction, renewable energy development and generation, transportation, dredging and recreational activities. The area is too large and varied to quantify these activities individually. The area covers many different national jurisdictions, including the EEZs and territorial waters of ten EU Member States (Belgium, Denmark, France, Germany, Ireland, Netherlands, Portugal, Spain, Sweden and the UK).

Scientific description of project area:

The project area comprises OSPAR Regions II - Greater North Sea, III - Celtic Seas and IV - Bay of Biscay and Iberian Coast, and part of Region V – the Wider Atlantic. These regions are described below based on OSPAR descriptions.

The **Greater North Sea** is situated on the continental shelf of north-west Europe. It opens into the Atlantic Ocean to the north and, via the English Channel to the south-west, and into the Baltic Sea to the east. The Greater North Sea (including its estuaries and fjords) has a surface of about 750,000 km2 and a volume of about 94,000 km3, with depths not exceeding 700m. The seabed is mainly composed of mud, sandy mud, sand and gravel. The variety of marine landscapes is important: fjords, estuaries, sandbanks, bays, or intertidal mudflats.

The Greater North Sea is surrounded by densely populated, highly industrialised countries (Belgium, Denmark, France, Germany, the Netherlands, Norway and United-Kingdom). Major activities in the North Sea include fishing, the extraction of sand and gravel, and offshore activities related to the exploitation of oil and gas reserves including the laying of pipelines. The North Sea is one of the most frequently traversed sea areas of the world with two of the world's largest ports situated on its coasts (Rotterdam and Hamburg), and the coastal zone of the Greater North Sea is used intensively for agriculture and recreation.

The Greater North Sea is situated in temperate latitudes with a climate that is strongly influenced by the inflow of oceanic water from the Atlantic Ocean and by the large scale westerly air circulation which frequently contains low pressure system. Extreme weather conditions have a direct impact on hydrography, which is characterised by water exchange with surrounding ocean areas, and strong tides.

Biological systems in the Greater North Sea are rich and complex. Approximately 230 species of fish are known to inhabit the area. Some 10 million seabirds are present at most time of the year. Marine mammal species occur regularly over large parts of the North Sea especially: harbour porpoise, white-beaked dolphin, minke whale, grey seal and harbour seal.

The **Celtic Seas** extend between 60° N and 48° N and between 5° W and the west coast of Great Britain to the 200 m depth contour to the west of 6° W. The region contains wide variations in coastal topography, including fjordic sea lochs, rocky headlands, cliff formations, salt marshes, sand dunes, bays, estuaries and numerous sandy beaches. The Celtic Seas also contain a number of internationally important ports and harbours. Generally, water movement is from south to north, with oceanic water from the North Atlantic entering from the south and west of the region and moving north towards either the Arctic or North Sea. However, there are also complex intermediate water movements, particularly within the Irish Sea. The strongest winds in the Celtic Seas come from the west and south, with a tendency for the strongest winds to be experienced in the north and west of the region.

The general pattern of population change in the coastal areas of the Celtic Seas is one of declining numbers in the largest city centres, growing populations in the suburbs of major towns, and stable or declining populations in more rural and remote regions. There are seasonal variations in the population of many coastal resort towns. The current trend in tourism and recreation towards a diverse range of more individual pursuits (such as angling and surfing) on less developed parts of the coast can result in new pressures on natural habitats and water quality. Other human activities in the region include: fishing, mariculture, sand and gravel extraction, dredging and dumping, oil and gas exploration and production, shipping, coastal industry, military activities and agriculture.

The large range of habitats in the Celtic Seas supports a diverse fish fauna, including many commercially important species. Many of these species have relatively short migration routes between feeding and spawning areas. The region has a large number of areas attractive to seabirds and waterfowl. The common or harbour seal and the grey seal are widely distributed throughout the region. The waters around Ireland and to the west of Scotland support a variety of cetaceans.

The **Bay of Biscay and Iberian Coast** region extends from 48°N to 36° N and from 11° W to the coastlines of France, Portugal and Spain. The bottom topography is highly variable, from continental shelf to abyssal plain. Some remarkable topographic features such as seamounts, banks and submarine canyons are found in this region. The coastline is highly diversified with estuaries, rias and wetlands, which all support extremely productive ecosystems.

The main human activities in the region include tourism, fishing and aquaculture, shipping, sand and gravel extraction, and new development of wave, tide and wind power generation. The coastal strip has an increasing high population density. Industries of various types, agriculture and land based activities are located along the coasts.

The Bay of Biscay and Iberian Coast region is situated in temperate latitudes with a climate that is strongly influenced by the inflow of oceanic water from the Atlantic Ocean and by the large scale

westerly air circulation which frequently contains low pressure system. Large storms occur in the Bay of Biscay, especially during the winter months.

The region is highly diverse, having many different types of coastal habitats, such as rocky cliffs, shingles, rocky shores, sandy and muddy shores, coastal lagoons and estuaries. A large variety of marine mammal's species, both boreal and temperate, have been reported in the region, including 30 species of cetaceans and 7 species of seals. The seabird community is dominated by gulls but the Iberian Peninsula is at a strategic geographical position regarding the migratory behaviour of other seabird species. 700 species of fish are present in the region, the majority of which are species living near the seabed. Pelagic fish such as sardine or mackerel have a wide geographic distribution from Africa to Northern Europe.

The **Wider Atlantic** extends between 62° N and 36° N and from 42° W to 10° W off Iberia and France and the 200 m depth contour off Ireland and the British Isles. It represents the deep waters of the North-East Atlantic. Its topography ranges from continental slopes, through the sharply fluctuating seabed associated with seamounts, banks of fragmented continental rocks and the Mid-Atlantic Ridge, to extensive areas of almost featureless abyssal plain. Tit is thus a pivotal region from which oceanic and climatic fluctuations are rapidly transferred to all other oceans. Movement in the upper layers of the water column is generally from west to east. There are outflows to the Nordic Seas in the north-east, and these are important in maintaining a relatively mild climate in North-West Europe.

Bottom sediments vary according to the topography and the local currents. Where the topography is rugged, crustal rocks may be exposed, especially along the Mid-Atlantic Ridge and in the Charlie Gibbs Fracture Zone where the seafloor was formed relatively recently. However, on the abyssal plains the seabed is generally covered with thick accumulations of sediment. Throughout much of the region the prevailing winds are south-westerly and influenced by depressions, which typically track across the region from the south-west.

Pelagic faunas are twice as diverse to the south of 40º N than to the north, but their biomass shows the reverse. The benthic communities are much richer in species than the pelagic communities, and show a similar latitudinal step in species richness. Deeper-living species of fish are almost without exception slower-growing, longer-lived and less fecund than their shallow-living counterparts. In addition, there have been recent discoveries of a number of different fragile deep-sea habitats (such as hydrothermal vents, carbonate mounds, cold-water coral reefs, coral gardens and sponge communities).

Importance of the project area for biodiversity and/or for the conservation of the species /habitat types targeted at regional, national and EU level (give quantitative information if possible):

This area has been selected for this project because it is one of the two marine regions in European waters in which there are multiple conservation concerns for multiple cetacean species, the other being the Mediterranean Sea. Cetaceans are widely distributed and highly mobile and it is necessary to conduct the project at the large scale of the North Atlantic marine region. Some of the species found in the Mediterranean Sea are the same as in the North Atlantic but they are separate populations and need to be considered separately for conservation purposes.

The project objectives are all directly related to the project area, although Actions C6 and C7 (see below) may also have direct relevance to cetacean conservation in the Mediterranean Sea.

The planned Actions are:

A1: Testing and comparing monitoring methodologies for harbour porpoise – to collect data using multiple monitoring methods to feed into Action C5;

A2: Survey preparation - for Actions A1, C1 and C2;

A3: Testing and comparing monitoring methodologies for dolphins - to collect data using multiple monitoring methods to feed into Action C5;

C1: Aerial survey of shelf waters for cetaceans - to generate data to feed into Actions C3 and C5;

C2: Ship survey of offshore waters for cetaceans - to generate data to feed into Actions C3 and C5;

C3: Estimation of abundance and modelling the distribution of cetaceans - to provide new information on abundance and distribution for all cetacean species in the project area to compare with information from previous decadal scale surveys and to feed into Actions C4, C6 and C7;

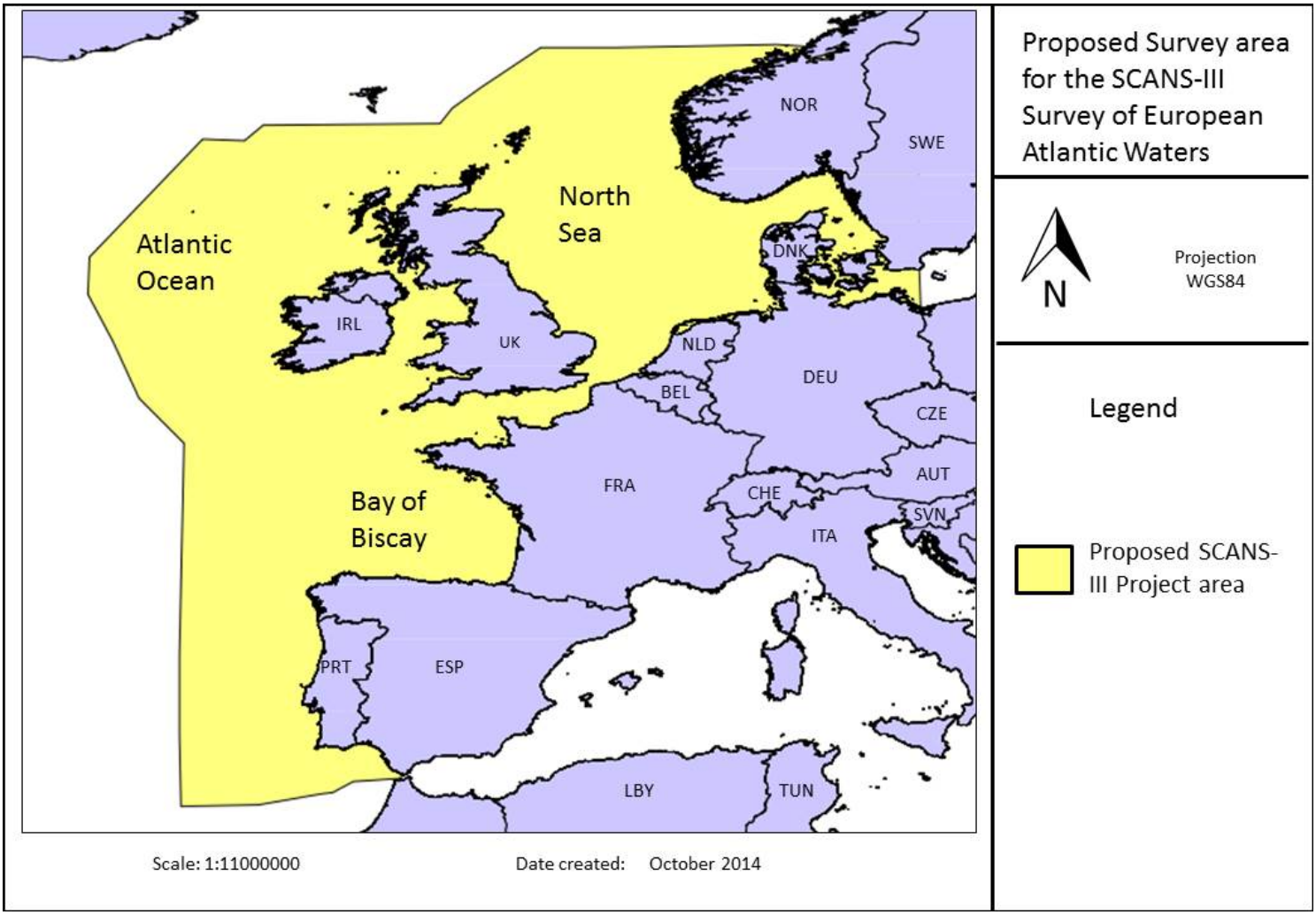
C4: Determining safe limits to removals from small cetacean populations - to calculate safe limits to non-natural removals from species of conservation concern in the project area and to feed into Action C7;

C5: Creation of database and assessment of pressures & threats to cetaceans – to collate existing information on pressures and threats, to provide new information on the impact of these on cetacean populations and to feed this into Action C7;

C6: Best practice monitoring methods for cetaceans – to provide guidance to Member States on best methods for monitoring cetacean populations so that reporting under the Habitats Directive and MSFD can be comprehensive and integrated;

C7: Trans-boundary assessment of environmental/conservation status for cetaceans – to develop a framework for transnational assessment and reporting to enable Member States to report on GES for cetaceans under the MSFD in 2018.

Name of the picture: Survey area for the SCANS III Survey of European Atlantic waters



DESCRIPTION OF SPECIES / HABITATS / BIODIVERSITY ISSUES TARGETED BY THE PROJECT

Scientific name: *Phocoena phocoena*

Annex of the EU Birds or Habitats Directive where the species is listed: Annex II and Annex IV

Population size within the project area:

In the study area, the harbour porpoise, *P. phocoena,* is distributed mainly in continental shelf waters, including the North, Irish and Celtic Seas, and the Skagerrak and Kattegat/inner Danish waters. In the Baltic, this species is now rare. Project SCANS-II (LIFE04NAT/GB/000245) estimated the abundance of *P. phocoena* to be 375,000 (CV = 0.20) individuals in all shelf waters of the European Atlantic in 2005 (Hammond *et al.* 2013). Previously, project SCANS (LIFE 92-2/UK/027) estimated the abundance to be 341,000 (CV=0.14) individuals in the North Sea and adjacent waters in 1994 (Hammond *et al.* 2002), an area constituting about 80% of all shelf waters to be surveyed in this project, all of which will be surveyed in this project.

Scientific name: *Tursiops truncatus*

Annex of the EU Birds or Habitats Directive where the species is listed: Annex II and Annex IV

Population size within the project area:

The bottlenose dolphin, *T. truncatus,* occurs in coastal and offshore waters in the European Atlantic and the Mediterranean Sea. Coastal populations are small and mostly quite discrete. *T. truncatus* abundance has been estimated for some of these populations: e.g. 195 in eastern Scotland (Cheney et al. 2013); 45 in the Western Isles of Scotland; and 30-40 in the Sado Estuary, Portugal (Gaspar 2003). In all shelf waters, including coastal waters, project SCANS-II (LIFE04NAT/GB/000245) estimated the abundance of *T. truncatus* to be 16,500 (CV = 0.42) individuals in shelf waters of the European Atlantic in 2005 (Hammond *et al.* 2013). In offshore waters of the European Atlantic, abundance has been estimated as 19,300 (CV=0.25) in 2007 (CODA 2009). Robust information on trends is limited but the population off eastern Scotland is estimated to be stable or increasing (Cheney *et al.* 2014).

Scientific name: *Delphinus delphis*

Annex of the EU Birds or Habitats Directive where the species is listed: Annex IV

Population size within the project area:

The short-beaked common dolphin, *D. delphis*, occurs primarily in southern and western areas of the European Atlantic, predominantly along the continental shelf edge and offshore. Project SCANS-II (LIFE04NAT/GB/000245) estimated the abundance of *D. delphis* to be 56,200 (CV = 0.23) individuals in all shelf waters of the European Atlantic in 2005 (Hammond *et al.* 2013). The estimate of abundance in offshore waters of the European Atlantic in 2007 from project CODA was 116,700 (CV = 0.34) (CODA 2009).

Scientific name: *Lagenorhynchus albirostis*

Annex of the EU Birds or Habitats Directive where the species is listed: Annex IV

Population size within the project area:

The white-beaked dolphin, *L. albirostis*, occurs primarily in the northwestern North Sea and in shelf waters to the north and west of the UK and Ireland. Project SCANS-II (LIFE04NAT/GB/000245) estimated the abundance of *L. albirostis* to be 16,500 (CV = 0.30) individuals in all shelf waters of the European Atlantic in 2005 (Hammond *et al.* 2013). Previously, project SCANS (LIFE 92-2/UK/027) estimated the abundance to be 8,400 (CV=0.24) individuals in the North Sea and adjacent waters in 1994 (Hammond *et al.* 2002), an area constituting about 80% of shelf waters, all of which will be surveyed in this project.

Scientific name: *Balaenoptera acutorostrata*

Annex of the EU Birds or Habitats Directive where the species is listed: Annex IV

Population size within the project area:

The minke whale, *B. acutorostrata*, occurs primarily in the northwestern North Sea and in shelf waters to the north, west and southwest of the UK and Ireland, including the Celtic Sea. Project SCANS-II (LIFE04NAT/GB/000245) estimated the abundance of *B. acutorostrata* to be 19,000 (CV = 0.35) individuals in all shelf waters of the European Atlantic in 2005 (Hammond *et al.* 2013). Previously, project SCANS (LIFE 92-2/UK/027) estimated the abundance to be 7,900 (CV=0.30) individuals in the North Sea and adjacent waters in 1994 (Hammond *et al.* 2002), an area constituting about 80% of shelf waters, all of which will be surveyed in this project. The estimate of abundance in offshore waters of the European Atlantic in 2007 from project CODA was 6,800 (CV = 0.99) (CODA 2009).

Conservation status within the project area:

Within the project area, and throughout European waters, all cetacean species are included on Annex IV and *Phocoena phocoena* and *Tursiops truncatus* are included on Annex II of the Habitat's Directive. Based on the results of the SCANS and SCANS-II projects (LIFE 92-2/UK/027; LIFE04NAT/GB/000245), the status of *P. phocoena*, *L. albirostis* and *B. acutorostrata* is favourable in the project area. For other species, there is only a single estimate of abundance at the scale of the project area (from projects SCANS-II in 2005 and CODA in 2007 combined) but estimates for most species are at least 20,000 animals. The exception is the sperm whale, *Physeter macrorhynchus*, for which estimated abundance is approximately 3,000 (CV=0.27). The only coastal population of *T. truncatus* for which robust information on trends has been published is the population off eastern Scotland, which is estimated to be stable or increasing (Cheney *et al.* 2014).

According to Temple & Terry (2007), cetacean species on IUCN threatened Red List categories for in Europe are:

Critically Endangered: *Eubalaena glacialis* (North Atlantic right whale)

Endangered: *Balaenoptera musculus* (blue whale); *Balaenoptera borealis* (sei whale)

Vulnerable: *Physeter macrorhynchus* (sperm whale); *Phocoena phocoena* (harbour porpoise)

A full list of cetacean species in European waters from Temple & Terry (2007) is given below. Many of these species have been categorized as Data Deficient.

Order	Family	Species	Red listing
CETACEA	BALAENIDAE	*Eubalaena glacialis*	CR
CETACEA	BALAENOPTERIDAE	*Balaenoptera borealis*	EN
CETACEA	BALAENOPTERIDAE	*Balaenoptera acutorostrata*	LC
CETACEA	BALAENOPTERIDAE	*Balaenoptera physalus*	NT
CETACEA	BALAENOPTERIDAE	*Balaenoptera musculus*	EN
CETACEA	BALAENOPTERIDAE	*Megaptera novaeangliae*	LC
CETACEA	DELPHINIDAE	*Delphinus delphis*	DD
CETACEA	DELPHINIDAE	*Globicephala melas*	DD

CETACEA	DELPHINIDAE	*Grampus griseus*	DD
CETACEA	DELPHINIDAE	*Lagenorhynchus acutus*	LC
CETACEA	DELPHINIDAE	*Lagenorhynchus albirostris*	LC
CETACEA	DELPHINIDAE	*Orcinus orca*	DD
CETACEA	DELPHINIDAE	*Stenella coeruleoalba*	DD
CETACEA	DELPHINIDAE	*Tursiops truncatus*	DD
CETACEA	PHOCOENIDAE	*Phocoena phocoena*	VU
CETACEA	PHYSETERIDAE	*Physeter macrocephalus*	VU
CETACEA	ZIPHIIDAE	*Hyperoodon ampullatus*	DD
CETACEA	ZIPHIIDAE	*Mesoplodon europaeus*	DD
CETACEA	ZIPHIIDAE	*Mesoplodon densirostris*	DD
CETACEA	ZIPHIIDAE	*Mesoplodon bidens*	DD
CETACEA	ZIPHIIDAE	*Mesoplodon mirus*	DD
CETACEA	ZIPHIIDAE	*Ziphius cavirostris*	DD

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CONSERVATION / BIODIVERSITY PROBLEMS AND THREATS & PREVIOUS CONSERVATION EFFORTS

Provide this information for those species / habitat types or biodiversity issue directly targeted by the project

1) Name of Threat: Bycatch

Description: Bycatch is the main direct threat to small cetaceans in European Atlantic waters. The species most affected are the harbour porpoise, *Phocoena phocoena*, in bottom set gill and tangle net fisheries primarily in the North, Baltic and Celtic Seas and the short-beaked common dolphin, *Delphinus delphis*, in pelagic trawl and set net fisheries in the Channel, Celtic Sea and Bay of Biscay.

Porpoise bycatch in Norwegian coastal waters has been estimated at 20,720 (CV=0.36) for the period 2006-2008 (i.e. an annual bycatch of 6,900) but only a small proportion occurred south of 62°N (~800 per annum) in the project area (Bjørge *et al.* 2013). Danish gill/tangle net effort in the North Sea has declined since 1994 but there are no recent estimates of bycatch in Danish fisheries. Harbour porpoise bycatch in Swedish fisheries occurs mainly in the Skagerrak/Kattegat Seas where recorded levels were previously thought likely to have had a negative effect on porpoise abundance (Berggren *et al.* 2002).

Porpoise bycatch in UK and Irish fisheries is primarily in the central North Sea and/or Celtic Sea (Northridge et al., 2003; Tregenza et al., 1997). UK gill/tangle net fishing effort in the North Sea has also fallen by since 1995, yielding an average annual bycatch estimate of 370 porpoises in 2003-2007 (Defra 2008). Further south in the North Sea, porpoise bycatch in French, Belgian and Dutch coastal waters has increased in the last decade (Haelters and Camphuysen , 2009; Jauniaux et al., 2008). Recent bycatch estimates in the Celtic Sea are about 800 porpoises per annum (ICES 2008; 2009).

Even though set net effort has decreased in some areas, bycatch continues to be a cause for concern. Set nets could be considered favourable gears for future sustainable exploitation because they are relatively selective and fuel-efficient compared to other non-static gears. However, an increase in set net effort will likely lead to an increase in porpoise and other cetacean bycatch.

By comparison, common dolphin bycatch has received relatively little attention. Large numbers were taken in the drift net fishery for albacore tuna in the 1990s but this fishery has now ceased (Rogan & Mackey, 2007). Annual bycatch in the UK trawl fishery in the Channel in 2000-2006 has been estimated at around 150 dolphins and in UK gill and tangle net fisheries in the Celtic Sea in 2005-2008 at between 100 and 600 dolphins (ICES 2009). Common dolphin bycatch has also been recorded in pair trawls operating in the Bay of Biscay (Fernández-Contreras *et al.*, 2010). Current total annual bycatch of common dolphin in the NE Atlantic is unknown but likely to exceed 1,000 animals (IWC, 2010).

Location: Possible throughout European Atlantic

Impact on biodiversity or the species targeted: Direct mortality

Indication how these problems and threats will be dealt with during the project:

The project aims to assess the impact of direct mortality, including bycatch, on all affected cetacean species in the European Atlantic (Action C5 - Creation of database and assessment of pressures & threats to cetaceans). Information on fishing effort and bycatch mortality will be collated into threat layers in time and space. This information and the new cetacean distribution and abundance information (from Action C3 - Estimation of abundance and modelling the distribution of cetaceans) will feed into the assessment of the impact of this threat. This assessment of impact will then be used together with calculated safe limits to removals (Action C4 - Determining safe limits to removals from small cetacean populations) to contribute to assessment of FCS and GES under the Habitats Directive and MFSD, respectively (Action C7 - Trans-boundary assessment of environmental/conservation status for cetaceans). The end result will be a clear picture of where, when and by how much bycatch is impacting cetacean status in the European Atlantic.

2) Name of Threat: Collision with shipping

Description: Large cetaceans are involved in accidental collisions with industrial shipping

These ship strikes represent a pressure globally including European waters. Risk of a fatal collision is related to numbers and speeds of vessels. Most reports of collisions involve large whales; however collisions with dolphins and harbour porpoise also occur. A standardized global database of collisions between vessels and whales has been developed by the IWC, which is valuable for identifying high risk or unsuspected problem areas. Data on ship-strikes are also reported by Parties to ASCOBANS and

investigated by national institutes within EU (e.g. UK Cetacean Strandings Investigation Programme, ukstrandings.org). Despite this, it remains difficult to gauge the extent of the problem in EU waters. This is one of the objectives of Action C5 - Creation of database and assessment of pressures and threats to cetaceans.

Location: Possible throughout European Atlantic

Impact on biodiversity or the species targeted: Direct mortality

Indication how these problems and threats will be dealt with during the project:

The project aims to assess the impact of direct mortality, including collision with shipping, on all affected cetacean species in the European Atlantic (Action C5 - Creation of database and assessment of pressures & threats to cetaceans). Information on shipping activity and intensity will be collated into threat layers in time and space. This information and the new cetacean distribution and abundance information (from Action C3 - Estimation of abundance and modelling the distribution of cetaceans) will feed into the assessment of the impact of this threat. This assessment of impact will then be used together with calculated safe limits to removals (Action C4 - Determining safe limits to removals from small cetacean populations) to contribute to assessment of FCS and GES under the Habitats Directive and MFSD, respectively (Action C7 - Trans-boundary assessment of environmental/conservation status for cetaceans). The end result will be a clear picture of where, when and by how much bycatch is impacting cetacean status in the European Atlantic.

3) Name of Threat: Anthropogenically derived underwater noise

Description: Underwater sound can cause injury to the auditory system either following a brief exposure to extremely high sound levels, or following more prolonged exposure to lower levels of continuous sound.

Cetaceans (and other marine fauna) are susceptible to physical and behavioural impacts from anthropogenically derived underwater noise. The types of noise associated with these impacts include naval sonar, seismic exploration, underwater explosions and pile driving.

Location: Potential for this threat throughout the project area

Impact on biodiversity or the species targeted: Exposure to loud sounds can lead to a temporary shift in the hearing threshold at a particular frequency (TTS), a permanent shift in this threshold (PTS), and non-auditory tissue damage, which may be fatal. For impulsive sounds, the intensity, rise time, pulse duration, pulse repetition rate and duration of exposure can all affect the timing and extent of TTS and PTS. In the case of extremely loud sounds there may be an instant PTS, and even damage to non-auditory organs. Noise exposure criteria for auditory injury ideally should be based on exposures that have been shown empirically to produce PTS-onset; however, no experiments to directly determine the threshold for PTS have been performed on marine mammals. PTS is therefore estimated from the rate at which the degree of TTS increases with increasing sound exposure levels.

Indication how these problems and threats will be dealt with during the project

Using new estimates of cetacean abundance and distribution in the project area (Action C3 - Estimation of abundance and modelling the distribution of cetaceans), and overlaying these data with collated information on offshore construction and other anthropogenic noise sources to create risk layers (Action C5 - Creation of database and assessment of pressures & threats to cetaceans) a clearer idea of the extent of the conservation problem caused by underwater noise will be obtained. Initiatives associated with the Marine Strategy Framework Directive (MSFD) are working on assessing underwater noise threats within EU waters include indicators and monitoring programmes for both ambient anthropogenic noise (primarily shipping) and intense noise sources (primarily seismic, sonar and pile driving). This Action will assess the outputs of these initiatives, most of which will be conducted at national level, to generate consistent data sets on ambient noise and use of intense noise sources in the study area.

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PREVIOUS CONSERVATION EFFORTS IN THE PROJECT AREA AND/OR FOR THE HABITATS / SPECIES TARGETED BY THE PROJECT

Conservation measures taken by the Commission:

• The Habitats Directive (92/43/EEC) grants strict protection to cetaceans with a view to maintaining species at or restoring them to favourable conservation status. A number of SACs have been established for *T. truncatus* under the Directive. These include the Moray Firth and Cardigan Bay in the UK and the Shannon Estuary in Ireland.
• Drift-net limitations have been imposed by Council Regulations (EC) 894/97 and 1239/98.
• A number of measures related to CITES have been taken at Community level including 338/97/EEC and 939/97/EEC.
• The Commission has recently made a proposal for a Council Regulation laying down measures concerning incidental catches of cetaceans in fisheries and amending Regulation (EC) No 88/89 (2003/0163 (CNS)).

Conservation measures in Sweden:

The government environmental objective states that threatened species and sub-populations should have the opportunity to colonise new areas within their natural range to ensure long-term viable populations. A specific objective is that bycatch of marine mammals shall by 2010 not exceed 1% of respective marine mammal population (Swedish Government Environmental bill 2000/01:130.). An action programme for harbour porpoises in Swedish waters for the period 2003-2005 was issued on 6 May 2003 (Swedish Environmental Protection Agency Action Programme no. 27), which includes some bycatch mitigation measures.

Conservation measures in Denmark:

Regulation (BEK 526 of 9 June 2000) makes pinger use mandatory in the net fisheries which individually or linked in fleets are up to 300m long in the North Sea (ICES division IV) from 1 August to 31 October. The regulation was established especially to target the wreck fishery.

Conservation measures in Germany:

In 1999 the provincial government of Schleswig-Holstein proclaimed a whale protection area of 1240km² within the National Park of the Wadden Sea.

Conservation measures in the UK: The UK Department for Environment, Food and Rural Affairs has launched a Small Cetacean Bycatch Response Strategy that includes a number of proposals including some that are similar to those in Commission Council Regulation 2003/0163 (CNS).

BEST PRACTICE CHARACTER OF THE PROJECT

The specific context of the SCANS-III project is the assessment of conservation/environmental status of cetaceans in European Atlantic waters as required under the Habitats Directive and Marine Strategy Framework Directive.

Cetaceans are highly mobile, wide-ranging species with “slow” life histories that are very vulnerable to the impacts of human activities. Because reproductive rates are so low, even a small increase in mortality may not be sustainable. Multiple pressures and threats exist for these species, including fisheries bycatch, ship strikes and noise from a range of sources.

Cetaceans are also higher predators and play an important role in structuring ecosystems. Analyses of data from LIFE project SCANS-II (LIFE04NAT/GB/000245) together with data from offshore surveys, have estimated that more than one million individual whales, dolphins and porpoises of more than a dozen species inhabit European Atlantic waters in summer. Failure to conserve these species could result in major changes to the ecosystem in this region.

Cetaceans feed underwater but must surface to breath. This, and the typically large areas that their populations inhabit, make them very difficult species to monitor and to obtain robust data on abundance and distribution, information that is the essential basis to status assessment.

With this background, the challenge is to obtain robust data that can be used to assess the conservation/environmental status of cetaceans and to assess the impact of pressures and threats at an appropriately large spatial scale and to make informed recommendations for management measures to reverse any unfavourable or poor status. This project focusses on the use of best practice methods to obtain this information and use it in assessment frameworks to work towards good/favourable conservation/environmental status.

Best practice is implemented throughout this project. Starting with the need for basic robust data, the project will use survey methods developed, demonstrated and established in previous LIFE projects SCANS (LIFE 92-2/UK/027) and SCANS-II (LIFE04NAT/GB/000245) to collect cetacean abundance data and use these data to calculate robust estimates of total abundance (Hammond et al. 2002; 2013). The analytical methodology enabled by the high quality data generates unbiased and precise estimates of abundance. This is objective 2 of our proposal.

These methods are recognised globally as the most appropriate and state-of-the-art means to conduct both aerial and shipboard surveys for cetaceans. Cetacean surveys in Europe, the USA, and the high Arctic all base their methods on what is typically referred to as “SCANS methodology”.

SCANS survey methods are not the cheapest but they are arguably the most cost effective. Surveying for cetaceans requires ships or aircraft, which are very expensive to charter. The cost of state-of-the-art data collection methods to obtain the data to obtain robust estimates of abundance is only a small fraction of the total cost of surveying at sea. There are many examples of large amounts of money being spent on surveys of cetaceans that resulted in poor data through lack of investment in survey methods.

Best practice is also used in this project to address the objective of setting safe limits to anthropogenic removals of cetaceans. The globally recognised state-of-the-art methodology for calculation of such safe limits is the Revised Management Procedure of the International Whaling Commission based on the Catch Limit Algorithm (CLA). LIFE project SCANS-II (LIFE04NAT/GB/000245) used this methodology as a basis to develop a procedure for setting safe limits to bycatch of small cetaceans in fisheries. This is typically known as the “CLA approach” and has been recommended by ICES to OSPAR and the European Commission as the best practice method for taking account of uncertainty when calculating limits to removals that will allow conservation objectives to be met.

In project SCANS-III, we aim to develop these best practice methods further so that they are fit for purpose for calculating safe limits to removals of cetacean populations in the European Atlantic, particularly harbour porpoise and common dolphin but also other species. This is objective 5 of our proposal.

As described above, monitoring cetacean populations is challenging and expensive. Estimates of total abundance are needed to put human-induced mortality into context and for assessing populations at an appropriately large scale that is relevant to their biology; such surveys need to conducted regularly but not frequently. However, cheaper methods that generate estimates of relative abundance may be appropriate for assessing status at smaller spatial and temporal scales. In this project we plan to

conduct a comprehensive test of all existing methods for monitoring cetacean populations, both state-of-the-art (SCANS-type surveys and acoustic monitoring) and novel (digital aerial photography). The results of these tests will form the basis of a best practice report that will encourage trans-boundary monitoring using the same methodology, which will provide better data for assessing status. This is objective 4 of our proposal.

The fourth aspect of the SCANS-II project will use general best practice for collating data, developing a data-base, presenting and analysing large quantities of data on pressures and threats to cetaceans with the aim of assessing the impact of these pressures and threats and also of generating a tool that will allow the effectiveness of management options to be explored. This is objective 3 of our proposal. Finally, objective 1 or our proposal aims to use established techniques to test frameworks and templates for trans-boundary assessments of good/favourable environmental/conservation status. These are important objectives but involve less state-of-the-art best practice techniques than the three areas of work previously described.

References:

Hammond, PS *et al.* (2002). Abundance of harbour porpoises and other cetaceans in the North Sea and adjacent waters. Journal of Applied Ecology 39: 361-376.

Hammond, PS *et al.* (2013). Cetacean abundance and distribution in European Atlantic shelf waters to inform conservation and management. Biological Conservation 164: 107-122.

DEMONSTRATION CHARACTER OF THE PROJECT

N/A

PILOT ASPECTS OF THE PROJECT

N/A

EU ADDED VALUE OF THE PROJECT AND ITS ACTIONS

The primary added value of this project is that it takes a fundamentally transnational approach.

Under the MSFD, Member States are required to take a regional approach, based on geographical and environmental criteria, with specific reference to a role for the Regional Seas Conventions. As such, monitoring and reporting within the MSFD, and assessment of the achievement of Good Environmental Status, needs to be coordinated among countries within the same marine region or sub-region of the relevant Regional Seas Convention. Consistency, coherence and comparability within marine regions and sub-regions should be ensured by coordination of monitoring methods. A transnational approach would also improve the effectiveness of reporting under the Habitats Directive.

Populations of cetaceans in the European Atlantic are almost all trans-boundary. The exceptions are the small number of small coastal populations of bottlenose dolphins (and possibly Risso’s dolphins) that occur in the UK, Ireland, France, Spain and Portugal, which are mostly not considered the focus of this project. For all other species (including offshore bottlenose dolphins), the animals are highly mobile and the populations have wide transnational ranges.

Thus, the issue addressed by this project is simple. Acting alone, Member States assess and report on cetacean species, and on the pressures on and threats to them, in their national waters. Yet, except for small coastal populations of bottlenose dolphins, the relevant biological/ecological scale for assessment of conservation/environmental status is very much larger. Especially for Member States with relatively small EEZs, assessments in national waters are at best of limited value and at worst misleading. The appropriate spatial scale at which to assess status and report on cetaceans is large and transnational.

This project aims to provide the necessary information for assessing the status of cetaceans (abundance, distribution (Actions C1-C3), safe limits to non-natural removals (Action C4), impact of pressures and threats (Action C5) and best practice monitoring methods (Action C6) within a

framework for transnational reporting under the MSFD and, ideally, the Habitats Directive (Action C7).

What happens if the project is not implemented?

If the project is not implemented it is difficult to see how Member States will be able to fulfil their responsibilities under the MFSD. The timing of the Actions is designed so that all the necessary information and a transnational reporting framework are in place in time to be used for reporting on Good Environmental Status in 2018. Without this information and a trans-boundary reporting framework, the available information for the North Atlantic Marine Region will be patchy and will allow only a partial assessment of GES at best. The successful completion of this project will enable a comprehensive assessment of GES for cetaceans in the North Atlantic Marine Region in 2018.

If the project is not implemented, Member States will still be able to report under the Habitats Directive in the usual way but this will be less effective and provide poorer assessments of conservation status for cetacean species than if the project were implemented.

Significance of the contribution to conservation of species

The significance of the contribution of the project to the conservation of cetacean species at the EU level is that, as described above, without this project it is difficult to envisage how it will be possible to make a proper assessment of GES for cetaceans under the MSFD in 2018. Without such an assessment, whether or not action is required to move species towards GES will remain unknown and the conservation of one or more species may be compromised. This is also the case to some extent for reporting under the Habitats Directive; assessments would be much improved as a result of the transnational nature of this project.

The importance of the conservation issue and the extent to which the project results could make a significant difference at the EU level

The conservation issue addressed by this project is, by definition, important at the EU level because of its fundamentally transnational nature. Its overall importance is its necessity to allow GES for cetaceans to be assessed under the MSFD in 2018, and its value in improving reporting under the Habitats Directive.

SOCIO-ECONOMIC AND ECOSYSTEM SERVICES EFFECTS OF THE PROJECT

The SCANS-III project is focussed primarily on filling data gaps, the production of best practice recommendations, and the assessment of pressures/threats and status. It is not anticipated that there will be significant socio-economic or ecosystem services impacts resulting from the work conducted.

Fieldwork conducted during Actions A1 & A3 (Testing and Comparing Monitoring Methodologies for harbour porpoise, and for dolphins, respectively) and Actions C1 and C2 (Aerial Survey of Shelf Waters for Cetaceans, and Ship Survey of Offshore Waters for Cetaceans, respectively), is unlikely to have any impact on activities at sea; the surveys will be conducted over a very short time period, and will not prevent the concurrent continuation of activities. Navigational warnings will be circulated in advance via Notices to Mariners and other appropriate navigational warning systems. Static equipment deployments will not take place in such a way as to prohibit the continuation of typical fishing activities.

It is possible that recommendations resulting from Action C7 - Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans may have socio-economic impacts or ecosystem function effects, depending on both the content of the recommendations themselves, and whether these are implemented at a policy level. At this stage, prior to completion of the Action, it is not possible to foresee what these recommendations may include. However, for this reason, a review of the possible/likely socio-economic impacts (Action D2 - Review of the socio-economic effects of the project) and ecosystem services effects (Action D3 - Review of the projects impact on ecosystem functions) of recommendations in Action C7 will be made and reported.

The most likely area for a C7 recommendation which may produce a socio-economic effect is within the fisheries sector. This project will provide up to date information on the abundance of species commonly susceptible to bycatch, such as *Phocoena phocoena* and *Delphinus delphis* so that the impact of bycatch can be placed in context.

Recommendations on cost-effective ways to monitor populations (C6 - Best practice monitoring

methods for cetaceans) and safe removal limits (C4 - Determining safe limits to removals from small cetacean populatoins) will allow Member States and the Commission to impose appropriate management actions that are sufficient to allow populations to recover to or maintain favourable conservation status / Good Environmental Status, without placing an unnecessary burden on other marine stakeholders, such as the fisheries sector or the offshore renewable energy sector.

EFFORTS FOR REDUCING THE PROJECT'S "CARBON FOOTPRINT"

Every effort will be made to reduce the project's carbon footprint wherever possible and practical to do so.

To this end:

- Project reports will be distributed electronically rather than as paper copies.

- Project meetings will be undertaken, wherever possible, via conference call or video conference to remove the need for extensive travel of project staff.

- Where travel is necessary, this should be undertaken by public transport wherever possible. The number of flights should be kept to a minimum.

- Project publicity materials will be available for download from the project website. Printed versions will be printed on recycled paper.

- Re-use of project kit will also help to reduce emissions. By using the same field kit in Actions A1 and A3 (Testing and comparing monitoring methodologies for cetaceans for harbour porpoise and dolphins, respectively) as in Actions C1 and C2 (Aerial survey of shelf waters for cetaceans, and Ship survey of offshore waters for cetaceans, respectively), we will have a considerable saving of approximately 50,000 kg CO_2e (based on a consumption model of €0.68 = 1kg CO_2e) in survey equipment, and a further 200,000 kg CO_2e in static acoustic equipment; however, the equipment will need to be shipped to the locations for the later stages of fieldwork, negating a portion of this saving.

The primary source of carbon emissons to the project will likely be the use of the survey planes and vessels. When chartering vessels for the main survey, companies will be asked to provide information on fuel usage which will be taken into account when awarding contracts.

STAKEHOLDERS INVOLVED AND TARGET AUDIENCE OF THE PROJECT

The project will involve a range of stakeholders to help implement the project.

In Actions related to monitoring abundance (A1 - Testing and comparing monitoring methodologies for harbour porpoise, A3 - Testing and comparing monitoring methodologies for dolphins, and C6 - Best practice monitoring methods for cetaceans) and estimating abundance and modelling distribution (C1 - Aerial survey of shelf waters for cetaceans, C2 - Ship survey of offshore waters for cetaceans, and C3 - Estimation of abundance and modelling the distribution of cetaceans), the project will involve scientists, conservation managers working on policy issues and case work, and persons working with the environmental NGO community.

Scientists and environmental NGO personnel will work to develop updated data collection equipment under Action A2. Some members of the NGO community have particular expertise on cost effective but robust methods for collecting data on ship surveys for cetaceans; we will take advantage of that by contracting personnel to help make technical improvements to our data collection equipment.

Scientists, environmental NGO personnel and conservation managers involved in policy issues and case work with experience in cetacean data collection on ship and aerial surveys will be used in the project to generate the best possible data under Actions A1, A3, C1 and C2. Several of these personnel were involved in the LIFE project SCANS-II (LIFE04NAT/GB/000245) as observers or cruise leaders and some are involved in national survey programmes. They are either associated with one of the Beneficiaries or will be hired as external contractors. The project will thus benefit from highly experienced field practitioners. Some of these same people will be involved in Action C6, in which recommendations for best practice in monitoring cetacean populations will be made.

In Action C4 - Determining Safe Limits to Removals from Small Cetacean Populations, the work will be done by scientists but we plan to put the developed procedure for calculating safe removal limits out to review among a range of stake-holders including: appropriate members of the European Commission, members of relevant ICES working groups (WGMME, WGBYC), participants the Advisory Committee of ASCOBANS, members of the environmental NGO community, and scientists.

In Action C5 - Creation of Database and Assessment of Pressures & Threats to Cetaceans, a mixture of scientists, environmental NGO personnel and conservation managers involved in policy issues and case work will also be involved. These personnel will be engaged to provide expert knowledge on particular threats: fisheries bycatch, ship strikes, and noise produced by various sources.

Action C7 is where most of the conservation policy stakeholders will contribute to the project. As well as people engaged by the project from some Member States, people working in conservation policy from other Member States have undertaken to provide input to the process of developing a framework for collaborative transnational reporting under the MFSD and possible the Habitats Directive. In this way, it is hoped that there will full engagement across Member States that are range states to the North Atlantic Marine Region.

Describe target groups and methods for dissemination of knowledge. Comment on activities for general publicity and / or marketing of the concept during and after implementation.

The target groups for dissemination of knowledge arising from the project will be: appropriate members of the European Commission; conservation managers engaged in case work; conservation policy makers; environmental NGOs; the general public; industry groups representing the fishing, shipping, and energy exploration and extraction industries and scientists within Europe and globally.

Knowledge will be disseminated during and after the project in the following ways:

1) Project website: this will be initiated at the beginning of the project. It will be hosted by the University of St Andrews and will contain links to the relevant pages on the websites of all Associated Beneficiaries, Co-financers, relevant Member States and the European Commission. The website will be used to provide information regarding the different Actions, advertise any project related contracts and update results as they become available. In addition, there will be sections detailing the target species and relevant pressures/threats to these species within the project area. After the project finishes, the website will be maintained and be a source of knowledge arising from the project, including the final report and associated documents.

2) End of project conference: a two day workshop hosted by Beneficiaries and Action leaders to present the results of the project. Expected attendees will include project participants, representatives from Member State competent authorities, environmental NGOs and stakeholders from marine industries, including fisheries, offshore wind, and wave & tidal energy, to all of whom the knowledge gained from the project should be of interest.

3) Scientific conferences: abstracts describing project results will be submitted to conferences of the European Cetacean Society in 2017 and beyond as results become available. Results will also be submitted for presentation at the Society for Marine Mammalogy biennial conferences; the SCANS methods and results have previously proved to be of great interest to scientists working to inform conservation of cetaceans in other parts of the world.

4) Scientific publications: results from the project will be written up by the project team for submission to peer-reviewed scientific journals so that project outputs are communicated widely within the scientific community. The main results from the first SCANS project and SCANS-II supported by LIFE were published in high impact journals (Hammond *et al.* 2002; 2013).

5) Policy Meetings: Papers for information will be submitted to appropriate policy meetings, such as the annual meeting of the ASCOBANS Advisory Committee, identified through liaison with stakeholders and participating organisations. These meetings will be used to provide updates on project progress and on results and knowledge arising from the project to the policy teams of Member States.

6) LIFE publications and meetings. Papers on the project will be submitted to appropriate LIFE Nature journals to disseminate knowledge of the project outwith the cetacean and marine stakeholders who will be the primary target audiences. LIFE networking events will also be attended, as appropriate.

7) Display boards: A series of display boards and publicity materials will be produced, which will be kept on display at the site of the coordinating beneficiary. However, the main purpose of these display boards will be to take them to various meetings and events to advertise the project and the knowledge arising from it.

8) Data sharing: Cetacean abundance data, once validated, verified and analysed, will be made

publically available. All participating organisations will receive a copy, and relevant data extracts will be added to international and national databases (e.g. OBIS: http://seamap.env.duke.edu/.

References:

Hammond, PS *et al.* (2002). Abundance of harbour porpoises and other cetaceans in the North Sea and adjacent waters. Journal of Applied Ecology 39: 361-376.

Hammond, PS *et al.* (2013). Cetacean abundance and distribution in European Atlantic shelf waters to inform conservation and management. Biological Conservation 164: 107-122.

EXPECTED CONSTRAINTS AND RISKS RELATED TO THE PROJECT IMPLEMENTATION AND MITIGATION STRATEGY

There are no internal or external events that could have major negative impacts on the successful implementation of the project. However, there are some constraints and risks that could have minor negative impacts; these are listed below, with explanations of how we plan to mitigate or cope with them to ensure that the project is implemented as successfully as possible.

No licences are needed to conduct the work in the project but permissions will be needed to survey in Member State waters. We will apply in good time through appropriate channels to obtain these permissions, as was done in previous LIFE projects SCANS (LIFE 92-2/UK/027) and SCANS-II (LIFE04NAT/GB/000245). No problems are envisaged as long as this is done in good time. There are milestones in Actions C1 (Aerial survey of shelf waters for cetaceans) and C2 (Ship survey of offshore waters for cetaceans) to ensure this happens.

No assessments are needed and there are no ongoing or planned development projects that will impact the work in this project.

There are no constraints or risks due to the socio-economic environment.

List of constraints and risks that may have minor negative impacts on the project in decreasing order of importance.

1. Insufficient sightings collected in Actions A1 and A3 (Testing and comparing monitoring methodologies for cetaceans - harbour porpoise and dolphins, respectively) to allow robust data analysis in Action C6 (Best Practice Monitoring Methods for Cetaceans), and in Actions C1 and C2 (Aerial survey of shelf waters for cetaceans and Ship survey of offshore waters for cetaceans, respectively) to allow robust data analysis in Action C3 (Estimation of abundance and modelling the distribution of cetaceans).

Actions C6 and C3 require sufficient data to be delivered from fieldwork conducted in Actions A1 and A3, and C1 and C2, respectively. Smaller sample sizes than anticipated could contribute to a lack of power in comparisons of monitoring methods in Action C6, to poorer precision of abundance estimates in Action C3 and to a reduction in the number of species for which distribution modelling can be accomplished in Action C3.

There are three reasons why the amount of data collected could be less than anticipated.

(a) Poor weather

Visual data collection for cetaceans is weather dependent. If weather is poor, at best the probability of detection may decrease and at worst surveying may have to be suspended. A mixture of weather conditions is expected and surveys have been planned (survey period; number of survey aircraft and ships needed) so that sufficient data for robust analysis will be collected if weather conditions are typical for the time of year. That is, if the total time when surveys cannot be conducted because of poor weather is as expected. To minimise the impact of poor weather, all fieldwork will be conducted in late spring and summer, the time when weather conditions are on average best, to maximise the likelihood of good weather. The main surveys to be implemented in Actions C1 and C2 will be in July, as were the SCANS and SCANS-II surveys in 1994 and 2005, respectively. Survey periods may be able to be extended to compensate for atypically poor weather, if resources allow.

(b) Low densities of cetaceans

Fewer sightings will be made if density is low. Actions C1 and C2 will cover all areas so densities are expected to be variable but sufficiently high overall unless there have been marked reductions in populations, of which there is no evidence. Actions A1 and A3 will be implemented in areas of known high density of the species of interest: harbour porpoise and white-beaked dolphin, respectively, to minimise the risk of collecting fewer than expected data.

(c) Survey platform mechanical failure

Fieldwork to be conducted in Actions A1, A3, C1 and C2 will be from ships or aircraft. If these require maintenance or repair that takes away from survey time, the amount of data that can be collected

may be reduced. Survey periods may be extended if unexpected maintenance or breakdown results in loss of survey time and therefore data, if resources allow.

(d) Refusal of permission to survey in certain areas

In some areas the desired survey coverage may be able to be obtained due to unpredictable events, such as military activities. If this happens it will have, at worst, only a very minor impact on the results overall.

2. Failure to buy/construct data collection equipment or to charter sufficient ships or aircraft in time for the main survey

Some aspects of survey preparation have already been scoped out to ensure that the planned technical modifications to data collection equipment can be achieved, that the necessary equipment will be available and that the necessary survey ships/aircraft will be available for charter. The key to mitigating this risk is good planning and careful project management. The project team are well aware of this issue and will ensure that there is plenty of time for these tasks to be completed well within deadlines. Work will commence immediate the project starts and there are milestones in Action A2 (Survey preparation) and Actions C1 and C2 (Aerial survey of shelf waters for cetaceans and Ship survey of offshore waters for cetaceans, respectively) to ensure this happens.

3. Failure to source required data on pressures and threats

The success of Action C5 - Creation of database and assessment of pressures & threats to cetaceans is reliant on the sourcing the necessary data on pressures and threats to cetaceans. If insufficient data are accumulated, the extent of this Action to assess the impact of these threats may be compromised. The project participants are currently active in national, governmental and non-governmental organisations that collate most of the pressures and threats data that are needed to implement this Action. Some data may ultimately need to be purchased if they cannot be sourced freely. We assess this as a very minor risk.

4. Delay in development of and resolution by OSPAR of proposals for common Targets and Indicators for cetaceans

Such a delay may potentially impact the successful completion of Action C7 - Trans-boundary assessment of environmental/conservation status for cetaceans. However, these proposals are part of aspects to be considered as part of this Action and any risk is very minor. Completion of this Action is scheduled for late 2016 at the earliest and, in any case, work can proceed and be completed provided consensus can be reached on appropriate interim Targets and Indicators, which should not be a problem.

5. Failure of participating institutions/bodies from Member States to agree on all aspects of Action C7

Action C7 - Trans-boundary assessment of environmental/conservation status for cetaceans will develop an assessment framework, based on agreed available data sources, using agreed Targets and Indicators. If not all participants agree there could be a risk to successful completion of this Action. However we assess this risk to be very minor because participants in the Action will comprise a good mix of people from Member States and personnel who are collectively very experienced in both scientific and policy matters, and also because progress will be managed by a consensual approach to decision-making.

CONTINUATION / VALORISATION AND LONG TERM SUSTAINABILITY OF THE PROJECT'S RESULTS AFTER THE END OF THE PROJECT

Which actions will have to be carried out or continued after the end of the project ?

Action C1 - Aerial survey of shelf waters for cetaceans (continued in future)

Action C2 - Ship survey of offshore waters for cetaceans (continued in future)

Action C3 - Estimation of abundance and modelling the distribution of cetaceans (continued in future)

Action C4 - Determining safe limits to removals from small cetacean populations (continued in future)

Action C5 - Creation of database and assessment of pressures & threats to cetaceans (continued)

Action C7 - Trans-boundary assessment of environmental/conservation status for cetaceans (continued)

How will this be achieved? What resources will be necessary to carry out these actions?

Actions C1-C3 cover the collection and analysis of data to provide new robust information on numbers of animals and how they are distributed spatially in summer 2016. They will be completed before the end of the project and thus will not need to be continued immediately after the project finishes.

However, it is critically important that the work conducted under these Actions be repeated in future to continue to inform conservation managers on cetacean distribution and abundance and to allow Member States to meet the requirements of the Habitats Directive and the Marine Strategy Framework Directive. The previous survey of cetaceans on shelf waters of the European Atlantic was part of LIFE project SCANS-II (LIFE04NAT/GB/000245) in 2005 and the previous survey before that was part of LIFE project SCANS (LIFE 92-2/UK/027) in 1994. Project CODA (not supported by LIFE; http://biology.st-andrews.ac.uk/coda/) surveyed offshore waters of the European Atlantic in 2007. This project aims to survey in 2016 and thus continues the 11 year period between these large-scale surveys. However, the ICES Working Group on Marine Mammal Ecology has recommended that, to allow Member States to adequately discharge their responsibilities, the period between these approximately decadal large-scale multinational surveys should be 6 years to facilitate reporting requirements.

Resource implications for continuing surveys are periodical but considerable. It is anticipated that the same model will be followed by raising support from Member States and applying for LIFE funding, as required.

Action C4, Determining safe limits to removals from small cetacean populations, aims to generate safe limits to non-natural removals for species of conservation concern for Management Areas proposed by ICES for a Habitats Directive/MSFD reporting period of 6 years. If this aim is fully met, this work will also not need to be continued immediately after the project finishes. However, similarly to Actions C1-C3, there will be a need for calculations of safe removal limits to be regularly updated, at least every 6 year reporting period, using new estimates of abundance and any other new information that has accrued during that time. The resource implications of this are not great; Member State support will be sought for personnel time to conduct this activity.

Action C5, Creation of database and assessment of pressures & threats to cetaceans, aims, first, to collate data on, and assess the extent of, pressures and threats to cetacean populations within European Atlantic waters and, second, to assess the impact of these pressures and threats. The database to be created is not intended to be static but to be added to as more information on pressures and threats becomes available. The aim is that one of the participating institutions will take on the responsibility of curating and updating the database so that it is available for up to date assessments of impact in future. Member State support will be sought for maintaining and updating the database.

Action C7, Trans-boundary assessment of environmental/conservation status for cetaceans, aims

to develop and test a framework for collaborative Member State assessment and reporting on the status of regularly occurring European cetacean species. The design process and assessment framework developed under this Action will set out an approach by which future trans-boundary reporting for the Marine Strategy Framework Directive and possibly the Habitats Directive may be achieved. This ambitious but very important work aims to create efficiencies at the next reporting rounds for both the Habitats Directive and the MSFD and will permit the assessments to be undertaken at appropriate spatial scales.

However, it may be anticipated that the collaborative framework developed may need to be modified as it is put into practice at the next reporting rounds. The Working Groups of people from Member States involved in this Action are expected to continue to work together to find the most effective practical framework to implement.

Protection status under National / local law of sites/species/habitats targeted (if relevant)

The project does not aim and is not expected to lead to modifications of protection status. However, depending on recommendations from Action C7, Trans-boundary assessment of environmental/conservation status for cetaceans, there may be proposals for management action to improve conservation status for one or more species of cetacean

How, where and by whom will the equipment acquired be used after the end of the project?

The equipment acquired and constructed by the project in Action A1, Testing and Comparing Monitoring Methodologies for harbour porpoise and Action A2, Survey Preparation, will be distributed to project beneficiaries after the end of the project. This equipment will be used for Member States to conduct surveys in national waters to obtain further information on distribution and abundance in the years following the project. In addition, the equipment will be available to be borrowed by other parties in Europe to conduct surveys for conservation purposes.

This is what happened to equipment purchased under LIFE projects SCANS (LIFE 92-2/UK/027) and SCANS-II (LIFE04NAT/GB/000245) following their completion, which was outstandingly successful. Many surveys were conducted with the visual and acoustic data collection equipment purchased and constructed in those projects, resulting in large amounts of data being collected to inform conservation across Europe. Equipment from this project will be put to similarly good use.

To what extent will the results and lessons of the project be actively disseminated after the end of the project to those persons and/or organisations that could best make use of them (please identify these persons/organisations)?

The website will continue to be hosted by University of St Andrews, as is the website for the LIFE SCANS-II project http://biology.st-andrews.ac.uk/scans2/. After the SCANS-II project was completed, that website has not been updated but continues to be widely used as a source of project reports and documents. We envisage the same for this project. However, if resources are available as part of other projects, the SCANS-III website from this project could become a more active focus for information on survey methodology and application.

It is planned that there will be presentations on and discussion of the results of the project at scientific and policy-related workshops, seminars, committees and conferences. The estimates of abundance, assessment of the impact of risks and threats, calculations of safe removal limits and recommendations for best practice in monitoring will be of considerable interest to one of more of national, European and global conservation bodies, scientists throughout the world, environmental NGOs, industry bodies (e.g. fisheries organisations and the renewable energy industry), and to the general public.

Following completion of the LIFE project SCANS-II (LIFE04NAT/GB/000245), the project coordinator alone has given dozens of presentations of the results to a wide range of fora, including: the ICES Working Group on Marine Mammal Ecology, the Scientific Committee of the IWC, the Advisory Committee of ASCOBANS, the UK Inter-Agency Working Group on Marine Mammals, scientific

conferences of the Society for Marine Mammalogy, European Cetacean Society and other European supported projects, student seminars in Universities, and public lectures. Other project partners have also presented the results throughout Europe. It is fully expected that the same will occur following this project.

An important goal of this project is encapsulated in Action C7, Trans-boundary assessment of environmental/conservation status for cetaceans, which aims to develop a framework for collaborative Member State assessment and reporting on the status of regularly occurring European cetacean species, an approach by which future trans-boundary reporting for MFSD and possibly the Habitats Directive is hoped to be achieved. Thus, it is aimed that the results of this part of the project will be used collectively by Member States at the next reporting rounds for both the Habitats Directive and the MSFD.

How will the long term sustainability of the project's concrete actions be assured?

The estimates of abundance and description of the distribution of cetacean species generated in Actions C1-C3 will form part of the time series of such information that was initiated in 1994 with the LIFE project SCANS (LIFE 92-2/UK/027; Hammond *et al.* 2002) and continued in 2005 with LIFE project SCANS-II (LIFE04NAT/GB/000245; Hammond *et al.* 2013). Estimates from these projects have been used extensively by national, European and global organisations. This information on distribution and abundance is arguably the best such information for multiple cetacean species in any large region in the world; it will undoubtedly continue to be used for conservation assessments for decades to come.

The robust and fit for purpose method for the calculation of safe removal limits developed in this project under Action C4, Determining safe limits to removals from small cetacean populations, is also aimed to become a long-term procedure for such calculations long into the future, supported by estimates of abundance from continued surveys. This requires this method to be taken up at European level, which it is hoped will occur. ICES has previously recommended that such an approach be considered by the Commission so that it (ICES) can provide the best possible advice on the impact of anthropogenic removals from small cetacean populations. This part of the project will be actively presented to the Commission through appropriate channels to maximise the opportunity for the goals of this work to be fully realised.

The long-term sustainability of the database on pressures and threats to cetacean populations and the assessment of the impact of these pressures & threats under Action C5 should be assured by incorporation into the framework developed under Action C7, Trans-boundary assessment of environmental/conservation status for cetaceans. Member States will have an incentive to keep the database updated so that it can be used on a regular basis in MFSD and Habitats Directive reporting at a trans-boundary level.

The recommendations for best practice for monitoring cetacean populations, under Action C6, should achieve sustainability by being considered and taken up by Member States in future monitoring work.

The trans-boundary assessment of environmental/conservation status for cetaceans, under Action C7 is envisaged to be used collectively by Member States at reporting rounds for both the Habitats Directive and the MSFD into the future. If the project succeeds in this aim, the long-term sustainability of this important part of the project will be assured.

LIFE14 NAT/UK/001146

TECHNICAL APPLICATION FORMS

Part C – detailed technical description of the proposed actions

LIST OF ALL PROPOSED ACTIONS

A. Preparatory actions, elaboration of management plans and/or of action plans

A1 Testing and Comparing Monitoring Methodologies for Harbour Porpoise

A2 Survey Preparation

A3 Testing and Comparing Monitoring Methodologies for Dolphins

B. Purchase/lease of land and/or compensation payments for use rights

C. Concrete conservation actions

C1 Aerial Survey of shelf waters for cetaceans

C2 Vessel Survey of offshore waters for cetaceans

C3 Estimation of abundance and modelling the distribution of cetaceans

C4 Determining safe limits to removals from small cetacean populations

C5 Creation of database and assessment of pressures & threats to cetaceans

C6 Best practice monitoring methods for cetaceans

C7 Trans-boundary assessment of environmental / conservation status of cetaceans

D. Monitoring of the impact of the project actions (obligatory)

D1 Monitoring the impact of project actions

D2 Review of the socio-economic effects of SCANS-III

D3 Review of the impact on ecosystem functions from SCANS III

E. Public awareness and dissemination of results (obligatory)

E1 Communication and dissemination of results

F. Project management and monitoring of project progress (obligatory)

F1 Project management

DETAILS OF PROPOSED ACTIONS

A. Preparatory actions, elaboration of management plans and/or of action plans

ACTION A.1: Testing and Comparing Monitoring Methodologies for Harbour Porpoise

Description (what, how, where and when):

A large suite of methodologies are now available for monitoring cetaceans in European Atlantic waters. These range from the standardised observer based visual surveys from plane or ship (e.g. used in the SCANS and SCANS-II surveys; Hammond *et al.* 2013), through recordings of echolocation signals made by small cetaceans, to digital imaging surveys. This Action will conduct field-work to collect data that will be analysed in Action C6 (Best Practice Monitoring Methods for Cetaceans) to compare the efficacy of the tested methodologies for different cetacean species in order to provide recommendations for spatial and temporal monitoring strategies across EU member states.

This Action will test monitoring methodologies for harbour porpoise *(Phocoena phocoena*), the most widely distributed cetacean species in EU waters (Action A3 - Testing and Comparing Monitoring Methodologies for Dolphins will focus on delphinids). The field work will be conducted in the Great Belt, Inner Danish Waters. This is a high density area for harbour porpoises and also a Danish Natura 2000 site. The area is protected from strong winds, which increases the chance for a successful survey with high sampling effort. This survey will take place during three weeks in spring 2016.

Eight density/abundance monitoring methods will be tested and compared simultaneously:

A random design of ten passive acoustic monitoring stations consisting of the most widely used porpoise click detector CPOD (www.chelonia.co.uk), method 1, a new combined click detector and background noise recorder Soundtrap (www.oceaninstruments.co.nz/soundtrap-202hf/), method 2 and a true full bandwidth recorder SM3M (www.wildlifeacoustics.com), method 3, will be deployed within the area in order to collect data on echolocation activity of cetaceans. The CPOD is a well-established method for detecting porpoises, but less so for dolphins and the effect of elevated background noise on the detection rate has not been adequately addressed. In this project the detection rate of the three acoustic devices will be compared and corrections for background noise levels will be estimated.

Shipboard visual surveys will be conducted on the vessel “Aurora” (http://forskningsskib.au.dk). A double platform vessel survey (method 4) using eight observers will be conducted along pre-determined randomly placed track lines according to best practice methods used in SCANS-II (Hammond *et al.* 2013) and to be used in Action C2 (Ship Survey of Offshore Waters for Cetaceans), in the same area where the acoustic stations are deployed. This methodology will allow the calculation of a survey specific value of g(0), the probability of detection on the track line, needed to estimate absolute abundance.

During the shipboard surveys, seabird observers will collect data on cetaceans as well as seabirds, as is usually the case. The data from these observers will be used as a proxy for a single observer on a ship of opportunity (method 5).

During the ship surveys, the vessels will also tow a hydrophone array (method 6) that records all echolocation activity of porpoises and dolphins (Borchers and Burt 2007; SCANS-II 2008). In addition to the observers looking forward, two observers will observe behind the boat. By comparing the visual detections (observing both forward and backwards) with the acoustic recordings, data will be recorded to allow comparison of the two methods’ probability of detecting animals on the track lines.

Two aerial surveys will be flown simultaneous in time and space with the other methods mentioned above. One aircraft will have three visual observers on board flying at 600 feet according to best practice methods used in SCANS-II (method 7) (Hammond *et al.* 2013) and to be used in Action C1 (Aerial Survey of Shelf Waters for Cetaceans). The other aircraft will use high-definition digital imaging (method 8) without visual observers and will fly at 1,500 feet (Thaxter and Burton 2009; Buckland *et al.* 2012). The aerial surveys will produce abundance estimates for direct comparison of the other methods.

Following an intense three weeks period of data collection, the data will be processed and entered into a database for further analysis under Action C6.

References:

Borchers, DL & Burt, L (2007). Investigation of towed hydrophone monitoring power for harbour porpoise on the SCANS II survey. CREEM Technical report 2007-4. 8pp.

Buckland, ST, *et al.* (2012). Aerial surveys of seabirds: the advent of digital methods. Journal of Applied

Ecology 49: 960–967.

Hammond, PS *et al.* (2013). Cetacean abundance and distribution in European Atlantic shelf waters to inform conservation and management. Biological Conservation 164: 107-122.

SCANS-II (2008). http://biology.st-andrews.ac.uk/scans2/.

Thaxter, CB & Burton, NHK (2009) High Definition Imagery for Surveying Seabirds and Marine Mammals: A Review of Recent Trials and Development of Protocols. British Trust for Ornithology Report Commissioned by Cowrie Ltd. ISBN: 978-0-9561404-5-6

Reasons why this action is necessary:

The results from this Action will feed into Action C6 - Best Practice Monitoring Methods for Cetaceans, where the data from the different methods will be analysed, compared and the most effective (cost, statistical precision and logistical efficiency) way of monitoring harbour porpoises to fulfil EU monitoring obligations, will be determined and recommended.

By comparing eight different monitoring methods in the same area and time, the efficiency, cost and statistical variation of each method can be evaluated and compared directly. This will be the first time this exercise has been undertaken and will provide valuable new data. Comparing the suite of methods focussed on the harbour porpoise in one location (this Action A1) and on dolphin species, primarily the white-beaked dolphin, in another location (in Action A3 - Testing and Comparing Monitoring Methodologies for Dolphins) will greatly improve the value of the comparison, and mean that it will be relevant to all EU Member states.

Constraints and assumptions:

The success of this Action is reliant on collecting sufficient data to conduct robust statistical analyses in Action C6 - Best Practice Monitoring Methods for Cetaceans. As such, data collection will take place in an area of known high density of the species of interest, harbour porpoise, to minimise the risk of not collecting sufficient data. The weather also needs to be good for the visual methods; by conducting the surveys over several weeks during spring in the chosen area it is our experience that sufficient days with calm seas will be available for successful data collection.

Beneficiary responsible for implementation:

Aarhus

Responsibilities in case several beneficiaries are implicated:

Action Leader: Aarhus (DK)
Contributors: University of St Andrews (UK) and IMARES (Netherlands)

Expected results (quantitative information when possible):

The main result expected from this Action is the dataset for the eight monitoring methods of sufficient quantity and quality for analysis in Action C6 - Best Practice Monitoring Methods for Cetaceans.

The Action deliverable is the database of all data to be passed to Action C6 - Best Practice Monitoring Methods for Cetaceans.

Indicators of progress:

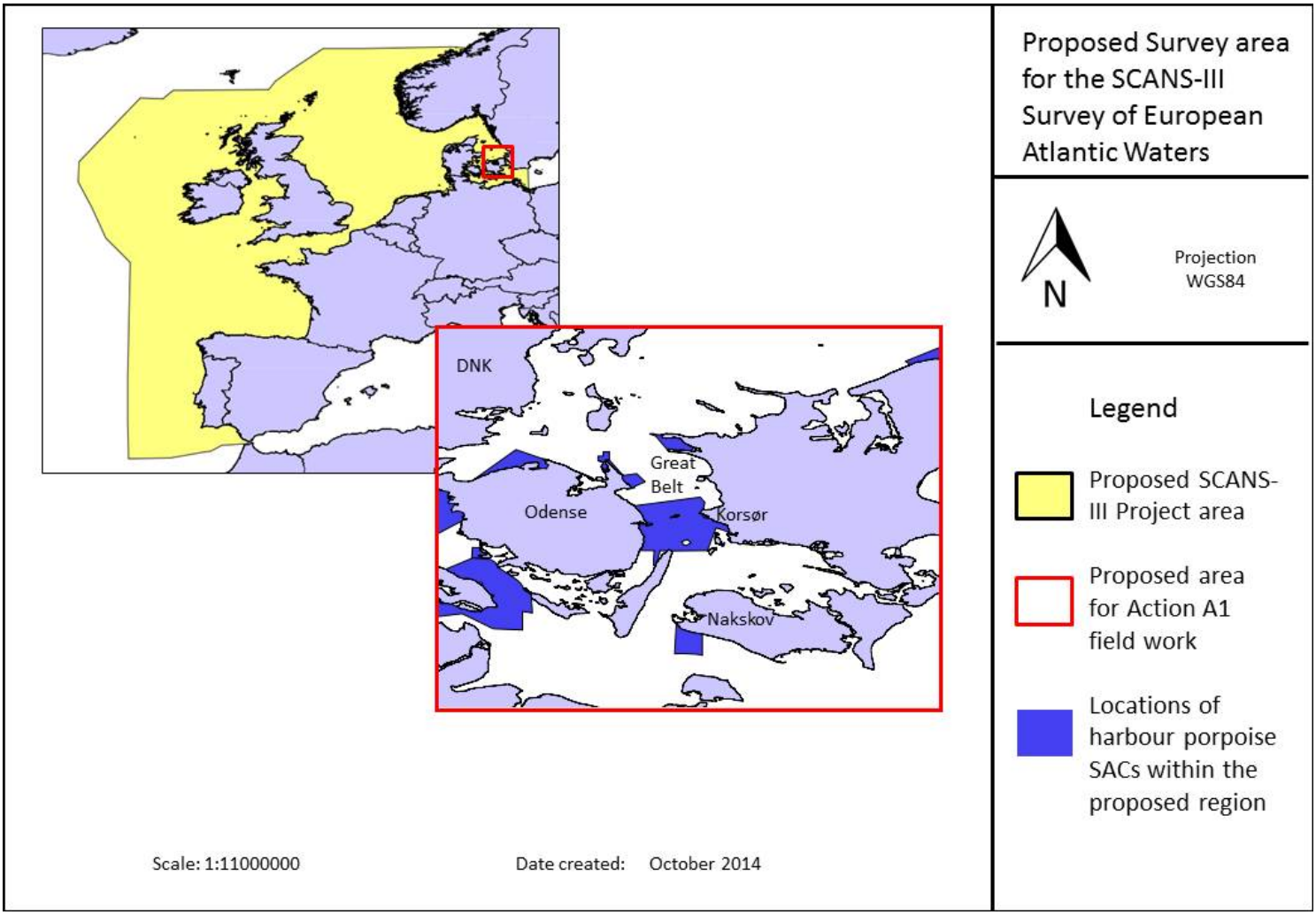
The project is scheduled to take place in 2016 Q1-Q4. A concise 1-2 page Progress Report will be produced after the field work, in 2016 Q3, outlining the success of the activities conducted.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for

each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

Name of the picture: Map showing proposed location for the methods testing fieldwork for harbour porpoise



A. Preparatory actions, elaboration of management plans and/or of action plans

ACTION A.2: Survey Preparation

Description (what, how, where and when):

This Action links closely to Actions A1 & A3 (Testing and Comparing Monitoring Methodologies for Harbour Porpoise, and for Dolphins, respectively) and Actions C1 and C2 (Aerial Survey of Shelf Waters for Cetaceans, and Ship Survey of Offshore Waters for Cetaceans, respectively).

It lays the groundwork for these four fieldwork actions, through the sourcing and preparation of necessary field equipment, and the production of a robust survey design. To facilitate the fieldwork Actions in the most efficient way possible, all field equipment will be prepared in advance and overseen by the University of St Andrews.

1) Preparation of aerial survey equipment

It is not necessary to design a new data collection system for aerial data collection because the existing system works well. One set of equipment will be purchased and put together prior to the fieldwork phase of Action A1 - Testing and Comparing Monitoring Methodologies for Harbour Porpoise in spring 2016, the remainder will be put together in advance of Action C1 - Aerial Survey of Shelf Waters for Cetaceans in July 2016. A total of seven sets will be required – one for each of six survey planes, and one spare set. The equipment will then be available for fieldwork under Action A3 - Testing and Comparing Monitoring Methodologies for Dolphins in August 2016.

2) Preparation of visual data collection equipment for ships

All survey vessels require equipment and software to facilitate accurate data collection, including accurate measurement of distances and angles to sightings and software to allow data to be validated at sea on a daily basis.

The primary aim of this Action with respect to ship surveys is to maintain the essential functionality of the SCANS-II data collection system (SCANS-II 2008) in terms of providing accurate measurement of sighting times, bearings and distances from the Tracker team while improving the overall reliability of the system.

In addition to allowing distances and angles to be measured using established photogrammetric techniques, the integrated data collection system developed for SCANS-II provides accurate time-stamps for surfacing events as an aid to duplicate identification and uses computers to automate data collection wherever possible. Analysis of the SCANS-II data showed that measuring distances with greater accuracy was a cost effective means of reducing the variance of resulting abundance estimates (Leaper *et al.* 2010). The system also aims to eliminate the need for post-cruise data entry and validation through the use of on-board data validation software.

The Logger software system used during SCANS-II is no longer supported and does not work on all modern (Windows 8) computers. Much of the functionality of Logger data entry forms is now built into the PAMGuard software (Gillespie *et al.* 2008), but it will be necessary to complete work on data entry forms within PAMGuard, in particular developing sub-forms and button action responses.

While a long term goal is to replace the complex cabling of the SCANS-II system with smart devices using wireless LAN technology, such a development lies beyond the scope of this project. However, whereas during SCANS-II the focus was on automatic triggering of camera data to measure distances and angles, increases in affordable storage mean that for SCANS-III we will be able continuously to record high definition video data for a fraction of the cost of developing a smart camera control system.

Camera hardware will be largely off the shelf, but some bespoke hardware development will be required for sighting button connections from the primary observer platform and hardware for combined binocular and camera tripod and monopod mounts.

The work will be co-ordinated by the same team that was primarily responsible for developing the system used on SCANS-II (Gillespie, St Andrews; Leaper, Consultant).

The work will be completed prior to fieldwork under Action A1 - Testing and Comparing Monitoring Methodologies for Harbour Porpoise, in spring 2016.

3) Preparation of noise monitoring equipment for use prior to chartering survey vessels

The most important factor governing the success of acoustic surveys is vessel noise. Not only does vessel noise mask the sounds of interest, but noisier vessels may cause higher levels of avoidance in small cetaceans, making visual data collection and analysis more challenging. Avoidance is a bigger problem for acoustic surveys than visual ones because detection takes place astern, rather than ahead of the vessel, giving the animals more time to be disturbed and move away from the detection system.

During the tender process used to charter vessels for Action C2 - Ship Survey of Offshore Waters for Cetaceans, prospective charter vessels will be tested for a short period of time to make noise measurements. The fieldwork aspects of this are described in Action C2, but the necessary equipment will be purchased and compiled during this Action. This consists of a hydrophone of the type to be used on the ship survey, see below, and a small recording buoy to be deployed ahead of the vessel.

4) Preparation of acoustic equipment for ships

It is not necessary to design a new towed hydrophone system because the existing one works well. One set of equipment will be purchased and set up prior to the fieldwork phase of Action A1 - Testing and Comparing Monitoring Methodologies for Harbour Porpoise. The remainder will be collated in advance of Action C2 - Ship Survey of Offshore Waters for Cetaceans. A total of three sets will be required – one for each of the three survey vessels to be used during the ship survey.

5) Survey design for aerial and ship surveys

This important precursor to Actions C1 and C2 (Aerial Survey of Shelf Waters for Cetaceans, and Ship Survey of Offshore Waters for Cetaceans, respectively) will design the overall structure of the surveys (subareas or blocks) and also the placement of transects within the survey blocks.

Survey blocks

Design-based estimates of abundance will be made within survey blocks each of which will be designed to receive equal coverage probability (see below). Good design of survey blocks is important to ensure that estimates of abundance are as precise as possible, within the constraints of a multispecies, multinational survey. It will take into account the following factors:

(a) Existing knowledge of the distribution of the species to be surveyed.

Each species has different ecological requirements and its distribution reflects this. For example, at a large spatial scale, some species are primarily shelf dwellers (e.g. harbour porpoise, white-beaked dolphin), some inhabit deeper (off-shelf) waters (e.g. pilot whale, sperm whale, beaked whales), and some are found in both these habitats (e.g. bottlenose dolphin, common dolphin, minke whale). Within these broad habitat types, at smaller spatial scales, all species tend to be distributed patchily, the scale of which varies among species. Survey blocks will, as far as possible, reflect existing knowledge of the distribution of species so that design-based estimates of abundance in blocks are as precise as possible. This aspect of survey design has recently been debated in the literature (MacLeod 2014; Hammond *et al.* 2014).

(b) National or local regional boundaries.

Even though a driving need for this project is to estimate abundance at a large spatial scale because cetaceans are widely distributed and highly mobile species, EU Member States also have national reporting responsibilities under the Habitats Directive and national legislation. In addition, there are some locally important regions (e.g. Irish Sea, Kattegat and Belt Seas) for which estimates of abundance are valuable. Survey block design will aim to facilitate the estimation of abundance in such areas.

(c) Logistics.

Ultimately, survey design is constrained by logistics. Block design will take account of the physical limitations of aircraft (e.g. range) and ships (e.g. speed), the physical features of the environment (e.g. islands, convoluted coastline), and any local restrictions to surveying certain areas.

Transect lines

Once survey blocks have been determined, a survey design for transect placement within each block is required. This part of the design must provide equal (or known) coverage probability across each survey block to allow design-based estimation of abundance. Survey design will be undertaken in software DISTANCE (Thomas *et al.* 2010) to ensure equal coverage probability. Transect placement will either be equal-spaced parallel lines or zig-zag lines, depending on the survey type (aerial or ship), the size of the block, and logistics. Once the survey design is finalised, sets of transect lines to be surveyed will be generated randomly by DISTANCE.

References:

Gillespie, D *et al.* (2005). Journal of Cetacean Research and Management 7(1): 51-57.

Gillespie *et al.* 2008 Journal of the Acoustical Society of America 30.5 (2008): 54-62.

Hammond, PS *et al.* (2014).Biological Conservation 170: 338-339.

Leaper, R *et al.* (2010). Journal of Cetacean Research and Management 11, 229–237.

Lewis, T *et al.* (2007). Journal of the Marine Biological Association of the United Kingdom 87.01 (353-357.

MacLeod, CD (2014). Biological Conservation 170: 336-337.

SCANS-II (2008). http://biology.st-andrews.ac.uk/scans2/.

Thomas, L *et al.* (2010). Journal of Applied Ecology 47: 5–14.

Reasons why this action is necessary:

SCANS-II was the first large-scale survey to incorporate such a level of automated data collection and to include measurement of key data rather than relying on estimates made by observers. The SCANS-II data collection equipment also allowed comparison between the data collected by the computer-based system with more traditional (un-automated) methods. These comparisons demonstrated that distances and angles estimated by observers may have errors that make a substantial contribution to the variance of abundance estimates and that distance errors may also cause considerable bias. This led to the conclusion that investment in data collection methods should be a cost effective way of reducing bias and improving precision of cetacean abundance estimates (Leaper *et al.*, 2010).

Although the SCANS-II system did result in an overall improvement in data quality there were some technical issues with the system and scope for considerable improvement in reliability and ease of use. The complexity of the system may be one reason why these methods have not been more widely adopted despite being considered best practice for cetacean ship surveys. There is therefore a need to build on the experience gained from SCANS-II and to utilise improvements in technology over the last decade. In particular, digital imaging technology has developed considerably with off-the-shelf video cameras now offering equivalent features and higher resolution images to the more specialist video capture system used on SCANS-II.

An important additional outcome of the development action will be a simplified system that is straightforward for other researchers to use thus contributing to more effective cetacean surveys in other regions as well as better data from SCANS-III.

Constraints and assumptions:

We do not anticipate any reason why equipment preparation should not proceed as planned. The key to mitigating this risk is good planning and careful project management. The project team are well aware of this issue and will ensure that there is plenty of time for these tasks to be completed well within deadlines. Work will commence immediate the project starts and there are milestones in place to ensure this happens.

Beneficiary responsible for implementation:

St Andrews

Responsibilities in case several beneficiaries are implicated:

Expected results (quantitative information when possible):

The main expected result is the provision of all fieldwork components with appropriate, working and thoroughly tested data collection systems.

The development work for the visual data collection system will produce a cutting-edge, well-documented and tested visual data collection system for ship surveys.

Developments to PAMGuard software will be fully open source under the GNU General Public License V3 (Free

Software Foundation Inc., 2007) guaranteeing free access to source code for all users and developers.

Indicators of progress:

Deadlines will be set for the following milestones:

1. Compilation of noise monitoring equipment
2. Completion of visual data collection system testing and development
3. Compilation of visual data collection system for A1
4. Compilation of remaining visual data collection systems for C2
5. Compilation of towed hydrophone system for A1
6. Compilation of remaining towed hydrophone systems for C2
7. Compilation of aerial data collection system for A1
8. Compilation of remainder of aerial data collection systems for C1
9. Production of survey design prior to C1 & C2
10. Production of equipment documentation prior to C1 & C2

Progress towards these milestones will be monitored by the Action Leader on a weekly basis.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

A. Preparatory actions, elaboration of management plans and/or of action plans

ACTION A.3: Testing and Comparing Monitoring Methodologies for Dolphins

Description (what, how, where and when):

A large suite of methodologies are now available for monitoring cetaceans in European Atlantic waters. These range from the standardised observer based visual surveys from plane or ship (e.g. used in the SCANS and SCANS-II surveys; Hammond *et al.* 2013), through recordings of echolocation signals made by small cetaceans, to digital imaging surveys. This Action will conduct field-work to collect data that will be analysed in Action C6 (Best Practice Monitoring Methods for Cetaceans) to compare the efficacy of the tested methodologies for different cetacean species in order to provide recommendations for spatial and temporal monitoring strategies across EU member states.

This Action will test monitoring methodologies for dolphin species (mainly white-beaked dolphin, *Lagenorhynchus albirostris*), which have different surface and echolocation behaviour from porpoises, which will be the focal species in Action A1 (Testing and Comparing Monitoring Methodologies for Harbour Porpoise). This task will take place in the North Sea off Newcastle in the UK. This area has daily sightings of dolphins during the summer, which should enable the collection of sufficient data on at least the most common dolphin species in the North Sea.

Eight density/abundance monitoring methods will be tested and compared simultaneously;

A random design of ten passive acoustic monitoring stations consisting of the most widely used porpoise click detector CPOD (www.chelonia.co.uk), method 1, a new combined click detector and background noise recorder Soundtrap (www.oceaninstruments.co.nz/soundtrap-202hf/), method 2 and a true full bandwidth recorder SM3M (www.wildlifeacoustics.com), method 3, will be deployed within the area in order to collect data on echolocation activity of cetaceans. The CPOD is a well-established method for detecting porpoises, but less so for dolphins and the effect of elevated background noise on the detection rate has not been adequately addressed. In this project the detection rate of the three acoustic devices will be compared and corrections for background noise levels will be estimated.

Shipboard visual surveys will be conducted on the vessel “Princess Royal” (http://www.ncl.ac.uk/marine/facilities/princessroyal/charter.htm). A double platform vessel survey (method 4) using eight observers will be conducted along pre-determined randomly placed track lines according to best practice methods used in SCANS-II (Hammond *et al.* 2013) and to be used in Action C2 (Ship Survey of Offshore Waters for Cetaceans), in the same area where the acoustic stations are deployed. This methodology will allow the calculation of a survey specific value of g(0), the probability of detection on the track line, needed to estimate absolute abundance.

During the shipboard surveys, seabird observers will collect data on cetaceans as well as seabirds, as is usually the case. The data from these observers will be used as a proxy for a single observer on a ship of opportunity (method 5).

During the ship surveys, the vessels will also tow a hydrophone array (method 6) that records all echolocation activity of porpoises and dolphins (Borchers and Burt 2007; SCANS-II 2008). In addition to the observers looking forward, two observers will observe behind the boat. By comparing the visual detections (observing both forward and backwards) with the acoustic recordings, data will be recorded to allow comparison of the two methods’ probability of detecting animals on the track lines.

Two aerial surveys will be flown simultaneous in time and space with the other methods mentioned above. One aircraft will have three visual observers on board flying at 600 feet according to best practice methods used in SCANS-II (method 7) (Hammond *et al.* 2013) and to be used in Action C1 (Aerial Survey of Shelf Waters for Cetaceans). The other aircraft will use high-definition digital imaging (method 8) without visual observers and will fly at 1,500 feet (Thaxter and Burton 2009; Buckland *et al.* 2012). The aerial surveys will produce abundance estimates for direct comparison of the other methods.

Following an intense two weeks period of data collection, the data will be processed and entered into a database for further analysis under Action C6.

References:

Borchers, DL & Burt, L (2007). Investigation of towed hydrophone monitoring power for harbour porpoise on the SCANS II survey. CREEM Technical report 2007-4. 8pp.

Buckland, ST, *et al.* (2012). Aerial surveys of seabirds: the advent of digital methods. Journal of Applied Ecology 49: 960–967.

Hammond, PS *et al.* (2013). Cetacean abundance and distribution in European Atlantic shelf waters to inform conservation and management. Biological Conservation 164: 107-122.

Thaxter, CB & Burton, NHK (2009) High Definition Imagery for Surveying Seabirds and Marine Mammals: A Review of Recent Trials and Development of Protocols. British Trust for Ornithology Report Commissioned by Cowrie Ltd. ISBN: 978-0-9561404-5-6

Reasons why this action is necessary:

The results from this Action will feed into Action C6 - Best Practice Monitoring Methods for Cetaceans, where the data from the different methods will be analysed, compared and the most effective (cost, statistical precision and logistical efficiency) way of monitoring dolphin species to fulfil EU monitoring obligations, will be determined and recommended.

By comparing seven different monitoring methods in the same area and time, the effectiveness, cost and statistical variation of each method can be evaluated and compared directly. This will be the first time this exercise has been undertaken and will provide valuable new data. Comparing the suite of methods focussed on a delphinid species, the white-beaked dolphin in one location (this Action A3) and on the harbour porpoise in another location (in Action A1 - Testing and Comparing Monitoring Methodologies for Harbour Porpoise) will greatly improve the value of the comparison, and mean that it will be relevant to all EU Member states.

Constraints and assumptions:

The success of this Action is reliant on collecting sufficient data to conduct robust statistical analyses in Action C6 - Best Practice Monitoring Methods for Cetaceans. As such, data collection will take place in areas of known high-density of the species of interest, white-beaked dolphins, to minimise the risk of not collecting sufficient data. The weather also needs to be good for the visual methods; by conducting the surveys over two weeks during summer, it is our experience that sufficient days with calm seas will be available for successful data collection.

Beneficiary responsible for implementation:

Newcastle

Responsibilities in case several beneficiaries are implicated:

Expected results (quantitative information when possible):

The results expected from this Action is the dataset for the eight monitoring methods of sufficient quantity and quality for analysis in Action C6 - Best Practice Monitoring Methods for Cetaceans.

The Action deliverable is the database of all data to be passed to Action C6 - Best Practice Monitoring Methods for Cetaceans

Indicators of progress:

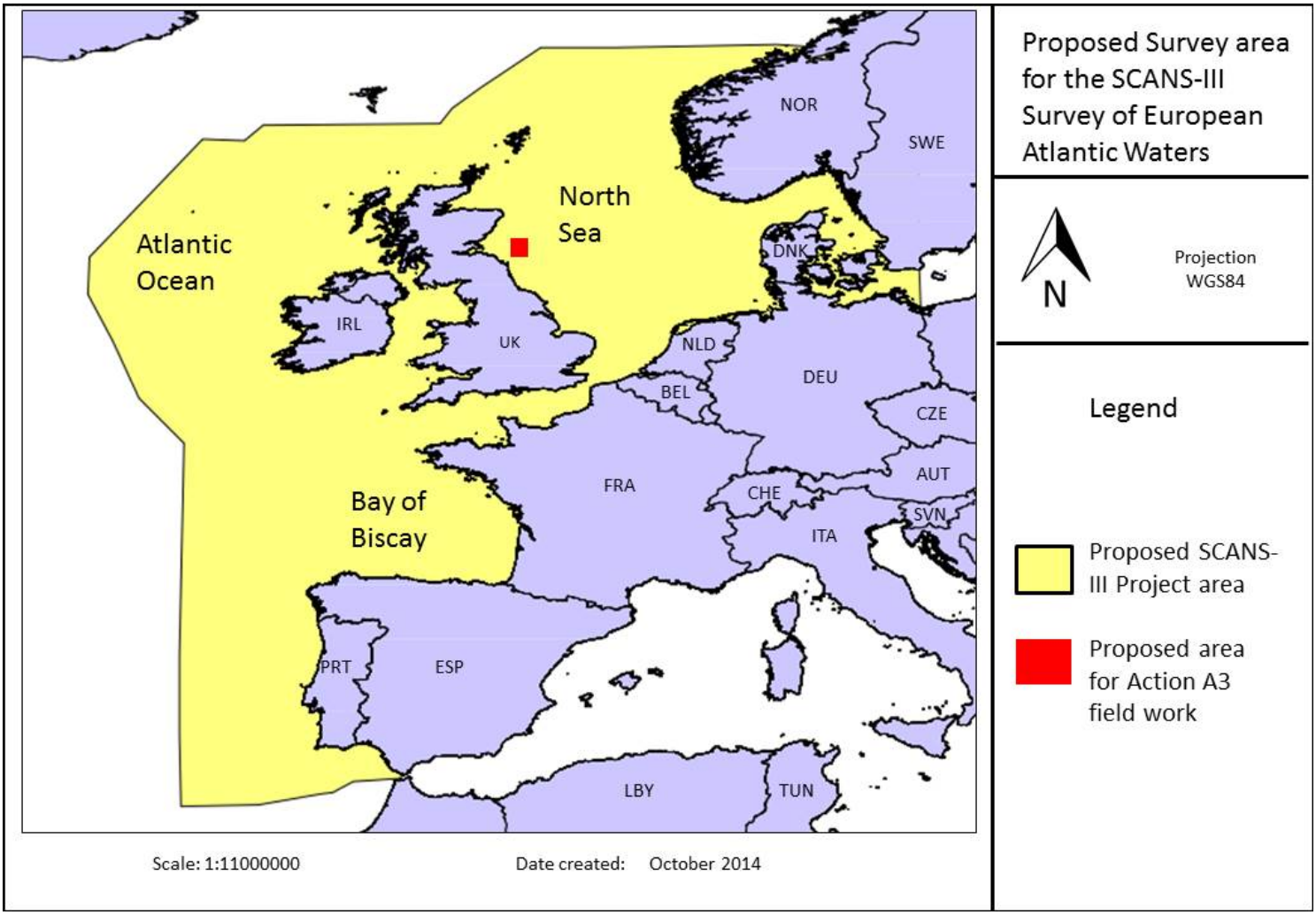
The project is scheduled to take place in 2016 Q1-Q4. A concise 1-2 page Progress Report will be produced after the field work (in 2016, Q3) outlining the success of the activities conducted.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these

are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

Name of the picture: Map showing proposed location for the methods testing fieldwork for dolphins



C. Concrete conservation actions

ACTION C.1: Aerial Survey of shelf waters for cetaceans

Description (what, how, where and when):

The study area that will be covered by aerial surveys comprises all coastal and shelf waters of the European Atlantic including the North Sea. As during the SCANS (1994) and SCANS-II (2005) surveys, the survey will be conducted in July (Hammond *et al.* 2002; 2013). Germany has undertaken to survey its waters independently following the same methodology so this Action does not include those areas in description or budget. However, these data are guaranteed to be available to the project. Collaborative discussions are underway with Norway, which is planning to conduct an aerial survey in Norwegian coastal waters in July 2016; these surveys would also be conducted using the same methodology as described in this Action and the data would also be available to the project. Accordingly, no gaps in coverage of the proposed survey area are envisaged.

Tasks within this Action:

1. Planning of survey

1.1.Final decision on cruise leaders (Q3 & Q4 2015)

The beneficiary and additional collaborators involved in this Action all have active aerial survey teams following the best practice methodology that will be used by SCANS-III. They will provide experienced cruise leaders for the six survey teams.

The responsibility of the cruise leader is to maintain close contact with the aerial survey coordinator, and to work in close cooperation with the pilot(s) and the team, keep a close watch on the weather, make sure the safety regulations are followed and to make decisions concerning the choice of track lines. He/she is also responsible for ensuring that the equipment is functioning correctly and that all data collected are stored and passed to the coordinator. There will be continuous contact between the coordinator and the cruise leaders to update on the status of the survey and to address any issues that might occur.

1.2.Call for tender & finalize contracts for observers (Q3 & Q4 2015, Q1 2016)

The tender will be aimed at observers that have experience in aerial surveys for marine mammals and that have gone through aerial survey safety training.

1.3.Call for tender aircraft charter (Q3 & Q4 2015, Q1 2016)

Six high-winged planes will be needed, each equipped with two bubble windows. These allow a downward view of the track line, a necessity for robust aerial survey sampling. To increase the time an aircraft can survey (“endurance”), additional fuel tanks are advisable. The survey speed of the planes will be 90-100 knots.

1.4. *Logistical clearance for survey flights* (Q3 & Q4 2015, Q1 & Q2 2016)

Experience from previous SCANS surveys has shown the importance of allowing sufficient time for all relevant national agencies to be informed about the planned survey. Special flying permits might be necessary to survey at the survey altitude of 600 feet, to ensure safe passage through military areas and to fly over or in the vicinity of offshore wind farms.

1.5 Finalize survey protocol (Q1 & Q2 2016)

With a total of 18 observers operating simultaneously it is vitally important to have a common protocol as a reference. The protocol will be based on the 2005 SCANS-II surveys and cover elements such as data collection, flight safety and data storage.

1.6. Book accommodation (where applicable) for survey bases in the different countries (Q1 & Q2 2016)

While some aircraft will have to move frequently to cover different survey areas, other teams will most likely be stationed in one area for most of the survey period.

2. Survey work

2.1 Participation of cruise leaders in the spring survey (A1)

The aerial survey conducted in Action A1 – Testing and Comparing Monitoring Methodologies for Harbour Porpoise in the spring of 2016 will provide an opportunity to for all cruise leaders to work together to confirm that they are all following exactly the same methodology.

2.2.Allocation of the six survey teams to the sub-strata (Q2 2016)

Six aircraft will operate simultaneously to cover the study area in one month. The survey area will be stratified into survey blocks, which will be determined by Action A2 – Survey Preparation. Each aircraft will be allocated particular blocks; however, there will be flexibility to reposition aircraft to areas where survey conditions are best to maximise efficiency.

Based on the current situation, suitable aircraft are available in the UK, France, Germany and Denmark. The teams will be allocated to the home airports of the planes were possible to facilitate maintenance necessities.

2.3.Enter all track lines and survey areas into the computers (linked to Action A2) (Q2 2016)

The survey design undertaken in Action A2 – Survey Preparation will generate the survey blocks for the study area and three sets of survey track lines for each block. The aim will be to cover each survey block twice.

2.4.Conducting the survey (Q3 2016)

During the survey, each team will comprise two observers positioned at the bubble windows on the port and starboard side of the plane and a so-called navigator (or data recorder), sitting in the front of the plane next to the pilot. The navigator will record all information online on a laptop that is connected to a GPS. The responsibility of the navigator is to enter data and to communicate with the pilot throughout the flight. During surveying, observers will relay information on sighting conditions (e.g. sea conditions) and on any sightings they make. For sightings of cetaceans information on species, group size and group composition as well as behaviour will be recorded.

Navigator and observer positions will be rotated at least after each flight, if necessary also during the flight. This is done to avoid fatigue of observers. Any off effort time, for example during transits between track lines, will be used to rest.

One method that has been developed to account for animals that are missed on the transect line, and which has been proven successful for harbour porpoises, is called the circle-back or race-track method (Hammond *et al.* 2002; 2013; Hiby 1998; Hiby and Lovell 1998). In summary, when a suitable sighting is made, this triggers a protocol wherein the aircraft breaks off transect, circles back and re-joins the transect a short distance behind where the sighting that initiated the circle-back was made. This segment is then re-surveyed. Sightings from the first and second segment are assigned a duplicate probability based on an objective model. These data are then used to estimate the probability of detecting a group of animals on the transect line. Circle-back flights must be done in areas of low to medium density of porpoises. Each circle-back takes about 3 minutes and about 100 circles are needed to ensure robust implementation of the method. The navigator will be responsible for coordinating the circle-back flights with the pilot to ensure the second segment is flown exactly over the first segment. The collected data will be analysed within Action C3 - Estimation of Abundance and Modelling the Distribution of Cetaceans.

The circle-back method will be applied to harbour porpoises, as in previous SCANS surveys, but also to dolphins and minke whales. If insufficient data are obtained for dolphins or minke whales to estimate the probability of seeing animals on the transect line, estimates will be corrected in the same way as for SCANS and SCANS-II using additional data on availability (Hammond *et al.* 2002; 2013).

2.5. *Checking and storage/upload of data (Q3 2016)*

The data collected by the seven survey teams will be validated after each survey day by the survey team. The data will then be uploaded to the survey coordinator throughout the survey.

3. Survey finalization

3.1.Final data validation (Q3 2016)

All data will go through a final stage of data validation.

3.2.Cruise reports for each survey team (Q3 2016)

Each cruise leader will provide a short and informal cruise report to the coordinator.

3.3.Providing the final database to Action C3 (Q3 2016)

The final database will be passed to Action C3 - Estimation of Abundance and Modelling the Distribution of Cetaceans for abundance estimation and use in habitat use modelling.

References:

Buckland , S T *et al.* (1993). Estimated population size of the California gray whale. Marine Mammal Science 9:235–249.

Buckland, ST *et al.* (2001) *Introduction to Distance Sampling: Estimating Abundance of Biological Populations*. Oxford University Press, Oxford.

Hammond, PS (2002) The assessment of marine mammal population size and status. In: *Marine Mammals: Biology and Conservation* (Ed. by PGH Evans & JA Raga), pp. 269–291. Kluwer Academic, London and New York.

Hammond, PS *et al.* (2002). Abundance of harbour porpoise and other cetaceans in the North Sea and adjacent waters . Journal of Applied Ecology 39 (2): 361-376.

Hammond, PS *et al.* (2013). Cetacean abundance and distribution in European Atlantic shelf waters to inform conservation and management . Biological Conservation 164: 107-122.

Hiby AR & Lovell P (1998). Using aircraft in tandem formation to estimate abundance of harbour porpoise. Biometrics 54:1280-1289.

Hiby AR (1998). The objective identification of duplicate sightings in aerial survey for porpoise. In: Marine Mammal Survey and Assessment Methods Rotterdam. Balkema.

Hiby, AR & Hammond, PS (1989). Survey techniques for estimating current abundance and monitoring trends in abundance of cetaceans. In: Donovan, GP (ed), The Comprehensive Assessment of Whale Stocks: The Early Years. IWC, Cambridge, pp 47-80.

Reasons why this action is necessary:

The conservation of cetacean populations requires reliable information on population size as well as on spatial and temporal changes in abundance. The aim of this Action, in conjunction with Action C2 – Ship Survey of Offshore Waters for Cetaceans, is to conduct the surveys to provide new data to estimate the abundance of small cetacean species in shelf and offshore waters of the European Atlantic.

Aerial surveys allow the coverage of a large area in a short time period and are thus efficient, but the range of aircraft is limited. While the shipboard surveys will operate mainly in offshore waters, the aerial surveys will cover the coastal and shelf waters of the study area.

The data provided by this Action will contribute to the abundance estimates calculated in Action C3 - Estimation of Abundance and Modelling the Distribution of Cetaceans, which will be used by Actions C4 – Determining Safe Limits to Removals from Small Cetacean Populations, C6 – Best Practice Monitoring Methods for Cetaceans, and C7 – Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans, and which will allow a comparison with the results of previous surveys conducted in 1994 and 2005.

Constraints and assumptions:

Aerial surveys cannot be conducted in bad weather. By doing the survey in summer, as in previous surveys, we expect there to be sufficient good weather available within the survey window. If 2016 has exceptionally poor weather, survey effort may be less than planned or the survey period may be extended slightly if resources allow. This should not affect ability to estimate abundance but may result in estimates with poorer precision.

Aircraft have to go through maintenance on a strict schedule depending on a maximum number of flight hours. Although all steps will be taken to ensure that maintenance does not interfere with the survey plan, it is possible that an unscheduled break will be needed, potentially requiring contingency plans to be implemented.

In some areas the desired survey coverage may be difficult to obtain due to unpredictable events, such as military activities.

Beneficiary responsible for implementation:

IMARES

Responsibilities in case several beneficiaries are implicated:

Action leader IMARES WUR will be responsible for planning, coordinating and conducting the aerial surveys and providing the results from the survey to Action C3 – Estimation of Abundance and Modelling the Distribution of Cetaceans. IMARES WUR, the University of Veterinary Medicine Hannover and the University of La Rochelle will provide six experienced cruise leaders.

Expected results (quantitative information when possible):

Completed aerial survey of coastal and shelf waters of the European Atlantic, including the North Sea.

A documented and validated database containing survey data from the aerial survey.

Indicators of progress:

Deadlines will be set for the following milestones, corresponding to the activities described above :

1. Completion of the survey planning
2. Completion of the survey work
3. Passing final results to Action C3

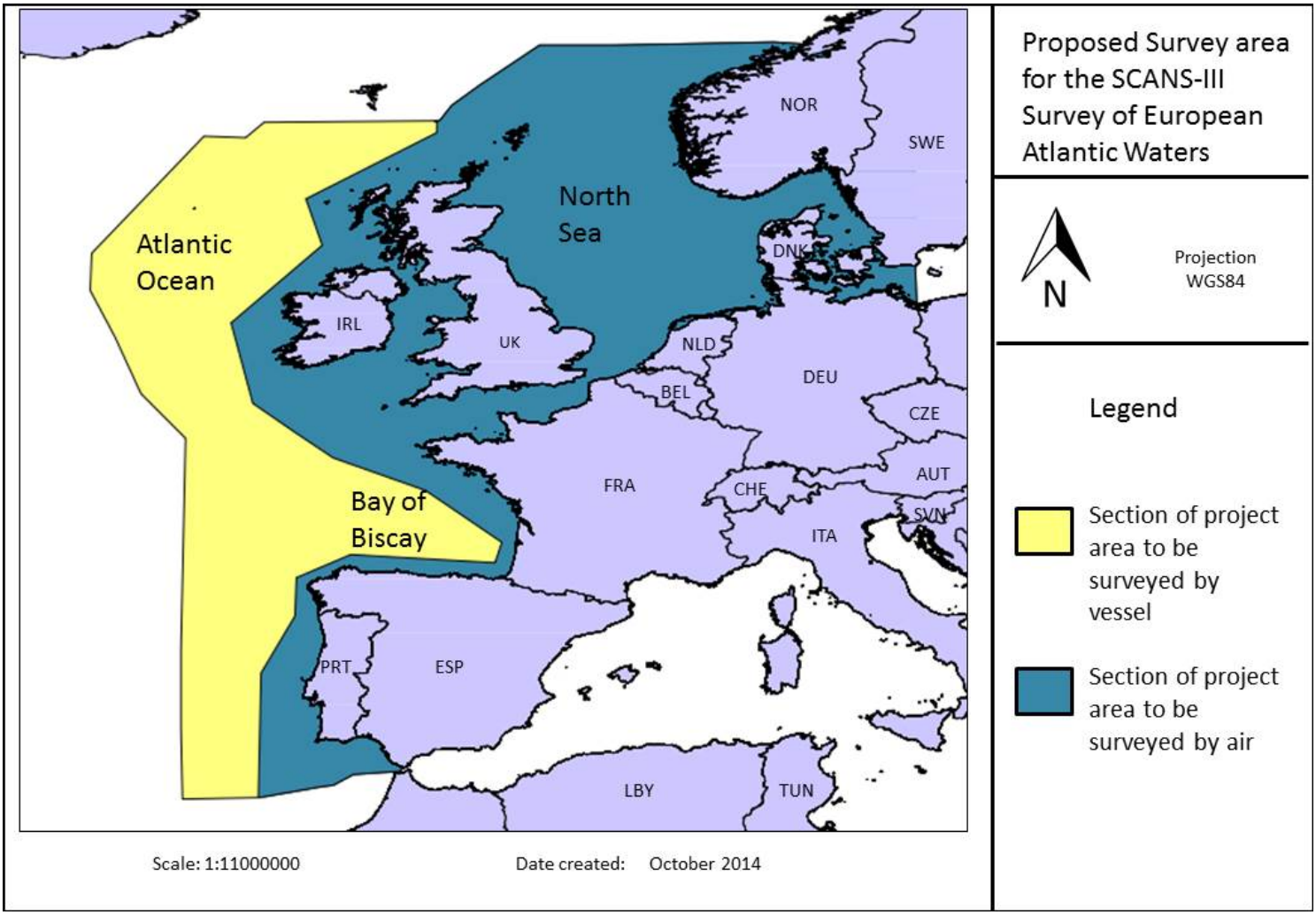
The Action Leader will monitor progress towards these milestones on a weekly basis.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on

current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

Name of the picture: Proposed Aerial Survey Area for the SCANS-III Survey of European Atlantic Waters



C. Concrete conservation actions

ACTION C.2: Vessel Survey of offshore waters for cetaceans

Description (what, how, where and when):

The aim of this Action, in conjunction with Action C1 – Aerial Survey of Shelf Waters for Cetaceans, is to conduct the surveys required to collect data necessary to estimate the abundance of all cetaceans in shelf and oceanic waters of the European Atlantic. This Action will conduct ship surveys to collect data to estimate absolute abundance of cetaceans in offshore waters to the west of the continental shelf. As during the SCANS (1994) and SCANS-II (2005) surveys, the survey will be carried out in July for a period of one month (Hammond *et al.* 2002; 2013; SCANS-II 2008). The area to be covered by ship survey corresponds to and extends the area covered during the CODA surveys (CODA 2009). Spain has undertaken to survey its waters independently following the same methodology, so this Action does not include those areas in description or budget. However, data from these surveys are guaranteed to be available to the project. Accordingly, there will be no gaps in survey coverage of the study area. Excluding waters to be surveyed by Spain, three ships will be required to cover the survey area. The continental shelf will be covered by aerial surveys as described in Action C1 - Aerial Survey of Shelf Waters for Cetaceans.

Survey Planning

Cruise leaders and observers with experience of ship surveys in European Atlantic offshore waters will be contracted.

Tenders will be issued for the charter of three survey ships. The vessels chartered will need to be capable of accommodating 10 observers, be able to maintain speeds of at least 10 knots and be capable of spending two weeks at sea without returning to port. Chartered vessels will be modified, as necessary, for cetacean data collection.

The vessels will need to be quiet to facilitate both visual and acoustic data collection. To ensure this, as part of the tender process, a hydrophone (of the type planned for the main survey, see Action A2 - Survey Preparation), will be deployed from the stern of prospective vessels and a small recording buoy, dropped off ahead of the vessel. Noise will be assessed both ahead and stern of prospective vessels and only acceptably quiet vessels will be chartered. These measurements will be repeated for each chartered vessel during the main survey.

National agencies will be contacted in good time to obtain clearance for research activities during the survey. A detailed common protocol for cruise leaders will be developed based on that used successfully on the 2005 SCANS-II surveys; it will cover elements such as data collection, safety on board and data storage.

Surveys

The ship survey conducted in Action A1 – Testing and Comparing Monitoring Methodologies for Harbour Porpoise in the spring of 2016 will provide an opportunity for all cruise leaders to undertake re-training and to re-establish a common understanding of the methodology and protocols. Cruise leaders will train observers on each ship prior to the start of the survey.

Data collection methodology will follow that used in previous ship surveys (SCANS II and CODA; Hammond *et al.* 2013; CODA 2009) but improved to take account of technological advances, which will be undertaken in Action A2 – Survey Preparation. Survey design will also be undertaken as part of Action A2, the output of which will be definition of survey blocks and pre-determined cruise tracks.

The primary mode of data collection will be visual observation with two teams of observers located on each survey vessel using the ‘trial configuration’ or BT method (Borchers *et al.* 2006; Laake & Borchers, 2004). Details of this best practice method, as used in the SCANS-II survey, are given in Hammond *et al.* (2013). A rotation of observers on each platform will operate and a total of eight observers and a cruise leader will be needed on each vessel. A seabird observer will record cetacean sightings, as well as seabirds,

so that these cetacean data can be included in assessment of monitoring methods (Action C6 - Best Practice Monitoring Methods for Cetaceans).

Surveying will occur for at least 10 hours a day when sighting conditions are favourable (sea conditions up to a maximum of Beaufort scale 4). Survey effort will be recorded real-time using software linked to the Global Positioning System (GPS) of the ship. Sightings data will be recorded by an automated data collection system, developed under Action A2 – Survey Preparation. Pre-prepared data sheets and audiotape will be available as back-up. Cruise leaders and observers will process, check and back up data at the end of each survey day.

In addition to visual observations, acoustic data will be collected using a 300m-long towed hydrophone array deployed from the stern of the vessel. The hydrophone will be linked directly to an onboard PC running PAMGUARD software with an inbuilt CD-writer for storing acoustic data generated during the survey. These data will be passed to Action C3 - Estimation of Abundance and Modelling the Distribution of Cetaceans for use in modelling distribution and to Action C6 - Best Practice Monitoring Methods for Cetaceans to contribute to the monitoring method assessment. The cetacean sightings recorded by the sea bird observers will also contribute to Action C6 - Best Practice Monitoring Methods for Cetaceans.

On completion of the surveys, cruise leaders will complete cruise reports and the data will be passed to Action C3 - Estimation of Abundance and Modelling the Distribution of Cetaceans for abundance estimation and distribution modelling, to Action C6 - Best Practice Monitoring Methods for Cetaceans for use in assessment of monitoring methods, and to Action C4 - Determining Safe Limits to Removals from Small Cetacean Populations.

References:

Borchers, DL , Laake, JL, Southwell, C & Paxton, CGM (2006). Accommodating Unmodeled Heterogeneity in Double-Observer Distance Sampling Surveys. Biometrics 62, 372–378.

CODA (2009). http://biology.st-andrews.ac.uk/coda/.

Hammond, PS *et al.* (2002). Abundance of harbour porpoise and other cetaceans in the North Sea and adjacent waters . Journal of Applied Ecology 39 (2): 361-376.

Hammond, PS *et al.* (2013). Cetacean abundance and distribution in European Atlantic shelf waters to inform conservation and management . Biological Conservation 164: 107-122.

Laake, JL & Borchers, DL (2004). Methods for incomplete detection at distance zero, in: Buckland, ST *et al.* (Eds.), Advanced Distance Sampling. Oxford University Press, Oxford.

SCANS-II (2008). http://biology.st-andrews.ac.uk/scans2/.

Reasons why this action is necessary:

This Action is necessary to provide essential data for estimating the abundance of cetacean species that inhabit waters off the continental shelf. Some species live exclusively in deeper waters; others, such as bottlenose dolphin, common dolphin and minke whale, occupy a variety of different habitats. Without this Action, information on abundance will be incomplete and the project will not be able to deliver on its main objects.

Several species (such as beaked whales, sperm whales and pilot whales) are deep divers, coming to the surface only for short periods of time, and staying submerged for up to an hour. Deploying hydrophones to collect acoustic data will provide important new information on distribution and abundance of these cryptic species.

In parts of the European Atlantic, the continental shelf is very wide, and waters beyond the shelf are beyond the coverage of aircraft, so ships are the most effective means of surveying for cetaceans in pelagic water. They are expensive but are the only way to collect the data required for accurate and robust estimation of absolute abundance in these waters, where suitable survey aircraft are unable to operate.

Constraints and assumptions:

The only risk to implementation of this Action is exceptionally bad weather during July 2016. July is

consistently the month with the best weather, one of the main reasons for the timing of the surveys. If weather is exceptionally bad in July 2016, this will result in less survey effort under acceptable conditions and estimates of abundance that are less precise than anticipated. However, this will not affect the overall outcome of the project.

Beneficiary responsible for implementation:

UCC

Responsibilities in case several beneficiaries are implicated:

Action will be coordinated by UCC, with additional fieldwork assistance being provided by St Andrews and JNCC

Expected results (quantitative information when possible):

Successfully completed shipboard survey for cetaceans in European Atlantic oceanic waters;

A comprehensive database of cetacean abundance data covering all European Atlantic offshore waters;

Acoustic data from cetaceans in European Atlantic offshore waters to inform Action C6 – Best Practice Monitoring Methods for Cetaceans;

Cetacean data from seabird observers to inform Action C6 – Best Practice Monitoring Methods for Cetaceans.

Indicators of progress:

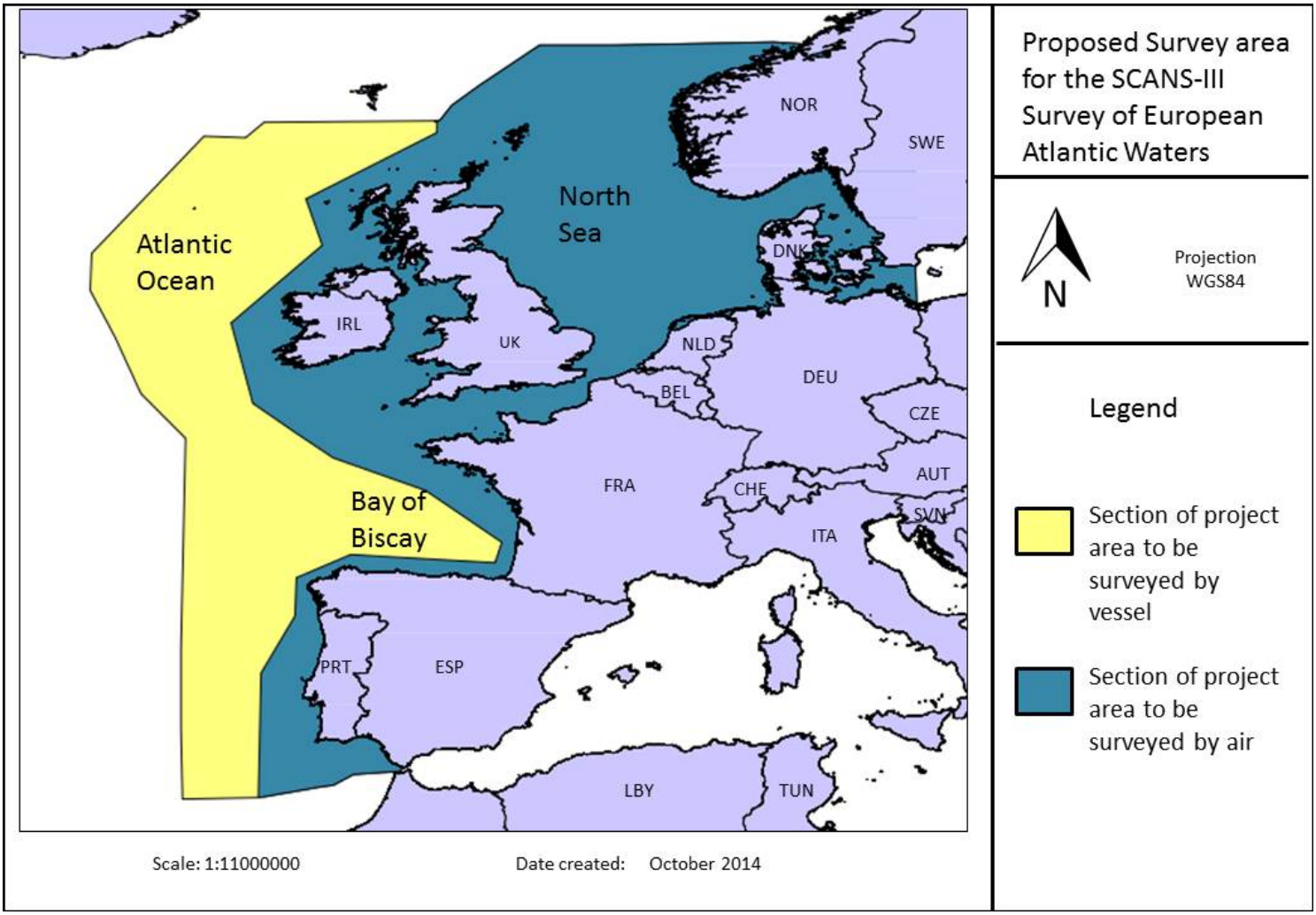
The main indicators of progress are the same as the milestones.

Deadlines will be set for the milestones described; progress towards each milestone will be monitored by the Action Leader and reported to the Project Co-ordinator.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

Name of the picture: Proposed Vessel Survey Area for the SCANS-III Survey of European Atlantic Waters



C. Concrete conservation actions

ACTION C.3: Estimation of abundance and modelling the distribution of cetaceans

Description (what, how, where and when):

This Action links closely to Actions C1 - Aerial Survey of Shelf Waters for Cetaceans and C2 – Ship Survey of Offshore Waters for Cetaceans, and to Actions C4 - Determining Safe Limits to Removals from Small Cetacean Populations, C6 – Best Practice Monitoring Methods for Cetaceans and C7 – Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans. It receives the output from Actions C1 and C2 in the form of data to be validated and analysed. After the work is completed it provides new estimates of abundance and distribution to Actions C4, C6 and C7. The steps to be taken are:

1. Validate datasets collected from aerial and shipboard surveys

An essential part of data analysis is to validate all datasets to ensure accuracy and consistency in the data. Datasets from the aerial and ship surveys will already be validated as part of Actions C1 – Aerial Survey of Shelf Waters for Cetaceans and C2 – Ship Survey of Offshore Waters for Cetaceans, respectively. In this Action, final data validation will be undertaken using standard and purpose written software, ensuring that any errors and inconsistencies are identified and corrected and that any modifications to the source data are documented.

2. Estimate abundance for cetacean species in European Atlantic waters in summer 2016

(a) Design-based estimation of absolute abundance.

Data analyses will be based primarily on design-based line transect abundance estimation methods for visual data (e.g. Hammond *et al.* 2013). This analysis will generate estimates of abundance that are robust to violations of the usual line transect sampling assumptions that occur on cetacean surveys: animals missed on the transect line either through being underwater (availability bias) or not being detected (perception bias) and, for some species, animals responding to survey ships. Analyses will be conducted in software DISTANCE using so-called mark-recapture distance sampling (MRDS) methods that account for these features of the survey, as done previously (Hammond *et al.* 2013).

If sufficient acoustic data on sperm whales are collected on the ship surveys, estimates of abundance will be made using methods described in (Lewis *et al.* 2007).

(b) Model-based estimation of abundance.

Using the survey data validated and prepared for design-based abundance estimation, so-called density surface modelling will be undertaken to generate modelled maps of how abundance is distributed spatially at a much finer scale that the design-based estimates for survey blocks. Modelling methods used will be similar to those used to analyse SCANS-II and CODA data (Hedley & Buckland 2004; Hammond et al. 2013; CODA 2009).

Using these model-based methods, abundance estimates can be generated for any appropriate defined area and not just for designed survey blocks. This will be important in the context of using the estimates to inform area-based management and for use in the framework for determining safe removal limits (Action C4 – Determining Safe Limits to Removals from Small Cetacean Populations).

3. Habitat use modelling to investigate the influence of natural and anthropogenic factors on abundance

The analytical methods used to generate model-based abundance (see above) can also provide information on which natural (e.g. depth, seabed slope, sea surface temperature) and anthropogenic (e.g. shipping) features of the environment most influence density of cetacean species. Information from this modelling will also be valuable to inform area-based management.

4. Compare estimates of abundance and distribution in 2016 with those in 1994 and 2005/07

As part of the LIFE project SCANS-II (LIFE04NAT/GB/000245), estimates of abundance for harbour porpoise, white-beaked dolphin, and minke whale for 2005 were compared with 1994 estimates from LIFE project SCANS (LIFE92 ENV/UK/00006; Hammond *et al*. 2002; SCANS-II 2008; Hammond *et al*. 2013). In this Action, the new estimates for 2016 from this project will be compared with those from 1994 and 2005 and also those from offshore waters in 2007 (CODA 2009). The wider areas surveyed in 2005/07 and 2016 will allow comparison of abundance estimates for many more species: harbour porpoise; bottlenose, common, striped, white-beaked and white-sided dolphins; pilot, sperm, and beaked whales; and minke and fin whales.

Data from SCANS were re-analysed using model-based methods as part of the SCANS-II project to allow modelled density surfaces to be compared between 2005 and 1994 (Hammond *et al*. 2013). A similar re-analysis will be undertaken in this project to model changes in distribution of key species over the last 20+ years.

References:

CODA (2009). http://biology.st-andrews.ac.uk/coda/.

Hammond, PS *et al.* (2002). Abundance of harbour porpoises and other cetaceans in the North Sea and adjacent waters. Journal of Applied Ecology 39: 361-376.

Hammond, PS *et al.* (2013). Cetacean abundance and distribution in European Atlantic shelf waters to inform conservation and management. Biological Conservation 164: 107-122.

Hammond, PS *et al.* (2014). Large scale surveys for cetaceans: Line transect assumptions, reliability of abundance estimates and improving survey efficiency – A response to MacLeod. Biological Conservation 170: 338-339.

Hedley, SL & Buckland, ST (2004). Spatial models for line transect sampling. Journal of Agricultural, Biological and Environmental Statistics 9: 181-199.

Lewis, T *et al.* (2007). Sperm whale abundance estimates from acoustic surveys of the Ionian Sea and Straits of Sicily in 2003. J. Mar. Biol. Ass. UK 87: 353–357.

MacLeod, CD (2014). One size does not necessarily fit all for cetacean abundance

estimate survey design – Reply to Hammond et al. (2013). Biological Conservation 170: 336-337.

SCANS-II (2008). http://biology.st-andrews.ac.uk/scans2/.

Thomas L *et al.* (2010). Distance software: design and analysis of distance sampling surveys for estimating population size. Journal of Applied Ecology 47: 5–14.

Reasons why this action is necessary:

This Action is central to the project because it takes the new survey data from Actions C1 Aerial Survey of Shelf Waters for Cetaceans and C2 – Ship Survey of Offshore Waters for Cetaceans, and delivers new estimates of abundance to Actions C4 - Determining Safe Limits to Removals from Small Cetacean Populations, C6 – Best Practice Monitoring Methods for Cetaceans and C7 – Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans. Without this new information, these Actions cannot be fully undertaken.

More generally, the most recent comprehensive robust estimates of abundance for cetaceans in European

Atlantic waters are from 2005 (shelf waters) and 2007 (offshore waters). The environment in this region has been changing rapidly and it is essential to obtain new up to date estimates of abundance.

Constraints and assumptions:

Abundance estimation depends on successful completion of the aerial and shipboard surveys under Actions C1 Aerial Survey of Shelf Waters for Cetaceans and C2 – Ship Survey of Offshore Waters for Cetaceans. However, even if there are fewer survey data than expected due to poorer than expected weather, robust estimates of abundance for the main cetacean species will still be possible, but they may be less precise. In the case of smaller than expected sample sizes, model-based abundance estimation and habitat use modelling may be restricted to fewer species.

Beneficiary responsible for implementation:

St Andrews

Responsibilities in case several beneficiaries are implicated:

Overall responsibility for Action – St Andrews. Survey design – St Andrews. Ship survey design-based abundance estimation – St Andrews. Aerial survey design-based abundance estimation – University of Veterinary Medicine, Hannover. Model-based abundance estimation and distribution modelling – St Andrews.

Expected results (quantitative information when possible):

New information on the distribution and abundance of cetacean species in European Atlantic waters in the form of:

1. Estimates of absolute abundance for: harbour porpoise; bottlenose, common, striped, white-beaked and white-sided dolphins; pilot, sperm and beaked whales; minke and fin whales.

2. Distribution maps generated from density surface / habitat-use modelling for most of the above species.

3. Comparison of how distribution and abundance have changed in 2016 compared to 1994 and 2005/07.

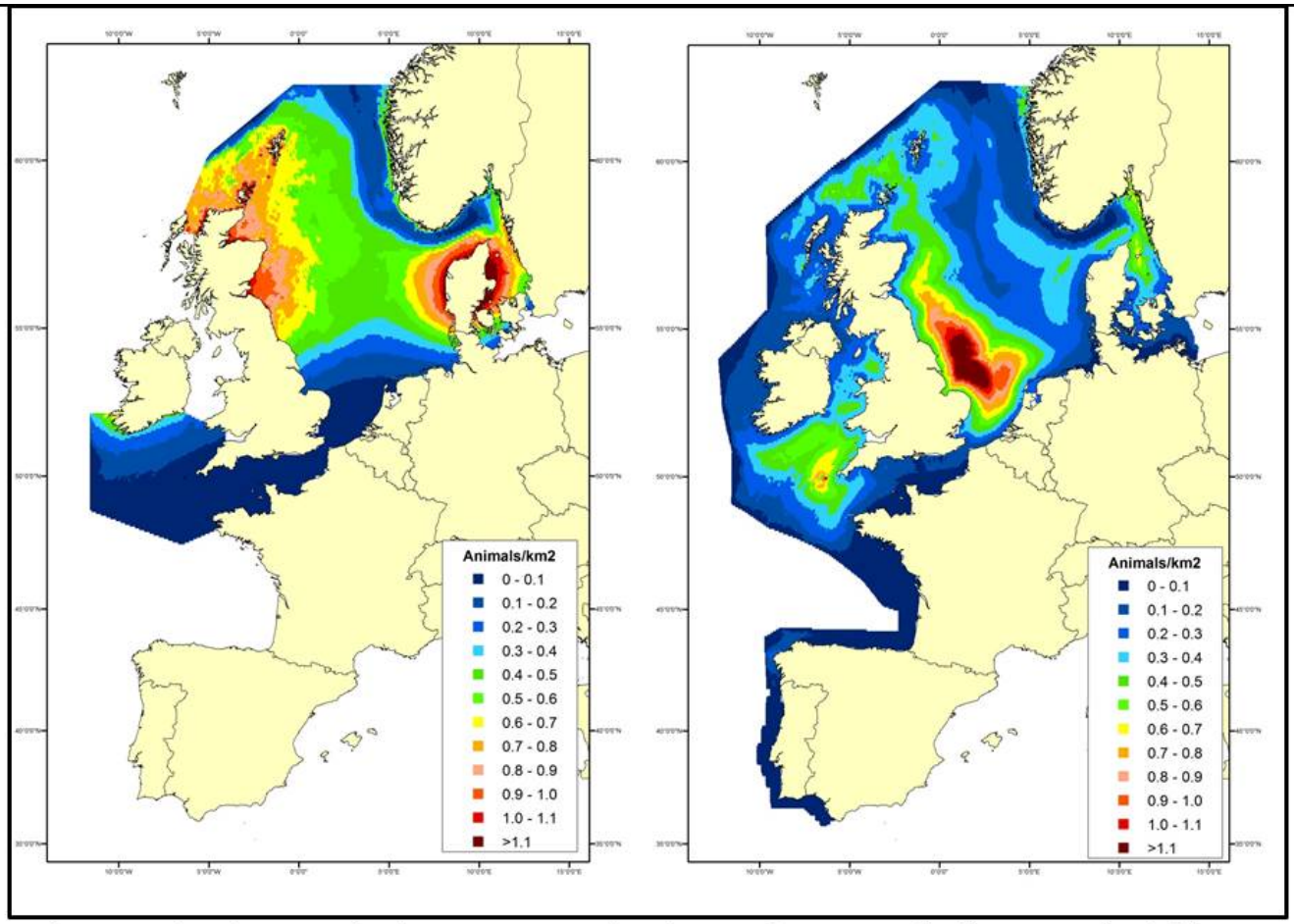
Indicators of progress:

Deadlines will be set for the defined milestones. Progress towards these milestones will be monitored by the Action Leader on a weekly basis.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

Name of the picture: Maps showing the change in harbour porpoise distribution from 1994 to 2005.



Maps showing the change in harbour porpoise distribution from 1994 (left) to 2005 (right) (Hammond et al., 2013). Further analyses of this type are planned in action C3

C. Concrete conservation actions

ACTION C.4: Determining safe limits to removals from small cetacean populations

Description (what, how, where and when):

This Action is based on work initially undertaken during the SCANS-II project for harbour porpoise (SCANS-II 2008), and continued under the CODA project for common dolphin (CODA 2009). These previous projects developed methods for determining safe limits to bycatch removals as described in detail in Winship (2009). These methods are often referred to as management procedure approaches in the context of whaling or fisheries. A more generic term is management strategy evaluation.

The basis of these methods is to determine limits to removals that enable specified conservation objectives to be met. This is achieved by performing computer simulations that assess the ability of removal limit algorithms to allow simulated populations under management to meet specified performance targets. The simulations incorporate a wide range of plausible uncertainties in population dynamics and structure, historical removals, abundance estimates, environmental change, etc. The resulting removal limit algorithms are thus robust to uncertainty in past, present and future knowledge.

The purpose of this Action is to take the existing methods and to develop them further to incorporate consideration of anthropogenic mortality additional to fisheries bycatch, including ship strikes, and to allow their implementation for cetacean species of conservation concern in the European Atlantic using new information on abundance and removals. The aim is to generate safe limits to non-natural removals for all these species for Management Areas proposed by ICES for a Habitats Directive/MSFD reporting period of 6 years.

The results will be used by Action C7 – Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans, in assessment of status.

To achieve these aims, the following steps will be followed.

1. Conservation objectives

The first step in generating safe limits to removals is the establishment of conservation objectives in quantitative terms. These are policy, not scientific, decisions. European policymakers have not established specific conservation objectives for small cetaceans in the European Atlantic, or indeed anywhere else. Therefore, for the purposes of this work, as in previous work, the interim conservation objective agreed by ASCOBANS will be taken as a default, pending such time as conservation objectives are agreed. This objective is to allow populations to recover to and/or maintain 80% of carrying capacity in the long term.

2. Removal limit algorithms

Two removal limit algorithms for small cetaceans have previously been tested in a management strategy evaluation framework: one based on the principles of the US Potential Biological Removal (PBR) algorithm; the other based on the principles of the IWC's Catch Limit Algorithm (CLA) (CODA 2009). The main difference between the PBR and CLA approaches is that the CLA fits a population model to time series of population abundance and removals data to estimate depletion level, updating this when new data become available. It thus performs increasingly well as time progresses. This also allows the incorporation of a population protection level below which removals limits are set to zero. These features make CLA-based algorithms generally preferable to PBR because their use of more information means better conservation performance In particular, the ability to set a protection level and to set zero limits to removals when populations are depleted means that populations recover faster under management using the CLA than using PBR (Winship 2009).

This Action will thus develop removal limit algorithm(s) based on the CLA approach. The work will show whether a single generic removal limit algorithm is appropriate or whether species (case) specific algorithms are required.

3. Operating model for simulation testing of removal limit algorithms

A computer-based simulation model (also known as an operating model) will be developed for testing the performance of removal limit algorithms.

The operating model simulates a small cetacean population over time whilst also simulating surveys of the size of this population at specified periods. Animals are removed from the modelled population annually according to limits set by the removal limit algorithm. The removal limit algorithm has no knowledge of the true size of the population; its knowledge is limited to the simulated survey data and the removals. Thus, the simulation model mimics how the removal limit algorithm would operate in practice and, thus, how one would expect populations to fare under management of anthropogenic activity in reality. A key aspect of the removal limit algorithm is that the more uncertainty there is in estimates of abundance and removals, the lower the calculated safe limits to removals; removal limit algorithms are thus inherently precautionary.

The model of the cetacean population will incorporate age structure, density dependence (in birth rate), multiple subpopulations (with dispersal among them), and environmental variation (represented by systematic changes in carrying capacity, periodic catastrophic mortality events, and random fluctuations in birth rate). Survey estimates will be generated with random error and potentially directional bias. Similarly, removals will be modelled as a random (and potentially biased) realization of the limit calculated by the removal limit algorithm(s).

The operating model will allow for multiple management areas that do not necessarily correspond to the spatial ranges of subpopulations. Thus, the model will allow for flexible spatial scenarios regarding management and subpopulation structure (e.g. seasonal mixing).

4. Simulation testing of removal limit algorithm(s)

To assess the robustness of the removal limit algorithm(s), a series of performance-testing simulation trials will be conducted using the operating model. These trials will cover a wide range of plausible uncertainties. The performance of the removal limit algorithm(s) will be examined with respect to uncertainty in initial population status (depletion), maximum population growth rate, shape of the density dependent relationship for fecundity, survey precision and bias, removals precision and bias, survey frequency and environmental variability.

Simulations will be run for 100 years and the performance of the removal limit algorithm(s), i.e. how well it meets the conservation objectives, will be measured by performance indicators such as final population size and final depletion level.

5. Application of the removal limit algorithm(s)

Once development and testing of the removal limit algorithm(s) has been completed, and it has been finalised, it will be applied to species to calculate safe limits to removals. This step will use the new abundance estimates available from the new survey data (from Action C3) and previous surveys (Hammond *et al.* 2002; 2013). It will also incorporate the best (even if uncertain) information on past removals. Safe

limits to removals will be calculated and these will form the final outputs from this Action, to be used by Action C7.

CODA (2009). http://biology.st-andrews.ac.uk/coda/.

Hammond, PS *et al.* (2002). Abundance of harbour porpoises and other cetaceans in the North Sea and adjacent waters. Journal of Applied Ecology 39: 361-376.

Hammond, PS *et al.* (2013). Cetacean abundance and distribution in European Atlantic shelf waters to inform conservation and management. Biological Conservation 164: 107-122. doi: 10.1016/j.biocon.2013.04.010.

SCANS-II (2008). http://biology.st-andrews.ac.uk/scans2/.

Winship, AJ (2009). Estimating the impact of bycatch and calculating bycatch limits to achieve conservation objectives applied to harbour porpoises in the North Sea. Unpublished PhD thesis, University of St Andrews, UK.

Reasons why this action is necessary:

Action C7 - Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans will develop a framework for assessing the status of small cetacean populations in the European Atlantic using new information on abundance (from Action C3 – Estimation of Abundance and Modelling Distribution of Cetaceans), and by placing the impact of threats (assessed in Action C5 – Creation of Database and Assessment of Pressures & Threats to Cetaceans) in the context of safe limits to removals. This Action will provide those safe limits to removals.

Constraints and assumptions:

Ideally, European policymakers will agree conservation objectives for anthropogenic removals from small cetacean populations before this work commences. If not, the ASCOBANS interim objective will be used as a default. Otherwise, there are no obvious constraints or risks to the Action; it will be based on previous best practice work.

Beneficiary responsible for implementation:

St Andrews

Responsibilities in case several beneficiaries are implicated:

Action leader - St Andrews.
Others involved in overseeing the work - Newcastle University, UCC, JNCC

Expected results (quantitative information when possible):

This Action will produce a description of the methods developed and used to generate safe limits to removals and also those safe limits to removals themselves, calculated for species of cetacean that are subject to removals from bycatch and other anthropogenic activities. These results will be passed on to be used by Action C7 - Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans.

Indicators of progress:

Progress towards each milestone will be assessed regularly by the Action leader on a weekly basis.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train

travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

C. Concrete conservation actions

ACTION C.5: Creation of database and assessment of pressures & threats to cetaceans

Description (what, how, where and when):

Cetacean populations are threatened by a range of anthropogenic activities. Some of these **pressures** (factors which are acting now or have been acting during the Habitats Directive reporting period) cause direct mortalities e.g. hunting, incidental catch in fisheries (bycatch), ship strikes and naval sonar. Other **threats** (factors expected to be acting in the future) may cause mortalities through cumulative or long-term exposure or in combination e.g. noise (from seismic surveys, offshore infrastructure & shipping), pollutants (e.g. PCBs) and climate change related effects. Data on both pressures and threats to cetaceans are patchy over time and space and there is a clear need to collate and analyse these data from all available sources to assess health status of cetacean populations.

The objective of this Action is, first, to collate data on, and assess the extent of, pressures and threats to cetacean populations within European Atlantic waters and, second, to assess the impact of these pressures and threats. Emphasis will be put on assessment of the combined effect of different sources of pressures and threats rather than assessing them independently. The information from this Action will, together with Actions C6 (Best Practise Monitoring Methods for Cetaceans), C3 (Estimation of Abundance and Modelling the Distribution of Cetaceans) and C4 (Determining Safe limits to Removals from Small Cetacean Populations) provide the necessary information to implement Action C7 (Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans).

A database will be created that collates temporal and spatial data on pressures & threats (fisheries bycatch, ship strike risk, noise sources and offshore energy developments). These data will be used to create pressure and threat layers in a Geographical Information System (GIS) framework. The data layers will allow the potential change in each pressure/threat resulting from management actions or new developments to be evaluated. Cetacean density data from the previous SCANS, SCANS-II and CODA surveys (Hammond *et al.* 2002; 2013, CODA 2009) and other sources will also be used to assess temporal variability in distribution patterns with respect to pressures & threats.

Main pressures and threats

Fisheries bycatch has been identified globally as the most significant pressure to cetacean populations (Read *et al.* 2006) and this is also likely true in the study area (Berggren *et al.* 2002; Bjørge *et al.* 2013; Northridge 2012; Rogan & Mackey 2007; Vinther & Larsen 2002). Bycatch data are considered by the ICES Working Group on Bycatch (WGBYC) and the Scientific Committee of the IWC. Cetacean bycatch occurs in a range of fishing gear, including gillnets (bottom set and driftnets) trawl (single and pair), purse seine and entanglement in pot/trap lines, throughout the study area (ICES WGBYC 2012). Bottom set gillnets are likely responsible for most harbour porpoise bycatch, pelagic trawls and driftnets for most dolphin bycatch and trap lines for bycatch of baleen whales. Previous cetacean bycatch assessments have been restricted by lack of detailed data on fishing effort and bycatch information, and little effort has been made to analyse the spatial and temporal overlap between fishing effort and cetacean distributions. The latter will be addressed in this Action and, by applying GIS tools, comprehensive temporal and spatial analyses will be conducted of fisheries as pressures to cetacean populations in the SCANS-III project area. Data on bycatch for fisheries, area and bycatch species compiled by ICES and IWC, complemented with data from individual countries within the proposed SCANS-III survey area, will be obtained to allow comprehensive analyses in this Action.

Ship strikes (vessels colliding with cetaceans) represent a pressure globally including European waters. Risk of a fatal collision is related to numbers and speeds of vessels (Laist *et al.* 2001). Most reports of collisions involve large whales; however collisions with dolphins and harbour porpoise also occur. Most struck animals likely remain undetected so a combination of documented ship strikes and risks of collisions (based on modelled data) is needed to estimate cetacean mortalities from ship strikes. A standardized global database of collisions between vessels and whales has been developed by the IWC, which is valuable for identifying high risk or unsuspected problem areas. Data on ship-strikes are also reported by Parties to ASCOBANS. Ship strikes are also investigated by national institutes within EU working on pathology of stranded cetaceans (e.g.

UK Cetacean Strandings Investigation Programme, ukstrandings.org).

Ship traffic and movement can be monitored from several systems e.g. Automatic Identification System (AIS), Long Range Identification and Tracking (LRIT) and the World Meteorological Organization Voluntary Observing Ships Scheme (VOS) (Evans *et al.* 2011). For the purpose of the pressures & threats assessment in this Action the AIS system will provide the most appropriate data. Other studies that are generating data on shipping densities within the study area will be reviewed to address any data gaps or differences in density metrics such that consistent data on shipping density and vessel characteristics can be generated for the whole area. Where specific gaps are identified the project will source or purchase relevant AIS data from either terrestrial or satellite sources. These data layers will allow assessments of ship strike risk (speeds of vessels will be included as well as cumulative distance travelled per unit time) and underwater noise (based on noise characteristics of different classes of vessel). The assessment of ship strike risk (through overlap with cetacean and shipping distribution) will be compared with data on known instances of ship strikes to assess the likely overall impact of the ship strike threat. Temporal and spatial data on ship strikes compiled by ASCOBANS and IWC, complemented with data from individual countries within the proposed SCANS-III survey area, will be obtained to allow more comprehensive analyses by this Action.

Cetacean mortalities related to naval sonar are investigated by national strandings investigation programmes. If the SCANS-III project can get data access from individual member states on naval sonar activities then this pressure will also be included in the threats database.

Other initiatives associated with the Marine Strategy Framework Directive (MSFD) are working on assessing underwater noise threats within EU waters (see e.g. Dekeling *et al.* 2013). These include indicators and monitoring programmes for both ambient anthropogenic noise (primarily shipping) and intense noise sources (primarily seismic, sonar and pile driving). This Action will assess the outputs of these initiatives, most of which will be conducted at national level, to generate consistent data sets on ambient noise and use of intense noise sources in the study area.

Data on fishing activities, vessel traffic and offshore renewable energy construction will be collected during both the method testing surveys (Actions A1 & A3 - Testing and Comparing Monitoring Methodologies for Harbour Porpoise, and for Dolphins, respectively) and the main abundance surveys (Actions C1 & C2 - Aerial Survey of Shelf Waters for Cetaceans, and Ship Survey of Offshore Waters for Cetaceans, respectively) and provide pressure layer data for modelling of fisheries and ship strike mortalities in the SCANS-III survey area.

The assessments in this Activity will allow impacts of different management decisions to be assessed for multiple pressures on & threats to cetacean populations within the study area. This will allow evaluation of the potential impacts of new developments or mitigation measures to reduce certain pressures and threats. The ability to simulate the effects of management actions at scales relevant to populations will allow effective prioritisation of measures to reduce overall pressures and threats. This will facilitate achieving and /or maintaining Favourable Conservation Status for cetacean populations and Good Environmental Status with respect to pressures impacting cetaceans, which will be addressed in Action C7 - Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans.

Delivery of the Action

The Action Leader will establish a Working Group consisting of the leaders of Actions C3, C4, C6 and C7 and the participants in this Action that will guide progress. The data analyses will be conducted by Newcastle University (UK), University of St Andrews (UK), University College Cork (IE) and the Consultant. Two data analyses workshops are planned where the data analysis group will meet during a couple of days to discuss methods, progress and to solve any data problems. During periods between workshops correspondence will be carried out through email and conference calls. A final Workshop to review draft recommendations will be organised and include the broader Working Group.

References

Berggren *et al.* 2002. *Biol Cons* 103:313–322.

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Hammond, PS *et al*. 2013. *Biol Cons* 164:107-122.

ICES WGBYC 2012. ICES CM 2012/ACOM: 28. 67pp.

Laist *et al.* 2001. *Mar Mam Sci* 17:35–75

Northridge *et al.* 2012. Report to the European Commission on the Implementation of Regulation 812/2004.

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Rogan & Mackey 2007. *Fish Res* 86: 6–14.

Vinther & Larsen 2004. *J Cet Res Manage* 6:19-24.

Reasons why this action is necessary:

The cetacean species found in the SCANS-III project area are top predators and as such serve as good indicator species for health of the marine ecosystems where they live. They are long lived, produce few young and have very limited potential for population growth which makes them particularly vulnerable to additional non-natural mortalities.

This Action will address the combined impact of different sources of anthropogenic removals which currently prevents comprehensive assessment of pressures and threats to cetaceans in the SCANS-III area. This will facilitate the EU requirement for evaluation of Annex II and IV species listed under the Habitats Directive.

This Action will provide essential information to Action C7 (Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans). It will thereby facilitate large scale assessments of species' Good Environmental Status under the MSFD.

This Action will provide valuable contributing information to management of fisheries, shipping, marine fossil fuel and renewable energy developments and military sonar use, and for development of mitigation measures to prevent harm from these activities to cetacean populations. The information will further be important for management of marine protected areas in the Habitats Directive's Natura 2000 network and also inform EU Member States about where and when mitigation activities may need to be implemented in order to achieve Good Environmental Status (GES) under MSFD. In the context of MSFD, the pressures & threats layer database will provide large scale spatial data specifically on activities that may cause mortalities to cetaceans. When these layers are coupled with the species abundance layers from Action C3, the numbers of animals impacted can be estimated, which then can be compared with the safe limits to removals calculated under Action C4 and ultimately the Environmental Targets for GES (Action C7).

Constraints and assumptions:

The success of this action is reliant on the success of sourcing the necessary data for the pressures and threats that will assessed. The collaborators of the SCANS-III project are currently active in national, governmental and non-governmental organisations that collate most of the pressures and threats data that are needed to implement this Action. This will facilitate access to the data needed to implement the Action.

Beneficiary responsible for implementation:

Newcastle

Responsibilities in case several beneficiaries are implicated:

Action Leader: Newcastle University (UK)
Contributors:
University of St Andrews (UK)
Joint Nature Conservation Committee (UK)
University of Cork (Ireland)
Russell Leaper (Consultant) (UK)

Expected results (quantitative information when possible):

1) Pressures & threats database and GIS layers.

2) Analysis tool that will use the database and GIS layers to assess management options.

3) Comprehensive spatial and temporal assessment of multiple pressures & threats (fisheries bycatch, ship strikes and multiple noise sources) to cetacean species/populations within the study area.

Indicators of progress:

The project is scheduled to take place between 2015 Q4 and 2017 Q3. For each second quarter (biannually), a concise 1-2 page Progress Report comprising the Tasks (a) scheduled (b) under way, (c) undertaken and (d) group decisions made within Tasks that occur in each second quarter will be reported. These progress reports will act as indicators of progress for the project coordinators.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

C. Concrete conservation actions

ACTION C.6: Best practice monitoring methods for cetaceans

Description (what, how, where and when):

This Action will analyse data from Actions A1 & A3 (Testing and Comparing Monitoring Methodologies for Harbour Porpoise, and for Dolphins, respectively) and Actions C1 and C2 (Aerial Survey of Shelf Waters for Cetaceans, and Ship Survey of Offshore Waters for Cetaceans, respectively) to determine best practise monitoring methods to estimate temporal and spatial trends in abundance between decadal large-scale SCANS-type surveys for harbour porpoise, bottlenose dolphin[1], short-beaked common dolphin, white-beaked dolphin and minke whale in the SCANS-III survey area. These represent the cetacean species that the International Council for the Exploration of the Sea (ICES Advice, 2014) concluded that Indicators and Targets of relevance to cetacean abundance should be assessed.

The recommendations for best practise monitoring methods will be based on power analyses evaluating each method's power to detect change in abundance for each species over a set time period and geographical area. A cost-benefit analysis will also be conducted which will indicate and compare the cost of using the different methods to achieve a stated monitoring objective (e.g. what is the cost of using the method if a 80% power is needed to detect a 10% decrease in abundance over 6 years). The power analyses will incorporate the different sources of variation associated with each of the methods tested which is a major contributor to a methods' ability to detect change in abundance over time. This Action will include consideration of new methodology (e.g. digital aerial photography will be tested in A1) and new developments in existing methodology (new autonomous cetacean click and whistle recorders also tested in Actions A1 & A3 - Testing and Comparing Monitoring Methodologies for Harbour Porpoise, and for Dolphins, respectively), more comprehensive data collection for respective method tested and more comprehensive cost-benefit analyses compared to the evaluation of monitoring methods conducted in the SCANS-II project (SCANS-II 2008). The main aim of this Action is to provide recommendations for Best Practice Monitoring methods for the species and areas covered by this project.

The following three platforms and eight methods will be compared for their statistical power and cost effectiveness to detect change in abundance/indices of abundance of cetaceans over a set time period (for details of the methods see Actions A1 & A3 - Testing and Comparing Monitoring Methodologies for Harbour Porpoise, and for Dolphins, respectively):

Moored autonomous acoustic recorders

1) Cetacean Click Detector C-POD (www.chelonia.co.uk);

2) SoundTrap underwater sound recorder (www.oceaninstruments.co.nz/soundtrap-202hf/);

3) Song Meter SM2/3M Submersible recorder (www.wildlifeacoustics.com);

Vessel surveys

4) Line transect methods using double platform visual data collected by dedicated cetacean observers (Hammond *et al.* 2013);

5) Seabird observers that will collect data on cetaceans as well as seabirds. The data from these observers will be used as a proxy for a single observer on a ship of opportunity (see e.g. www.seabirds.net/esas.html; http://jncc.defra.gov.uk/page-4469);

6) Acoustic data collected by towed hydrophone array systems that record all echolocation activity of porpoises and dolphins (Borchers and Burt 2007; SCANS-II 2008);

Aerial surveys

7) Line transect methods using visual data collected by dedicated cetacean observers (Hammond *et al.* 2013);

8) Digital photography, representing a new technology currently used for monitoring seabirds but not previously assessed for monitoring cetaceans (Thaxter and Burton 2009; Buckland *et al.* 2012).

Appropriate data collation and statistical tools will be developed for analyses of monitoring data and comparison of methods. Currently, only some of the methods that will be compared may generate absolute abundance estimates (e.g. 4 and 7 above) whereas most may provide relative abundance/density data. To date, moored detectors (e.g. C-PODs) may only provide occurrence/encounter rates of animals based on recorded echolocation clicks rather than density of animals because of difficulties in determining whether recorded clicks represent one or more individual animals. However, this issue will likely be resolved by the start date of the proposed SCANS-III project through analytical developments by the SAMBAH EU-Life project (LIFE08 NAT/S/000261). The absolute abundance method developed in the SAMBAH project will be used to estimate absolute density of harbour porpoise for direct comparison with the other methods used for this species.

The constraints and potentials for all tested monitoring methods will be comprehensively reviewed and the detailed comparisons will be reported under this Action. The data for the analyses and comparisons will be provided by Actions A1 & A3 (Testing and Comparing Monitoring Methodologies for Harbour Porpoise, and for Dolphins, respectively) and Actions C1 and C2 (Aerial Survey of Shelf Waters for Cetaceans, and Ship Survey of Offshore Waters for Cetaceans, respectively). The aim of this Action is to provide recommendations for best practice monitoring methods for cetacean species for which abundance estimates will be generated during the proposed SCANS-III survey.

The recommendations from this Action will, together with Actions C5 (Creation of Threats Database and Assessment of Threats to Cetaceans), C3 (Estimation of Abundance and Modelling Distribution of Cetaceans) and C4 (Determining Safe Limits to Removals from Small Cetacean Populations), provide the necessary information to implement Action C7 (Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans).

Delivery of the Action

The Action Leader will establish a Working Group consisting of the Action leaders for Actions A1, A3 and C3 and the participants of this Action that will guide the progress of the Action. The data analyses will be conducted by the participants from Aarhus University (Denmark), Newcastle University (UK) and St Andrews University (UK). Two data analyses workshops are planned where the data analysis group will meet during a couple of days to discuss methods, progress and to solve any data problems. During periods between workshops correspondence will be carried out through email and conference calls. A final Workshop to review draft recommendations will include the broader Working Group.

[1]Inshore bottlenose dolphins will not be targeted for this Action because there is general consensus that photographic identification of individual animals from boat surveys and mark recapture methods are appropriate methods for short and long term spatial and temporal monitoring of Inshore bottlenose dolphin populations.

References

Borchers, DL & Burt, L (2007). Investigation of towed hydrophone monitoring power for harbour porpoise on the SCANS II survey. CREEM Technical report 2007-4. 8pp.

Buckland, ST, *et al.* (2012). Aerial surveys of seabirds: the advent of digital methods. Journal of Applied Ecology 49: 960–967.

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ICES Advice (2014). http://www.ices.dk/community/advisory-process/Pages/Latest-Advice.aspx

SCANS-II (2008). http://biology.st-andrews.ac.uk/scans2/.

Thaxter, CB & Burton, NHK (2009) High Definition Imagery for Surveying Seabirds and Marine Mammals: A Review of Recent Trials. British Trust for Ornithology Report Commissioned by Cowrie Ltd.

Reasons why this action is necessary:

There are no recommendations available for best practice monitoring methods for cetaceans and currently Member States employ different monitoring methods preventing effective monitoring of cetaceans across the larger spatial scales necessary to assess Good Environmental Status under the MSFD. This Action will provide the tools and recommend best practice monitoring methods for effective spatial and temporal monitoring of trends in abundance/indices of cetacean abundance in European Atlantic waters between decadal-scale abundance surveys.

This Action, together with Actions C5 (Creation of Threats Database and Assessment of Threats to Cetaceans), C3 (Estimation of Abundance and Modelling Distribution of Cetaceans) and C4 (Determining Safe Limits to Removals from Small Cetacean Populations), provides essential input to Action C7 (Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans).

The outcomes of this Action will inform Member States on the appropriate methods for EU wide monitoring of cetaceans as required under the Marine Strategy Framework Directive and individual Member States' obligations for monitoring under the EU Habitat Directive.

Constraints and assumptions:

The success of this Action is reliant on the success of implementing the testing of methods in Actions A1 & A3 (Testing and Comparing Monitoring Methodologies for Harbour Porpoise, and for Dolphins, respectively), which will provide the necessary data to evaluate and compare the tested methods. It is important that sufficient sample sizes are achieved in Actions A1 & A3 to facilitate robust statistical analyses in this Action.

Beneficiary responsible for implementation:

Newcastle

Responsibilities in case several beneficiaries are implicated:

Action Leader: Newcastle University (UK)
Contributors:
University of St Andrews (UK)
Aarhus University (Denmark)
Joint Nature Conservation Committee (UK)
Department of Arts Heritage and the Gaeltacht (Ireland)
Russell Leaper (Consultant) (UK)

Expected results (quantitative information when possible):

The expected results are:

Recommendations for best practise monitoring methods to estimate temporal and spatial trends in abundance between decadal large-scale SCANS-type for harbour porpoise, bottlenose dolphin, short-beaked common dolphin, white-beaked dolphin and minke whale in European Atlantic waters.

A cost-benefit analysis to provide further information on which method is most cost effective to achieve a stated monitoring objective for the species considered.

Indicators of progress:

The Action is scheduled to take place between 2016 Q1 and 2017 Q3. For each second quarter (biannually), a concise 1-2 page Progress Report comprising the Tasks (a) scheduled (b) under way, (c) undertaken and (d) group decisions made within Tasks that occur in each second quarter will be reported. These progress reports will act as indicators of progress for the project coordinators.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

C. Concrete conservation actions

ACTION C.7: Trans-boundary assessment of environmental / conservation status of cetaceans

Description (what, how, where and when):

The overall aim of this Action is to develop and test a framework for collaborative Member State assessment and reporting on the status of regularly occurring European cetacean species based, among other considerations, on the estimates of abundance and anthropogenic removals generated in other SCANS-III Actions. The design process and assessment framework developed under this Action will set out an approach by which future trans-boundary reporting for the 2008/56/EC 'Marine Strategy Framework Directive' (MSFD) and possibly the Habitats Directive may be achieved.

It is expected that the experimental approach and outputs of this Action will create efficiencies at the next reporting rounds for both the Habitats Directive and the MSFD and will permit the assessments to be undertaken at different spatial scales (e.g. for national/shared waters and European Regional Seas).

Marine Strategy Framework Directive

The MSFD specifies a regional approach, based on geographical and environmental criteria, with a specific reference to a role for the Regional Seas Conventions. As such, monitoring and reporting within the MSFD, and the assessment of the achievement of GES, needs to be coordinated among countries within the same marine region or subregion of the relevant Regional Seas Convention. Consistency, coherence and comparability within marine regions and subregions should be ensured by coordination of monitoring methods. The regional approach is particularly useful for assessing GES for mobile, wide-ranging cetacean species.

The study area of this project falls within the North Atlantic Marine Region.

In order to facilitate the regional assessment of GES, OSPAR has been developing and revising a suite of common Indicators and Targets under each of the relevant Descriptors of GES (Commission Decision of 1 September 2010; 2010/477/EU). Two such common indicators for cetaceans are :

1) Indicator class M-4:

Indicator (OSPAR, 2013): Abundance (and distribution) at the relevant temporal scale of cetacean species regularly present

Proposed Target (OSPAR, 2013): Maintain populations in a healthy state, with no decrease in population size with regard to the base-line (beyond natural variability) and restore populations, where deteriorated due to anthropogenic influences, to a healthy state.

2) Indicator class M-6:

Indicator (OSPAR, 2013): Mortality rate due to bycatch

Proposed Target (OSPAR, 2013): The annual bycatch rate of cetacean species is reduced to below levels that are expected to allow conservation actions to be met

Recent advice to OSPAR from the International Council for the Exploration of the Sea (ICES Advice, 2014) concluded that Indicators and Targets of relevance to cetacean abundance should be assessed for individual species and should cover harbour porpoise (M-4a), inshore bottlenose dolphin (M-4b), offshore bottlenose dolphin (M-4c), white-beaked dolphin (M-4d), minke whale (M-4e) and common dolphin (M-4f). Regional data for most of these indicators will likely be drawn from this project which will generate population estimates for these species under Action C3 - Estimation of Abundance and Modelling the Distribution of Cetaceans. These summer estimates will be comparable with those of previous SCANS surveys (1994, 2005) and can inform assessments of change and anthropogenic impact against defined baselines; potential approaches to the setting of species baselines were also given in the ICES Advice (2014). Photo-identification remains the best method of surveying and estimating coastal bottlenose dolphins (Indicator M-4b) and it is unlikely therefore that this proposed Indicator will form part of this Action; however, new information on offshore bottlenose dolphins will be obtained. In regard to indicator M-6, the SCANS-III project is expected to estimate the amount of mortality due to bycatch (Action C5) from available Member State data for at least the harbour porpoise and common dolphin and will provide population estimates required to assess bycatch rates against bycatch limits or targets.

Using the outputs from Action C3 – Estimation of Abundance and Modelling the Distribution of Cetaceans and C5 - Creation of Database and Assessment of Pressures and Threats to Cetaceans, and through a framework developed by the collaborating international institutions, this Action will make an trial assessment of proposed common indicators against defined targets at a national/shared level that is relevant for each species (i.e. at a trans-boundary level), and - if adopted– at relevant spatial scales defined by Regional Seas Conventions. This Action's design, development and trial assessment process will require further consideration of the ongoing development and definition of GES Targets, in particular in relation to bycatch. This Action will also be directly informed by Action C4 – Determining Safe Limits to Removals from Small Cetacean Populations, which will set a safe limit to total annual mortality for a defined population (due to bycatch and other sources of mortality such as ship strikes), beyond which defined conservation objectives would not be achieved.

Interpretation of the trial assessment of individual indicators will be based in the context of the information collated on the threats from anthropogenic activities to cetaceans in Action C5 – Creation of Database and Assessment of Pressures and Threats to Cetaceans, which will generate 'threat layers' at the European Atlantic level and, through this, potential impacts on relevant cetacean species will be identified and quantified.

The next stage to assessing GES is the interpretation of the test results from individual indicator assessments *collectively* against Environmental Targets (submitted in 2012/13 by Member States under MSFD Article 10) at the relevant spatial scale. These have not been defined in detail for the relevant cetacean species. The current environmental targets proposed by OSPAR (2013) are largely qualitative. Using the results and recommendations of Action C6 – Best Practice Monitoring Methods for Cetaceans, this Action will explore and work to test and define appropriate Environmental Targets for cetaceans that are quantitative and sufficiently reliable for future use, and that make sense in geographic terms. Having defined potential Environmental Targets, future approaches for coherently assessing GES will be explored. The final output from this Action will be a report detailing an approach and structural framework by which GES for cetacean species may be assessed at the relevant spatial scale. This report will include example Environmental Targets for cetaceans that will consider ways of aggregating individual indicators and a reporting framework and template that could form the basis of future MSFD reporting rounds. The report will be delivered by mid-August 2017, which should be in sufficient time to contribute to Member States' assessment of GES that will be submitted to the European Commission in 2018.

A diagram of the proposed aims of Action C7 in the context of MSFD and its links to the other SCANS-III Actions is provided.

The Habitats Directive

Cetaceans are highly mobile species that move widely across the waters of the European Atlantic. However, Article 17 reporting currently occurs at the national level, followed by integration by the Commission. The Commission has noted the desirability of aggregating data at a level higher than Member State for all species but there remains limited capability for this within existing Article 17 reporting tools. For this goal to be realised, Member States need to test and commit to a trans-boundary approach to reporting on conservation status of regularly occurring cetacean species. This Action provides both a test bed and a potential mechanism for achieving this. SCANS projects have a strong history of collaboration between Member States and national institutions/agencies; project participants are drawn from most EU Member States required to report on cetaceans at the next HD reporting round.

This Action will develop a consensus-based structured approach by participating Member States for analysing and interpreting the SCANS-III project outputs in a consistent manner and to facilitate effective trans-boundary collaboration and reporting on conservation status. Where appropriate, the Action will also look to provide advisory outputs that may help to tighten EC guidance on how to assess the components of conservation status for highly mobile species; for example, matrices that ensure the consistent scoring of threats and pressures at a European scale may be required. A key output from this Action will be a collaborative and thoroughly-tested trans-boundary report on at least one cetacean species (i.e. a proposed template) which could be promoted for consideration by the Commission and easily modified and/or transposed into the Article 17 reporting tool in preparation for the 2013-2018 reporting round.

<u>Delivery of the Action</u>

The Action Leader will establish a working group consisting of the international participants in this Action. These participants have considerable experience of applied science in the field of cetaceans and/or with responsibilities for the administration of the MSFD and Habitats Directive in their respective Member States. Some personnel participating in this Action have links to or are directly involved with OSPAR's ICG-COBAM (Intersessional Correspondence Group on the coordination of biodiversity assessment and monitoring), which is involved in the ongoing development of GES Indicators and Targets. Most of the work will be carried out through email correspondence/conference calls but two workshops will be required to

progress and complete this Action. The primary focus of these workshops will be to assess outputs from other Actions in the context of proposed targets and indicators, and to draft frameworks for experimental assessment.

Reasons why this action is necessary:

The importance of a coordinated approach to monitoring and assessment at the appropriate scale is stressed throughout the MSFD. However, to date, submissions to the EU under the MSFD have been conducted on a national basis. For highly mobile and wide-ranging populations of animals, including marine mammals, the inclusion of a trans-boundary approach is a prerequisite to allow for a proper assessment of their status based on the best available science.

Whilst Member States are required to provide national reports on MSFD Indicators and Targets, in addition to reporting on Conservation Status (CS) for the Habitats Directive, there is currently no mechanism to organise, analyse and interpret population-level data at a European scale in a coordinated or consensual manner among Member States. The SCANS-III project will provide data at the correct spatial scale to contribute significantly to key components of CS assessment for cetaceans, and also to proposed common indicators for at least four of the five cetacean species currently under consideration by OSPAR for MSFD (harbour porpoise, common dolphin, white-beaked dolphin and minke whale). However the results of analysis of survey data do not, by themselves, enable coherent trans-boundary assessments of GES (or Favourable Conservation Status) without the context provided by the results from previous surveys, the new information collated on the impact of anthropogenic activities from other SCANS-III Actions, a properly thought out and tested framework for carrying out such an assessment, and a transnational consensus-based approach to determining key parameters and elements therein.

Constraints and assumptions:

The success of this Action is dependent on the outputs from four other Actions: C3, C4, C5 and C6. Constraints and assumptions regarding these Actions are given there.

Given the required outputs are delivered from linked Actions, there are some additional issues that might prevent implementation of the Action as planned and detailed here. The further development and resolution by OSPAR of proposals for common Targets and Indicators of relevance to cetaceans may yet take some months and these proposals are part of group considerations within the Action. However the risk can easily be managed since this Action within the SCANS-III project is scheduled for late 2016 at the earliest and it can proceed nevertheless provided international consensus can be arrived at concerning appropriate interim Targets and Indicators.

It is also possible that participating institutions/bodies from various Member States might not agree on all aspects of the Action (e.g., the most appropriate assessment framework, the limitations of data sources, certain Targets, etc). However this risk to project implementation is also very minor since the Action’s working group will comprise a good mix of nationalities and personnel who are collectively very experienced in both scientific and policy matters, and also since it will be managed by a consensual approach to decision-making.

Beneficiary responsible for implementation:

JNCC

Responsibilities in case several beneficiaries are implicated:

Action Leader/Associated Beneficiary: Joint Nature Conservation Committee (UK)
Royal Belgian Institute of Natural Sciences (Belgium)
Aarhus University (Denmark)
University of La Rochelle (France)
University of Veterinary Medicine Hannover (Germany)
Department of Arts, Heritage and the Gaeltacht (Ireland)
IMARES Wageningen University (The Netherlands)
University of St Andrews (UK)
Newcastle University (UK)

Expected results (quantitative information when possible):

This Action is expected ultimately to result in a very substantial change in the status quo regarding the assessment of cetacean species Environmental/Conservation status in European waters - from the current position whereby Member States undertake individual nation-centric reviews of scientific data and assessments to an improved position whereby groups of adjacent Member States can actively collaborate to produce cohesive consensual trans-boundary assessments. Such future Europe-wide assessments will be required under the MSFD and they also make sense from both scientific and management standpoints where the Habitats Directive is concerned.

The key deliverables are:

i) Report on approaches trialled and the framework and template for assessing Good Environmental Status for cetaceans at the appropriate spatial scales under MSFD

ii) Trans-boundary test assessment report on Favourable Conservation Status of a number of cetaceans (harbour porpoise, common dolphin, minke whale and, dependent on data available for other small cetaceans)

Tools (templates, matrices etc) to assist future collaborative reporting and assessment of cetacean populations relevant to the EU

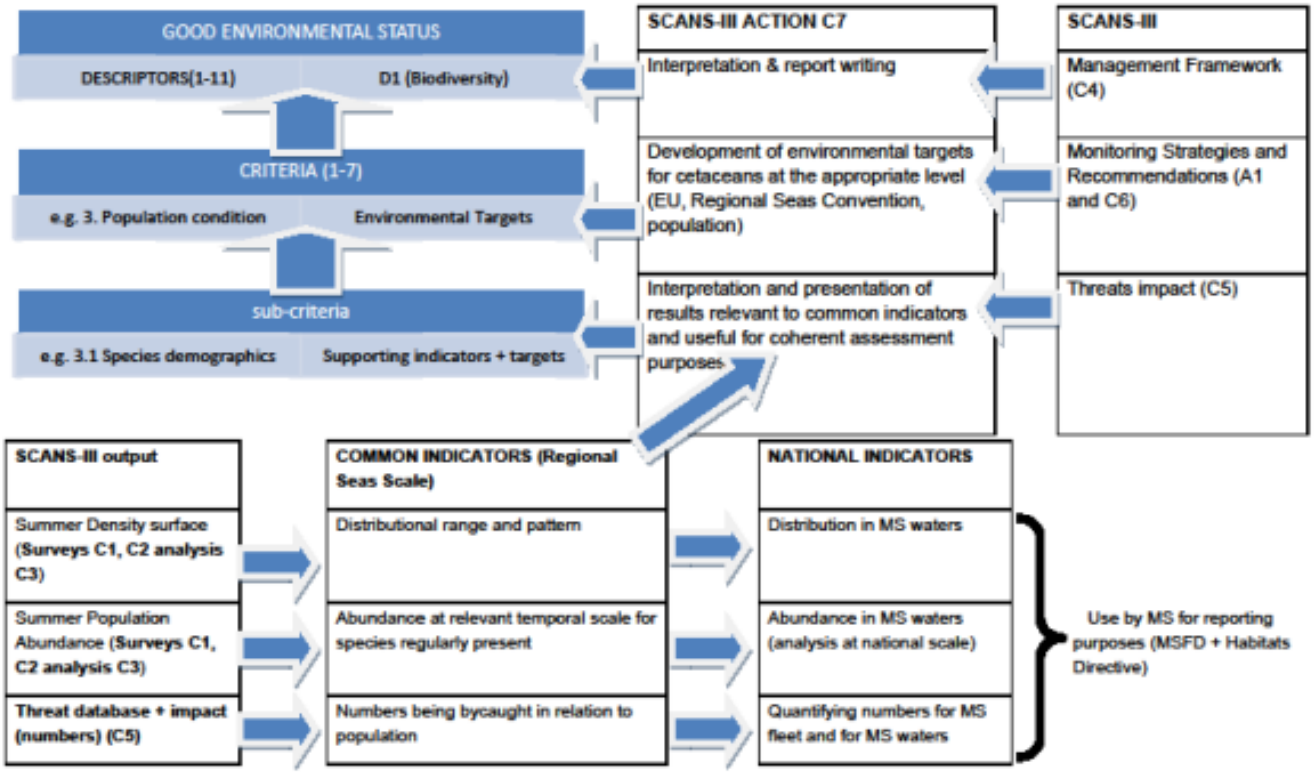
Indicators of progress:

The action is scheduled to take place over three quarters in 2016-2017. For each quarter, a concise 1-2 page Progress Report comprising the Tasks (a) scheduled (b) under way, (c) undertaken and (d) group decisions made within Tasks that occur in each quarter will be produced. These progress reports will act as indicators of progress for the project coordinators.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

Name of the picture: A diagram of the proposed aims of Action C7 in the context of MSFD and its links to the other SCANS-III Actions



D. Monitoring of the impact of the project actions

ACTION D.1: Monitoring the impact of project actions

Description (what, how, where and when):

The SCANS-III project has seven Concrete Conservation Actions to be monitored; these Actions are very specific with clear completion points, ensuring it is relatively straightforward to monitor and determine the impact.

Following completion of Actions C1, C2 & C3 (Aerial Survey of Shelf Waters for Cetaceans, Ship Survey of Offshore Waters for Cetaceans, and Estimation of Abundance and Modelling the Distribution of Cetaceans, respectively), an evaluation will take place to assess the efficacy of the surveys and the resulting data at achieving their conservation aim of generating new information on abundance and distribution essential for status assessment at the necessary large spatial scale and updating previous information from 1994 and 2005.A report will be produced detailing the findings of the evaluation.

Following completion of Actions C4, C5, C6 & C7 (Determining Safe Limits to Removals from Small Cetacean Populations, Creation of Database and Assessment of Pressures and Threats to Cetaceans, Best Practice Monitoring Methods for Cetaceans and Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans respectively), an evaluation will take place to assess the efficacy of these Actions at achieving their conservation aims. These are:

C4 – Develop management procedure approaches using rigorously tested removal limit algorithms and implement them to generate safe limits to human-induced cetacean mortality for all relevant cetacean species at a European Atlantic level;

C5 - Assess the impact of pressures and threats on cetacean populations in the European Atlantic using newly collated data on pressures and threats and new abundance and distribution data;

C6 – Conduct a rigorous comparison and assessment of multiple monitoring methods and recommend best practice for a common approach to monitoring cetacean species under EU Directives;

C7 - Develop a framework to assess Favourable Conservation Status (FCS) and Good Environmental Status (GES) for cetacean species in the European Atlantic. Assess FCS and GES status using new, and newly collated, information on: abundance and distribution; assessment of pressures and threats; evaluation of monitoring methods; and new calculations of safe limits to removals. If the results identify any management measures necessary to achieve GES or FCS for these species, the impact of these will be evaluated.

A report will be produced detailing the findings of the evaluation of Actions C4 – C7.

Reasons why this action is necessary:

It is important to fully evaluate the efficacy of the concrete conservation Actions to be undertaken in the project to determine whether or not the project met its goals and, if not, what lessons can be learned.

Constraints and assumptions:

Completion of this Action is contingent on the timely delivery of the results of the concrete conservation actions, C1 – C7. The Action Leader of D1 will liaise closely with the Action leaders of Actions C1-C7 to ensure that deliverables are made available in a timely fashion.

Beneficiary responsible for implementation:

St Andrews

Responsibilities in case several beneficiaries are implicated:

Expected results (quantitative information when possible):

Two reports evaluating the efficacy of (a) concrete conservation Actions C1-C3, and (b) concrete conservation Actions C4 – C7.

Indicators of progress:

Progress will be measured by the Action Leader, who will ensure that milestones are reached within the deadlines set and that the deliverables are produced on time.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

D. Monitoring of the impact of the project actions

ACTION D.2: Review of the socio-economic effects of SCANS-III

Description (what, how, where and when):

The SCANS-III project is focussed primarily on filling data gaps, the production of best practice recommendations, and the assessment of pressures/threats and status. It is not anticipated that there will be significant socio-economic impacts.

Fieldwork conducted during Actions A1 & A3 (Testing and Comparing Monitoring Methodologies for Harbour Porpoise, and for Dolphins, respectively) and Actions C1 and C2 (Aerial Survey of Shelf Waters for Cetaceans, and Ship Survey of Offshore Waters for Cetaceans, respectively), is unlikely to have any impact on activities at sea; the surveys will be conducted over a very short time period, and will not prevent the concurrent continuation of activities.

However, it is possible that recommendations resulting from Action C7 - Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans may have socio-economic impacts if recommendations were implemented at a policy level. At this stage, prior to completion of the Action, it is not possible to foresee what these recommendations may include. However, for this reason, a review of the possible/likely socio-economic impacts of recommendations in Action C7 will be made and a report produced.

Reasons why this action is necessary:

It is important to be fully appreciative of any socio-economic impacts that may arise as a result of recommendations provided in Action C7: Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans prior to these recommendations being presented to Member States and Competent Authorities.

Constraints and assumptions:

Completion of this Action is contingent on the timely delivery of Action C7: Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans. The Action Leader of Action D2 will liaise closely with the Action leader of Action C7 to ensure that deliverables are made available in a timely fashion.

Beneficiary responsible for implementation:

St Andrews

Responsibilities in case several beneficiaries are implicated:

Expected results (quantitative information when possible):

A comprehensive report detailing the possible/likely socio-economic impacts of project Actions will be delivered upon completion of the project.

Indicators of progress:

Progress will be measured by the Action Leader, who will ensure that deliverables are provided by the deadlines

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have

been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

D. Monitoring of the impact of the project actions

ACTION D.3: Review of the impact on ecosystem functions from SCANS III

Description (what, how, where and when):

The SCANS-III project is focussed primarily on filling data gaps, the production of best practice recommendations, and the assessment of pressures/threats and status. It is not anticipated that there will be significant ecosystem function impacts.

Fieldwork conducted during Actions A1 & A3 (Testing and Comparing Monitoring Methodologies for Harbour Porpoise, and for Dolphins, respectively) and Actions C1 and C2 (Aerial Survey of Shelf Waters for Cetaceans, and Ship Survey of Offshore Waters for Cetaceans, respectively), is unlikely to have any impact on local ecosystem function; the surveys will be conducted over a very short time period, and will have minimal impact on the marine environment.

However, it is possible that recommendations resulting from action C7 - Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans may result in impacts to ecosystem function if recommendations were implemented at a policy level. At this stage, prior to completion of the Action, it is not possible to foresee what these recommendations may include. However for this reason, a review of the possible/likely impacts on ecosystem function of recommendations in Action C7 will be made and a report produced.

Reasons why this action is necessary:

It is important to be fully appreciative of any impacts to ecosystem function that may arise as a result of recommendations provided in Action C7: Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans prior to these recommendations being presented to Member States and Competent Authorities.

Constraints and assumptions:

Completion of this action is contingent on the timely delivery of action C7: Trans-boundary Assessment of Environmental/Conservation Status for Cetaceans. The Action Leader of Action D3 will liaise closely with the Action leader of Action C7 to ensure that deliverables are made available in a timely fashion.

Beneficiary responsible for implementation:

St Andrews

Responsibilities in case several beneficiaries are implicated:

Expected results (quantitative information when possible):

A comprehensive report detailing the possible/likely impacts to ecosystem function of project Actions will be delivered upon completion of the project.

Indicators of progress:

Progress will be measured by the Action Leader, who will ensure that deliverables are provided by the deadlines.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

E. Public awareness and dissemination of results

ACTION E.1: Communication and dissemination of results

Description (what, how, where and when):

This action is designed to disseminate the outputs of C Actions to as wide an audience as possible.

1) Project website: this will be initiated at the beginning of the project. It will be hosted by the University of St Andrews and will contain links to the relevant pages on the websites of all Associated Beneficiaries, Co-financers, relevant Member States and the European Commission. The website will be used to provide information regarding the different Actions, advertise any project related contracts and update results as they become available. In addition, there will be sections detailing the target species and relevant pressures/threats to these species within the project area.

2) End of project conference: a two day workshop hosted by Beneficiaries and Action leaders to present the results of the project. Expected attendees will include project participants, representatives from Member State competent authorities, as well as stakeholders from marine industries, such as fisheries, offshore wind, and wave & tidal, to whom the outputs will be of interest.

3) Scientific conference: one or more abstracts of potential presentations on project results will be submitted to the European Cetacean Society Conference, 2017. Should the conference fall too early in the year for sufficient results to be available, an alternative conference will be sought at which to present project results.

4) Scientific publications: Where appropriate, results from the project will be written up by the project team for submission to peer-reviewed scientific journals so that project outputs are communicated widely within the scientific community.

5) Policy Meetings (eg ASCOBANS): Papers will be submitted to appropriate meetings, such as the annual meeting of the ASCOBANS Advisory Committee, identified through liaison with stakeholders and participating organisations. These meetings will be used to provide updates to the policy teams of Member States.

6) LIFE Publications and meetings. Project papers will be submitted to the appropriate LIFE Nature journals to disseminate knowledge of the project outwith the cetacean and marine stakeholders who will primarily be engaged. Attendance at relevant LIFE Networking events will also be included within this Action, as required.

7) Display boards: A series of display boards and publicity materials will be produced. These will be displayed at the site of the coordinating beneficiary, but the man purpose will be to take them to meetings to advertise the project.

8) Data sharing: Cetacean abundance data, once validated, verified and analysed, will be made publically available. All participating organisations will receive a copy, and relevant data extracts will be added to international and national databases (e.g. OBIS: http://seamap.env.duke.edu/

Reasons why this action is necessary:

The outputs of this project will be of significant interest to a wide range of stakeholders, and is important that there is a mechanism in place through which to disseminate information.

Constraints and assumptions:

Attendance at conferences and meetings will be reliant on the acceptance of submitted abstracts. Efforts will be made to try and make these as likely to succeed as possible.

Otherwise, there are no foreseen barriers to implementation of this Action.

Beneficiary responsible for implementation:

St Andrews

Responsibilities in case several beneficiaries are implicated:

Expected results (quantitative information when possible):

1) A fully constructed and regularly updated (for the life of the project) website

2) An end of project conference, with proceedings

3) Presentation of the project at one or more scientific conferences

4) Publication of results in peer-reviewed scientific journals

5) Papers submitted to ASCOBANS Advisory Committee meeting, OSPAR-COBAM, and other international policy fora, as appropriate

6) Submission of documents and attendance at LIFE events as invited by the Commission or national contacts

7) A set of display boards and publicity materials

Indicators of progress:

Progress will be measured by the Action Leader, who will ensure that deliverables are provided by the deadlines

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

F. Project management and monitoring of project progress

ACTION F.1: Project management

Description (what, how, where and when):

Overall project coordination will be conducted by the University of St Andrews, the coordinating beneficiary, led by Professor Philip Hammond.

The project has ten technical Actions, each coordinated by a named individual from either the University of St Andrews or one of the associated beneficiary organisations. Each Action Leader has considerable experience in the area of the Action for which they are responsible, as well as having experience of coordinating projects with multiple partners.

Action leaders will be responsible for delivering the outputs from their Action in a timely fashion. Target deadlines will be used by the project management team as monitoring indicators to allow the assessment of progress. The outputs themselves will be used as verifications that work is progressing on schedule.

Conference calling and video conferencing will be used to allow the Action Leaders to meet regularly whilst reducing the need for repeated oversees travel. There will be an initiation call in July 2015 to launch the project, and subsequent meetings will be arranged as deemed necessary by the project management team.

Dedicated accounts and administration support will be hired in for the duration of the project to further supplement the project management team.

At the end of the project, the accounts will be audited by an independent auditor. Accounts will be verified with respect to the accounting rules of the Coordinating Beneficiary and the auditor will also certify that all costs uncured adhere to the regulations of LIFE funding

Reasons why this action is necessary:

This Action exists to ensure the smooth running of the project and to ensure that objectives are met fully and in a timely fashion, as well as within budget.

Constraints and assumptions:

Ensuring good channels of communication remain open between the Action Leaders will be key to the success of this Action.

Beneficiary responsible for implementation:

St Andrews

Responsibilities in case several beneficiaries are implicated:

Expected results (quantitative information when possible):

A mid-term report and final report of the project, to be submitted to LIFE, will be produced by the project management team; however the primary result will be successful delivery of the overall project.

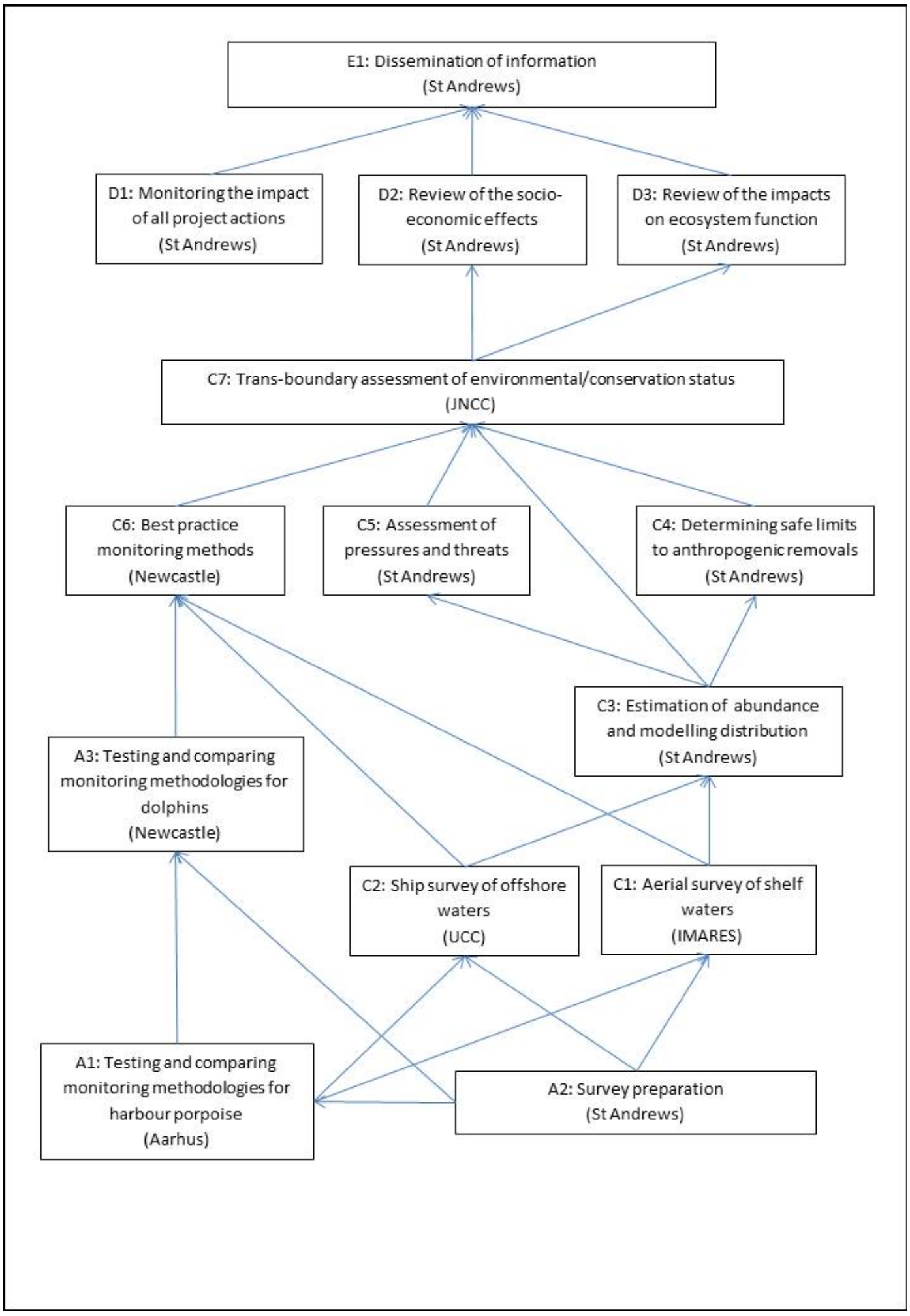
Indicators of progress:

Progress will be indicated by the smooth and efficient running of the project.

How was the cost of the action estimated?:

Costs have been estimated using institutional guidelines but according to some over-arching guiding principles. Personnel costs are the product of number of days and day rate provided by each institution for each named person or grade to include salary, national insurance and pension but not overhead or full economic cost. Travel costs have been estimated for particular departure and arrival locations where these are known and an approximate cost based on an “average” trip where location is yet to be determined. Train travel was used where possible. Flights were economy and budget where possible. Subsistence costs have been estimated for particular locations where known and an approximate cost based on an “average” location where this is yet to be determined. Under External Assistance, for charter of ships and aircraft, direct quotes were used where available and, where not, approximate expected daily or hourly rates based on current prices were used. Approximate costs of shipboard and aerial cruise leaders and observers were taken from going rates for recent surveys. For durable equipment, costs were based on current prices of items or component parts for kits. Consumable and shipping costs were based on current prices.

Name of the picture: Organisational diagram showing the relationship of project Actions to each other.



DELIVERABLE PRODUCTS OF THE PROJECT

Name of the Deliverable	Number of the associated action	Deadline
A fully constructed and regularly updated (for the life of the project) website	E 1	30/08/2015
1 x set of noise monitoring equipment to assess suitability of vessels for charter	A 2	01/09/2015
Compilation of aerial data collection system for Action A1	A 2	01/04/2016
3 x set of towed hydrophone equipment for Action C2	A 2	01/06/2016
3 x set of visual data collection equipment for Action C2	A 2	01/06/2016
7 x set of visual data collection equipment for Action C1	A 2	01/06/2016
Complete set-up documentation allowing the recreation of each data collection system during future national monitoring surveys	A 2	01/06/2016
Production of survey design prior to Actions C1 & C2	A 2	01/06/2016
Biannual progress reports as ‘indicators of progress’	C 5	30/06/2016
Cruise reports for each of the survey teams	C 1	31/08/2016
Validated database from the aerial survey to be delivered to Action C3	C 1	31/08/2016
Reports from all method testing activities in Denmark	A 1	01/09/2016
A database of cetacean abundance data in European Atlantic offshore waters	C 2	30/09/2016
Cruise reports from all ships, including a description of any problems encountered during the surveys, particularly in relation to data collection for abundance	C 2	30/09/2016
Reports from all method testing activities in the UK	A 3	30/09/2016
Database of all data from all methods tested in Denmark	A 1	01/10/2016
Database of all data from all methods tested in the UK	A 3	31/10/2016
A mid term and final report will be submitted in accordance with LIFE regulations at the end of 2016	F 1	31/12/2016
A set of display boards and publicity materials.	E 1	31/12/2016
Pressures & threats database and GIS layers	C 5	31/12/2016

Progress reports and reports of data analyses workshops as ‘indicators of progress’	C 6	31/12/2016
Quarterly progress report	C 7	31/12/2016
Quarterly progress report	C 7	31/03/2017
A report of the methods developed and used, and those limits themselves, calulated for species of cetacean that are subject to removals from anthropogenic activities	C 4	30/06/2017
Final Workshop	C 5	30/06/2017
Quarterly progress report	C 7	30/06/2017
Report on design- based estimates of abundance for all species	C 3	30/06/2017
Report from Final Workshop	C 5	31/07/2017
Report from Final Workshop	C 6	31/07/2017
Final Report outlining Best Practice Monitoring Methods and results from cost-benefit analyses	C 6	31/08/2017
Report on approaches explored and the framework and template for assessing Good Environmental Status for cetaceans at the appropriate spatial scales under MSFD	C 7	31/08/2017
Tools (templates, matrices etc) to assist future collaborative reporting and assessment of cetacean populations relevant to the EU	C 7	31/08/2017
Trans-boundary test assessment report on Favourable Conservation Status of a number of cetaceans (harbour porpoise, common dolphin, minke whale plus others) dependent on data available	C 7	31/08/2017
Final Report outlining the pressures and threats database/GIS layers and the results of the assessment of their impact on cetacean populations within the study area	C 5	30/09/2017
Final report	C 5	30/09/2017
Final report	C 7	30/09/2017
Report on model-based density surfaces for defined regions and results of habitat use modelling for as many species as data allow	C 3	30/09/2017
Papers submitted to ASCOBANS Advisory Committee meeting, OSPAR-COBAM, and other international policy for a, as appropriate. Papers submitted to 2017 meetings	E 1	31/12/2017
A comprehensive report detailing the possible/likely impacts to ecosystem function of project	D 3	31/03/2018

A comprehensive report detailing the possible/likely socio-economic impacts of Actions	D 2	31/03/2018
An end of project conference, with proceedings	E 1	31/03/2018
Presentation of the project at one or more scientific conference	E 1	31/03/2018
Publication of results in peer-reviewed scientific journals: drafts prepared by deadline shown.	E 1	31/03/2018
Report evaluating the efficacy of Concrete Conservation Actions C4 - C7	D 1	31/03/2018
Reports evaluating the efficacy of Concrete Conservation Actions C1 - C3	D 1	31/03/2018
Submission of documents and attendance at LIFE events as invited by the Commission or national contacts. As invited	E 1	31/03/2018
Final Project Report	F 1	30/06/2018

MILESTONES OF THE PROJECT

Name of the Milestone	Number of the associated action	Deadline
Project initiation meeting (video conference)	F 1	20/07/2015
A fully constructed and regularly updated (for the life of the project) website.	E 1	30/08/2015
Compilation of noise monitoring equipment	A 2	01/09/2015
Confirmation of conservation objectives	C 4	30/09/2015
Start up workshop (development of workplan , tasks and time schedule for experiments)	C 5	31/12/2015
Survey platforms reserved for charter	C 2	31/12/2015
Start-up workshop (development of workplan , tasks and time schedule for method testing activities)	A 1	01/01/2016
Start-up workshop (development of workplan , tasks and time schedule for method testing activities)	A 3	31/01/2016
Completion of visual data collection system testing and development	A 2	01/03/2016
Contracts for charter of airplanes signed	C 1	31/03/2016
Contracts signed with observers	C 1	31/03/2016
First stage simulation testing of removal limit algorithms	C 4	31/03/2016

Flight permits obtained (where applicable)	C 1	31/03/2016
Hiring observers	C 2	31/03/2016
Compilation of aerial data collection system for Action A1	A 2	01/04/2016
Compilation of towed hydrophone system for Action A1	A 2	01/04/2016
Compilation of visual data collection system for Action A1	A 2	01/04/2016
Finalise shipboard collection methods	C 2	30/04/2016
Permission to surveys in SACs/EU waters /National waters obtained	C 2	30/04/2016
Acquire and set-up equipment	A 1	01/05/2016
Accommodation for survey teams (where applicable) booked	C 1	31/05/2016
Complete field handbooks	C 2	31/05/2016
Complete set of equipment available per survey team (from A2)	C 1	31/05/2016
Completion of training workshop for acoustic operators	C 2	31/05/2016
Compilation of remainder of aerial data collection systems for Action C1	A 2	01/06/2016
Compilation of remaining towed hydrophone systems for Action C2	A 2	01/06/2016
Compilation of remaining visual data collection systems for Action C2	A 2	01/06/2016
Conduct method testing surveys in Denmark	A 1	01/06/2016
Production of survey design prior to Actions C1 & C2	A 2	01/06/2016
Biannual progress report	C 5	30/06/2016
Collation of pressures and threats data	C 5	30/06/2016
Delivery of fieldwork phase of A1	F 1	30/06/2016
Acquire and set-up equipment.	A 3	31/07/2016
Complete shipboard survey	C 2	31/07/2016
Completion of the aerial survey	C 1	31/07/2016
Delivery of fieldwork phases of C1 and C2	F 1	01/08/2016

Collation of all data collected	C 1	31/08/2016
Conduct method testing surveys in UK	A 3	31/08/2016
Passing final results to Actions C3	C 1	31/08/2016
Validation of the data collated	C 1	31/08/2016
Delivery of reports from all method testing activities in Denmark	A 1	01/09/2016
Deliver data to Actions C3, C4 and C6	C 2	30/09/2016
Delivery of reports from all method testing activities in UK	A 3	30/09/2016
First data analysis workshop	C 5	30/09/2016
Tuning, performance testing and finalisation of removal limit algorithm(s)	C 4	30/09/2016
Delivery of database of all data from all methods tested in Denmark	A 1	01/10/2016
Delivery of fieldwork phase of A3	F 1	01/10/2016
Acquire and collate data from Action A1	C 6	31/10/2016
Acquire and collate data from Actions A3, C1 & C2	C 6	31/10/2016
Completion of data validation	C 3	31/10/2016
Delivery of database of all data from all methods tested in UK	A 3	31/10/2016
Conduct initial data analyses	C 6	30/11/2016
First data analysis workshop	C 6	30/11/2016
Start up workshop (development of workplan to includes tasks and time schedule, outline frameworks)	C 7	30/11/2016
Biannual progress report	C 5	31/12/2016
Create pressures and threat GIS layers	C 5	31/12/2016
Mid term report	F 1	31/12/2016
Quarterly progress report	C 7	31/12/2016
Conduct further data analyses	C 6	28/02/2017
Initiate collation of outputs from related Actions	C 7	28/02/2017
Pass preliminary estimates of design- based	C 3	31/03/2017

abundance to Action C4 and C7		
Quarterly progress report	C 7	31/03/2017
Second data analysis workshop	C 6	31/03/2017
Completion of design- based abundance estimation	C 3	31/05/2017
Pass preliminary model-based abundance estimates to Action C7	C 3	31/05/2017
Application of removal limit algorithm(s) to cetacean species in the European Atlantic	C 4	30/06/2017
Completion of final report	C 4	30/06/2017
Draft frameworks	C 7	30/06/2017
Final Workshop (Review of draft recommendations)	C 6	30/06/2017
Quarterly progress report	C 7	30/06/2017
Second data analysis workshop	C 5	30/06/2017
Draft final report	C 6	31/07/2017
Draft final report	C 5	31/08/2017
Final report	C 6	31/08/2017
Workshop (Review of drafts and revisions)	C 7	31/08/2017
Completion of model-based abundance estimation and habitat modelling	C 3	30/09/2017
Delivery of action C7	F 1	30/09/2017
Draft final report	C 7	30/09/2017
Action initiation will take place as soon as the recommendations of Action C7 become available	D 2	01/10/2017
Action initiation will take place as soon as the recommendations of Action C7 become available	D 3	01/10/2017
Completion of all concrete conservation Actions, allowing the preparation of end of project conference	E 1	31/12/2017
Final report	D 2	31/03/2018
Report delivery upon completion of the project	D 3	31/03/2018
Report evaluating the efficacy of Concrete Conservation Actions C1 - C3	D 1	31/03/2018

Report evaluating the efficacy of Concrete Conservation Actions C4 - C7	D 1	31/03/2018
Final report	F 1	30/06/2018

ACTIVITY REPORTS FORESEEN

Please indicate the deadlines for the following reports:

• Progress Reports n°1, n°2 etc. (if any; to ensure that the delay between consecutive reports does not exceed 18 months)

• Mid-term Report with payment request (only for project longer than 24 months)

• Final Report with payment request (to be delivered within 3 months after the end of the project)

Type of report	Deadline
Midterm report	16/12/2016
Final report	31/03/2018

TIMETABLE

Action		2015				2016				2017				2018				2019				2020			
Action numbe	Name of the action	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
A. Preparatory actions, elaboration of management plans and/or of action plans																									
A.1	Testing and Comparing Monitoring Methodologies for Harbour Porpoise					■	■	■	■																
A.2	Survey Preparation			■	■	■	■																		
A.3	Testing and Comparing Monitoring Methodologies for Dolphins					■	■	■	■																
B. Purchase/lease of land and/or compensation payments for use rights																									
C. Concrete conservation actions																									
C.1	Aerial Survey of shelf waters for cetaceans			■	■	■	■	■																	
C.2	Vessel Survey of offshore waters for cetaceans			■	■	■	■	■																	
C.3	Estimation of abundance and modelling the distribution of cetaceans							■	■	■	■	■													
C.4	Determining safe limits to removals from small cetacean populations			■	■	■	■	■	■	■	■														
C.5	Creation of database and assessment of pressures & threats to cetaceans			■	■	■	■	■	■	■	■	■													
C.6	Best practice monitoring methods for cetaceans					■	■	■	■	■	■	■													
C.7	Trans-boundary assessment of environmental / conservation status of cetaceans								■	■	■	■													
D. Monitoring of the impact of the project actions (obligatory)																									
D.1	Monitoring the impact of project actions												■	■											
D.2	Review of the socio-economic effects of SCANS-III												■	■											
D.3	Review of the impact on ecosystem functions from SCANS III												■	■											
E. Public awareness and dissemination of results (obligatory)																									
E.1	Communication and dissemination of results			■	■	■	■	■	■	■	■	■	■	■											
F. Project management and monitoring of project progress (obligatory)																									
F.1	Project management			■	■	■	■	■	■	■	■	■	■	■											

LIFE14 NAT/UK/001146

FINANCIAL APPLICATION FORMS

Part F – financial information

Budget breakdown cost categories		Total cost in €	Eligible Cost in €	% of total eligible costs
1. Personnel			1,249,726	30.17 %
2. Travel and subsistence			261,496	6.31 %
3. External assistance			2,017,495	48.71 %
4. Durable goods				
4.a	**Infrastructure**	0	0	0.00 %
4.b	**Equipment**	293,527	293,527	7.09 %
4.c	**Prototype**	0	0	0.00 %
5. Land purchase / long-term lease /one-off compensation payments			0	0.00 %
6. Consumables			18,680	0.45 %
7. Other Costs			30,020	0.72 %
8. Overheads			270,962	6.54 %
TOTAL		4,141,906	4,141,906	100 %

Contribution breakdown	In €	% of TOTAL	% of total eligible costs
Requested EU contribution	2,413,673	58.27 %	58.27 %
Coordinating Beneficiary's contribution	87,480	2.11 %	
Associated Beneficiaries' contribution	370,153	8.94 %	
Co-financers contribution	1,270,600	30.68 %	
TOTAL	4,141,906	100.00 %	

Cost category in Euro									
Project action	1. Personnel	2. Travel	3. External assistance	4.a Infra-structure	4.b Equipment	5. Land	6. Consumables	7. Other	TOTAL
A1 Testing and Comparing Monitoring Methodologies for Harbour Porpoise	154,790	28,360	235,950	0	160,000	0	13,500	5,000	597,600
A2 Survey Preparation	47,553	3,029	17,500	0	131,027	0	400	0	199,509
A3 Testing and Comparing Monitoring Methodologies for Dolphins	68,908	33,220	131,701	0	2,500	0	4,000	3,000	243,329
C1 Aerial Survey of shelf waters for cetaceans	84,660	96,527	469,354	0	0	0	780	0	651,321
C2 Vessel Survey of offshore waters for cetaceans	101,310	14,760	1,125,450	0	0	0	0	15,000	1,256,520
C3 Estimation of abundance and modelling the distribution of cetaceans	140,250	7,000	220	0	0	0	0	0	147,470

C4 Determining safe limits to removals from small cetacean populations	82,210	1,900	0	0	0	0	0	0	84,110
C5 Creation of database and assessment of pressures & threats to cetaceans	121,148	24,200	18,200	0	0	0	0	1,000	164,548
C6 Best practice monitoring methods for cetaceans	168,320	24,200	3,500	0	0	0	0	0	196,020
C7 Trans-boundary assessment of environmental / conservation status of cetaceans	51,010	22,800	6,480	0	0	0	0	0	80,290
D1 Monitoring the impact of project actions	10,800	0	0	0	0	0	0	0	10,800
D2 Review of the socio-economic effects of SCANS-III	17,580	0	0	0	0	0	0	0	17,580
D3 Review of the impact on ecosystem functions from SCANS III	17,580	0	0	0	0	0	0	0	17,580
E1 Communication and dissemination of results	68,477	5,500	9,140	0	0	0	0	6,020	89,137

F1 Project management		115,130	0	0	0	0	0	0	0	115,130
Overheads										270,962
	TOTAL	1,249,726	261,496	2,017,495	0	293,527	0	18,680	30,020	4,141,906

Coordinating Beneficiary's contribution

Country code	Beneficiary short name	Total costs of the actions in € (including overheads)	Beneficiary's own contribution in €	Amount of EU contribution requested in €
UK	St Andrews	771,973	87,480	422,723

Associated Beneficiaries' contribution

Country code	Beneficiary short name	Total costs of the actions in € (including overheads)	Associated beneficiary's own contribution in €	Amount of EU contribution requested in €
DK	Aarhus	638,689	210,000	216,923
NL	IMARES	812,984	5,000	546,218
UK	JNCC	108,649	58,538	38,345
UK	Newcastle	471,009	56,595	202,648
IE	UCC	1,338,602	40,020	986,816
TOTAL Associated Beneficiaries		**3,369,933**	**370,153**	**1,990,950**

TOTAL All Beneficiaries	**4,141,906**	**457,633**	**2,413,673**

Co-financers contribution

Co-financer's name	Amount of co-financing in €
Defra	795,600
France	100,000
Ireland	25,000
NL	200,000
Portugal	50,000
Sweden	100,000
TOTAL	**1,270,600**

Direct Personnel costs

				Calculation =>	A	B	A x B
Beneficiary short name	Action number	Type of contract	Category/Role in the project		Daily rate (rounded to the nearest €)	Number of person-days	Direct personnel costs (€)
St Andrews	A 1	Additional staff	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation		270	21	5,670
St Andrews	A 1	Additional staff	Preparation of equipment / fieldwork and databases		411	5	2,055
St Andrews	A 1	Additional staff	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation		411	21	8,631
St Andrews	A 2	Additional staff	Research Assistant to conduct noise measurements work (build equipment, conduct fieldwork, analyse data)		270	20	5,400
St Andrews	A 2	Additional staff	Technician to assist building kit and preparing equipment prior to surveys		140	60	8,400
St Andrews	A 2	Additional staff	Attendance at briefing meeting to ensure all cruise leaders for action C2 are familiar and competent with new equipment		411	3	1,233
St Andrews	A 2	Additional staff	Update of software and equipment for the visual recording teams on the vessel, as well as building the data recording equipment		411	60	24,660
St Andrews	A 2	Permanent staff or civil servant	Survey design		648	10	6,480
St Andrews	A 3	Additional staff	10 days field work + 2 travel days for UK phase of monitoring work		270	12	3,240
St Andrews	A 3	Additional staff	Preparation of equipment / fieldwork and databases		411	5	2,055
St Andrews	A 3	Additional staff	10 days field work + 2 travel days for UK phase of monitoring work		411	12	4,932
St Andrews	C 2	Additional staff	Participation in fieldwork for C2		270	30	8,100
St Andrews	C 3	Additional staff	Analysis of acoustic data		411	55	22,605
St Andrews	C 3	Permanent staff or civil servant	Supervision of and undertaking data anlysis		648	55	35,640
St Andrews	C 3	Additional staff	Statistical Advice		411	55	22,605
St Andrews	C 3	Additional staff	Design based analysis of shipboard survey data and density surface modelling of all data		270	220	59,400
St Andrews	C 4	Permanent staff or civil servant	Analysis and algorithm development		648	18	11,664
St Andrews	C 4	Additional staff	Analysis and algorithm development		372	165	61,380
St Andrews	C 5	Additional staff	Workshop attendance (2 workshops * 2 days, with 2 travel days each)		477	8	3,816
St Andrews	C 5	Additional staff	Creation of threat layers		477	10	4,770

Direct Personnel costs

			Calculation =>	A	B	A x B
Beneficiary short name	Action number	Type of contract	Category/Role in the project	Daily rate (rounded to the nearest €)	Number of person-days	Direct personnel costs (€)
St Andrews	C 5	Additional staff	Assessment of threat and pressure layers	477	10	4,770
St Andrews	C 5	Additional staff	Workshop attendance (1 workshop * 2 days, with 2 travel days each)	477	4	1,908
St Andrews	C 5	Additional staff	Collation of fisheries bycatch data	477	21	10,017
St Andrews	C 6	Additional staff	Attendance at analysis workshops	477	10	4,770
St Andrews	C 6	Additional staff	Attendance at final Action workshops	411	5	2,055
St Andrews	C 6	Additional staff	Analysis of data from action A1	411	10	4,110
St Andrews	C 6	Additional staff	Analysis of data from action A3	411	10	4,110
St Andrews	C 7	Additional staff	Workshop participation	270	4	1,080
St Andrews	C 7	Permanent staff or civil servant	Participation in action, including attendance at workshops	648	9	5,832
St Andrews	D 1	Additional staff	Conduct a thorough evaluation and review of C actions, produce report	270	40	10,800
St Andrews	D 2	Additional staff	Action coordination and reporting	270	2	540
St Andrews	D 2	Additional staff	Conduct a thorough review and produce a report	284	60	17,040
St Andrews	D 3	Additional staff	Conduct a thorough review and produce a report	284	60	17,040
St Andrews	D 3	Additional staff	Action coordination and reporting	270	2	540
St Andrews	E 1	Additional staff	Action coordination, implementation and project management	270	40	10,800
St Andrews	E 1	Additional staff	Production of publicity materials	270	5	1,350
St Andrews	E 1	Additional staff	Attendance at final project workshop - 2 days plus 1 day travel	270	3	810
St Andrews	E 1	Additional staff	Preparation of scientific publications	411	10	4,110
St Andrews	E 1	Permanent staff or civil servant	Preparation of scientific publications	648	20	12,960
St Andrews	E 1	Additional staff	Attendance at final project workshop - 2 days plus 1 day travel	411	3	1,233
St Andrews	E 1	Additional staff	Preparation of scientific publications	270	10	2,700
St Andrews	E 1	Additional staff	Production of conference poster and attendance to present project summary	270	5	1,350

Direct Personnel costs

			Calculation =>	A	B	A x B
Beneficiary short name	Action number	Type of contract	Category/Role in the project	Daily rate (rounded to the nearest €)	Number of person-days	Direct personnel costs (€)
St Andrews	E 1	Permanent staff or civil servant	Attendance at final project workshop - 2 days plus 1 day travel	648	3	1,944
St Andrews	F 1	Permanent staff or civil servant	Overall project management, liasion with LIFE administration	648	20	12,960
St Andrews	F 1	Additional staff	Overall project management, liasion with LIFE administration	270	96	25,920
St Andrews	F 1	Additional staff	Production of Mid-term and Project Final Report	270	40	10,800
St Andrews	F 1	Additional staff	Overall project administration and accounting support	238	275	65,450
Aarhus	A 1	Permanent staff or civil servant	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation	493	21	10,353
Aarhus	A 1	Permanent staff or civil servant	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation	493	21	10,353
Aarhus	A 1	Permanent staff or civil servant	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation	493	21	10,353
Aarhus	A 1	Permanent staff or civil servant	Action leader, preparation of field work, equipment and databases	493	45	22,185
Aarhus	A 1	Permanent staff or civil servant	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation	493	21	10,353
Aarhus	A 3	Permanent staff or civil servant	10 days field work + 2 travel days for UK phase of monitoring work	493	12	5,916
Aarhus	A 3	Permanent staff or civil servant	Preparation of equipment / fieldwork and databases	493	5	2,465
Aarhus	C 6	Permanent staff or civil servant	Attendance at final Action workshops	493	10	4,930
Aarhus	C 6	Permanent staff or civil servant	Analysis of data from action A1	493	180	88,740
Aarhus	C 6	Permanent staff or civil servant	Attendance at analysis workshops	493	10	4,930
Aarhus	C 7	Permanent staff or civil servant	Participation in action, including attendance at workshops	493	9	4,437
Aarhus	E 1	Permanent staff or civil servant	Preparation of scientific publications	493	10	4,930
Aarhus	E 1	Permanent staff or civil servant	Attendance at final project workshop - 2 days plus 1 day travel	493	3	1,479
Newcastle	A 1	Permanent staff or civil servant	Preparation of equipment / fieldwork and databases	343	5	1,715

Direct Personnel costs

Calculation =>				A	B	A x B
Beneficiary short name	Action number	Type of contract	Category/Role in the project	Daily rate (rounded to the nearest €)	Number of person-days	Direct personnel costs (€)
Newcastle	A 1	Permanent staff or civil servant	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation	343	21	7,203
Newcastle	A 3	Permanent staff or civil servant	10 days field work + 2 travel days for UK phase of monitoring work	343	12	4,116
Newcastle	A 3	Additional staff	Work across the action	218	52	11,336
Newcastle	A 3	Permanent staff or civil servant	Preparation of equipment / fieldwork and databases	343	5	1,715
Newcastle	C 4	Permanent staff or civil servant	Analysis and algorithm development	343	10	3,430
Newcastle	C 5	Permanent staff or civil servant	Action coordination, data collation, assessment of threats and travel to workshop	343	45	15,435
Newcastle	C 5	Additional staff	Data collation, assessment of threats and travel to workshop	218	328	71,504
Newcastle	C 6	Permanent staff or civil servant	Attendance at final Action workshops	343	10	3,430
Newcastle	C 6	Permanent staff or civil servant	Attendance at analysis workshops	343	10	3,430
Newcastle	C 6	Permanent staff or civil servant	Preparation and action administration	343	15	5,145
Newcastle	C 6	Permanent staff or civil servant	Analysis of data from action A3	343	10	3,430
Newcastle	C 6	Additional staff	Analysis of data from action A3	218	180	39,240
Newcastle	C 7	Permanent staff or civil servant	Participation in action, including attendance at workshops	343	9	3,087
Newcastle	E 1	Permanent staff or civil servant	Attendance at final project workshop - 2 days plus 1 day travel	343	3	1,029
Newcastle	E 1	Permanent staff or civil servant	Preparation of scientific publications	343	10	3,430
IMARES	A 1	Permanent staff or civil servant	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation	725	21	15,225
IMARES	A 1	Permanent staff or civil servant	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation	725	21	15,225
IMARES	A 1	Permanent staff or civil servant	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation	725	21	15,225
IMARES	A 3	Permanent staff or civil servant	10 days field work + 2 travel days for UK phase of monitoring work	725	12	8,700

Direct Personnel costs

Calculation =>				A	B	A x B
Beneficiary short name	Action number	Type of contract	Category/Role in the project	Daily rate (rounded to the nearest €)	Number of person-days	Direct personnel costs (€)
IMARES	A 3	Permanent staff or civil servant	10 days field work + 2 travel days for UK phase of monitoring work	725	12	8,700
IMARES	A 3	Permanent staff or civil servant	Preparation of equipment / fieldwork and databases	725	5	3,625
IMARES	A 3	Permanent staff or civil servant	10 days field work + 2 travel days for UK phase of monitoring work	725	12	8,700
IMARES	C 1	Permanent staff or civil servant	Action preparation and survey coordinaton	551	14	7,714
IMARES	C 1	Permanent staff or civil servant	Secretarial / administrative support - 2016	272	5	1,360
IMARES	C 1	Permanent staff or civil servant	Observer - main survey	349	32	11,168
IMARES	C 1	Permanent staff or civil servant	Financial / administrative support - 2016	352	5	1,760
IMARES	C 1	Permanent staff or civil servant	Financial / administrative support - 2015	345	5	1,725
IMARES	C 1	Permanent staff or civil servant	Secretarial / administrative support 2015	266	5	1,330
IMARES	C 1	Permanent staff or civil servant	General management - year 2015	685	5	3,425
IMARES	C 1	Permanent staff or civil servant	General management - year 2016	536	5	2,680
IMARES	C 1	Permanent staff or civil servant	Coordinating surveys - 2016	562	69	38,778
IMARES	C 1	Permanent staff or civil servant	Cruise leader - main survey	460	32	14,720
IMARES	C 7	Permanent staff or civil servant	Participation in action, including attendance at workshops	725	14	10,150
IMARES	E 1	Permanent staff or civil servant	Attendance at final project workshop - 2 days plus 1 day travel	725	3	2,175
IMARES	E 1	Permanent staff or civil servant	Preparation of scientific publications	725	10	7,250
IMARES	E 1	Permanent staff or civil servant	Attendance at final project workshop - 2 days plus 1 day travel	725	3	2,175
JNCC	A 1	Permanent staff or civil servant	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation	220	21	4,620

Direct Personnel costs

Calculation =>				A	B	A x B
Beneficiary short name	Action number	Type of contract	Category/Role in the project	Daily rate (rounded to the nearest €)	Number of person-days	Direct personnel costs (€)
JNCC	A 1	Permanent staff or civil servant	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation	284	21	5,964
JNCC	A 3	Permanent staff or civil servant	10 days field work + 2 travel days for UK phase of monitoring work	284	12	3,408
JNCC	C 2	Permanent staff or civil servant	Participation in fieldwork for C2	284	30	8,520
JNCC	C 2	Permanent staff or civil servant	Participation in fieldwork for C2	284	30	8,520
JNCC	C 2	Permanent staff or civil servant	Participation in fieldwork for C2	219	30	6,570
JNCC	C 4	Permanent staff or civil servant	Workshop attendance	284	2	568
JNCC	C 4	Permanent staff or civil servant	Workshop attendance	284	2	568
JNCC	C 5	Permanent staff or civil servant	Workshop attendance (1 workshop * 2 days, with 2 travel days each)	284	4	1,136
JNCC	C 5	Permanent staff or civil servant	Workshop attendance (2 workshops * 2 days, with 2 travel days each)	284	8	2,272
JNCC	C 7	Permanent staff or civil servant	Attendance at workshops (2 workshops of 2 days duration, plus 2 travel days)	284	6	1,704
JNCC	C 7	Permanent staff or civil servant	Attendance at workshops	284	6	1,704
JNCC	C 7	Permanent staff or civil servant	Input into action discussion	284	3	852
JNCC	C 7	Other pre-existing staff	Senior financial support	284	10	2,840
JNCC	C 7	Other pre-existing staff	Legal Representative	284	5	1,420
JNCC	C 7	Other pre-existing staff	Finance support	136	15	2,040
JNCC	C 7	Other pre-existing staff	Action auditing	816	9	7,344
JNCC	C 7	Permanent staff or civil servant	Action Leader - C7	284	30	8,520
JNCC	E 1	Permanent staff or civil servant	Preparation of scientific publications	284	10	2,840

Direct Personnel costs

Calculation =>				A	B	A x B
Beneficiary short name	**Action number**	**Type of contract**	**Category/Role in the project**	**Daily rate (rounded to the nearest €)**	**Number of person-days**	**Direct personnel costs (€)**
JNCC	E 1	Permanent staff or civil servant	Attendance at final project workshop - 2 days plus 1 day travel	284	3	852
UCC	A 1	Permanent staff or civil servant	Phase 1 - Denmark: 21 days field work (19 days survey, 2 mobilisation	460	21	9,660
UCC	A 2	Permanent staff or civil servant	Attendance at briefing meeting to ensure all cruise leaders for action C2 are familiar and competent with new equipment	460	3	1,380
UCC	C 2	Additional staff	Action administration, correspondence and preparation	240	220	52,800
UCC	C 2	Permanent staff or civil servant	Action administration, correspondence and preparation	460	30	13,800
UCC	C 2	Additional staff	Action auditing	1,000	3	3,000
UCC	C 4	Permanent staff or civil servant	Analysis and algorithm development	460	10	4,600
UCC	C 5	Permanent staff or civil servant	Workshop attendance (1 workshop * 2 days, with 2 travel days each)	460	4	1,840
UCC	C 5	Permanent staff or civil servant	Workshop attendance (2 workshops * 2 days, with 2 travel days each)	460	8	3,680
UCC	E 1	Permanent staff or civil servant	Preparation of scientific publications	460	8	3,680
UCC	E 1	Permanent staff or civil servant	Attendance at final project workshop - 2 days plus 1 day travel	460	3	1,380
				TOTAL =>	3,593	1,249,726

Travel and subsistence costs

Calculation =>					A	B	A + B
Beneficiary short name	Action number	Destination (From / To)	Outside EU (YES / NO)	Purpose of travel/number of trips and persons travelling, duration of trip (in days)	Travel costs (€)	Subsistence costs (€)	Total travel and subsistence costs (€)
St Andrews	A 2	Travel from country of origin to UK	No	Briefing meeting for cruise leaders to ensure all are familiar with equipment made for the survey. Travel for 4 people	2,000	245	2,245
St Andrews	A 2	Travel between Fort William and St Andrews	No	2-3 people travelling for meetings between teams in Scotland. 3 meetings planned	600	184	784
St Andrews	C 3	Travel from country of origin to workshop (location to be confirmed)	No	14 people travelling to analysis workshop	2,800	4,200	7,000
St Andrews	C 4	Travel to St Andrews from Newcastle and Cork	No	Action meetings - 4 people travelling	600	1,300	1,900
St Andrews	E 1	Travel from country of origin to workshop (location to be confirmed)	No	All action leaders and other project staff to attend end of project conference - 9 people x 3 days	2,000	3,500	5,500
Aarhus	A 1	Travel to Denmark from individual country of origin	No	Flights to Denmark for 11 people for fieldwork; 11 people * Per Diem of 60 euros * 21 days *and 20 nights hotel accommodation for the three aerial observers	5,500	22,860	28,360
Newcastle	A 3	Travel to UK from individual country of origin	No	Flights to UK for 11 people for fieldwork; 11 * Per Diem of 60 euros * 12 days; and 12 nights hotel accommodation for the 11 observers	5,500	27,720	33,220
Newcastle	C 5	Travel from country of origin to workshop (location to be confirmed)	No	2 x 2day analysis workshop - 12 people	6,000	7,200	13,200
Newcastle	C 5	Travel from country of origin to workshop (location to be confirmed)	No	2 x 2day Final workshop - 10 people	5,000	6,000	11,000
Newcastle	C 6	Travel from country of origin to workshop (location to be confirmed)	No	Travel, accommodation and subsitence for 6 people at each of 2 workshops	6,000	7,200	13,200

Travel and subsistence costs

					Calculation =>	A	B	A + B
Beneficiary short name	Action number	Destination (From / To)	Outside EU (YES / NO)	Purpose of travel/number of trips and persons travelling, duration of trip (in days)		Travel costs (€)	Subsistence costs (€)	Total travel and subsistence costs (€)
Newcastle	C 6	Travel from country of origin to workshop (location to be confirmed)	No	Travel, accommodation and subsitence for 5 people at each of 2 workshops		5,000	6,000	11,000
IMARES	C 1	Travel and subsistence costs during survey within EU	No	Team 5 - 3 people - NL		408	12,877	13,285
IMARES	C 1	Travel and subsistence costs during survey within EU	No	Team 4 - 3 people - DK		1,632	13,219	14,851
IMARES	C 1	Travel and subsistence costs during survey within EU	No	3 cruise leaders & coordinator, back to back with Action A1 fieldwork, DK		2,176	4,406	6,582
IMARES	C 1	Travel and subsistence costs during survey within EU	No	Team 3 - 3 people - UK		408	14,786	15,194
IMARES	C 1	Travel and subsistence costs during survey within EU	No	Team 1 - 3 people - UK		1,632	14,786	16,418
IMARES	C 1	Travel and subsistence costs during survey within EU	No	Team 6 - 3 people - F		408	12,877	13,285
IMARES	C 1	Travel and subsistence costs during survey within EU	No	1 person , NL		136	358	494
IMARES	C 1	Travel and subsistence costs during survey within EU	No	Team 2 - 3 people - UK		1,632	14,786	16,418
JNCC	C 7	From country of origin to UK	No	2 workshops, 2 days each, 1 travel day for each. 12 people (some have no cost to attend, just a requirement for travel costs to be reimbursed)		12,000	10,800	22,800
UCC	C 2	Country of origin to vessel (locations as yet unknown)	No	24 people		14,760	0	14,760

TOTAL =>	76,192	185,304	261,496

External assistance costs

Beneficiary short name	Action number	Procedure	Description	Costs (€)
St Andrews	A 2	Framework agreement	Contracting Russel Leaper to work on preparation of visual survey data collection system	17,500
St Andrews	C 3	Framework Agreement	Contracting Anita Gilles to conduct aerial survey analyses	165
St Andrews	C 3	Framework Agreement	Statistical contractor for circle-back analysis of aerial data	55
St Andrews	E 1	Framework agreement	Anita Gilles - preparation of scientific publications	3,600
St Andrews	E 1	Framework agreement	Design and implementation of project website	2,040
St Andrews	E 1	Framework agreement	Russell Leaper - preparation of scientific publications	3,500
Aarhus	A 1	Framework Agreement	Charter of Digital aerial survey team - Danish Phase fieldwork	104,000
Aarhus	A 1	Framework Agreement	Aerial charter (to be used for Danish Phase fieldwork)	31,968
Aarhus	A 1	Framework Agreement	Vessel Charter for Danish Phase Fieldwork	88,654
Newcastle	A 3	Framework Agreement	Vessel Charter for UK Phase fieldwork	32,200
Newcastle	A 3	Advertised contract	Observer for 12 days field work	4,428
Newcastle	A 3	Framework Agreement	Aerial charter (to be used for UK Phase fieldwork)	21,312
Newcastle	A 3	Framework Agreement	Charter of Digital aerial survey team - UK Phase fieldwork	69,333
Newcastle	A 3	Advertised contract	Observer for 12 days fieldwork	4,428
Newcastle	C 5	Framework agreement	Contracting Russel Leaper to work on collation of data an assessment of threats for action C5	18,200
Newcastle	C 6	Framework agreement	Contracting Russel Leaper to attend workshops associated with action C6	3,500
IMARES	A 1	Framework agreement	Contracting of one observer and one cruise leader from the University of La Rochelle for aerial survey fieldwork	11,328
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	5,236
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	5,236
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	5,236
IMARES	C 1	Framework agreement	Contracting of one observer and one cruise Leader from the TiHo Hannover Institute for Aerial survey fieldwork	29,408
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	5,236
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	5,236
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	5,236

External assistance costs

Beneficiary short name	Action number	Procedure	Description	Costs (€)
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	5,236
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	11,070
IMARES	C 1	Public tender	Charter of aerial survey plane to conduct fieldwork for survey	371,280
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	5,236
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	5,236
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	5,236
IMARES	C 1	Advertised contract	Contracting of one observer for aerial survey fieldwork	5,236
JNCC	C 7	Framework Agreement	Anita Gilles - German representation to GES action	3,240
JNCC	C 7	Framework agreement	Begona Santos - Spanish representation to GES action	3,240
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Cruise Leader for vessel survey	14,760
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Public Tender	Vessel charter for fieldwork of Action C2	282,900
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Public Tender	Vessel charter for fieldwork of Action C2	282,900
UCC	C 2	Advertised contract	Cruise Leader for vessel survey	14,760
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070

External assistance costs

Beneficiary short name	Action number	Procedure	Description	Costs (€)
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Public Tender	Vessel charter for fieldwork of Action C2	282,900
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Observer for vessel survey	11,070
UCC	C 2	Advertised contract	Cruise Leader for vessel survey	14,760
			TOTAL =>	2,017,495

Durable goods: equipment costs

Beneficiary short name	Action number	Procedure	Description	Actual cost (€)	Depreciation (eligible cost) (€)
St Andrews	A 2	Purchase	3 sets of Visual survey kit: (comprises 1* laptop, 2 * video camera, 2 * HD video camera, bespoke camera mounting, Shipping boxes, Data recorder kit (bespoke), hard drives for back up, angle boards.	48,144	48,144
St Andrews	A 2	Purchase	Noise monitoring equipment - bespoke setup	6,000	6,000
St Andrews	A 2	Purchase	400m, 2 element hydrophone array and amplifier box; laptop computer; DAQ card; GPS unit, Hard drives for data storage. 3 duplicate sets of equipment required - one for each survey vessel. One of these	49,980	49,980
St Andrews	A 2	Purchase	Aerial survey equipment - 7 sets (6 teams plus spare) - including computer, inclinometer and radios	18,200	18,200
St Andrews	A 2	Purchase	Binoculars for vessels (3 * big-eye binoculars and case; 9 * 7 x 50 binoculars) plus stands	8,703	8,703
Aarhus	A 1	Purchase	10 * CPODS (Static Acoustic device for detecting cetacean vocalisations)	37,000	37,000
Aarhus	A 1	Purchase	10 * SM3M+ Units (Static Acoustic device for detecting cetacean vocalisations)	79,000	79,000
Aarhus	A 1	Purchase	10 * SoundTrap Units (Static Acoustic device for detecting cetacean vocalisations)	28,000	28,000
Newcastle	A 1	Purchase	Moorings and acoustic releases for deployment of the static PAM devices	16,000	16,000
Newcastle	A 3	Purchase	Fieldwork laptops	2,500	2,500
			TOTAL =>	293,527	293,527

Consumables

Beneficiary short name	Action numbe	Procedure	Description	Costs (€)
St Andrews	A 2	Purchase	Cable ties, tape wiring etc for field work boxes	400
Aarhus	A 1	Purchase	Modifications to vessel - such as building a viewing platform	13,500
Newcastle	A 3	Purchase	Moorings for 10 acoustic deployments	4,000
IMARES	C 1	Purchase	Batteries for communications equipment (all aerial survey teams)	780
			TOTAL =>	18,680

Other costs

Beneficiary short name	Action numbe	Procedure	Description	Costs (€)
St Andrews	E 1	Venue Hire	2 day venue hire and refreshments for end of project conference	5,000
St Andrews	E 1	Purchase	Purchase of project display stands	1,020
Aarhus	A 1	Purchase	Shipping of equipment to survey planes and vessels	5,000
Newcastle	A 3	Purchase	Shipping of acoustic equipment used in A1 to Newcastle for use in A3	3,000
Newcastle	C 5	Purchase	Purchase of AIS (Automatic Identification System) data for use in threat assessment	1,000
UCC	C 2	Purchase	Shipping of equipment to survey planes and vessels	15,000
			TOTAL =>	30,020

Overheads

Beneficiary short name	Total direct costs of the project in €	Overhead amount (€)
Aarhus	596,906	41,783
Newcastle	440,196	30,813
IMARES	759,799	53,185
JNCC	101,542	7,107
UCC	1,251,030	87,572
St Andrews	721,471	50,502
	3,870,944	270,962

Proposal attachments

		Included?	
Attachment title	**Attachment type**	**Yes**	**No**
Public body declaration	public body declaration		