

**Application for Consent to Conduct Marine Scientific Research  
in Areas Under National Jurisdiction of**

**Iceland**  
(name of coastal state)

**Date: 30<sup>th</sup> January 2012**

**1. General Information**

|                           |   |
|---------------------------|---|
| 1.1 Cruise name and/or #: | IFAW / MCR cetacean research project in Icelandic and adjacent waters, summer 2012. |
|---------------------------|---|

|                             |   |
|-----------------------------|---|
| 1.2 Sponsoring institution: | * please see attached information for full list of sponsors/funders |
| Name:                       | International Fund for Animal Welfare (IFAW)                        |
| Address:                    | 87-90 Albert Embankment<br>London SE1 9UD                           |
| Name of Director:           | Mr Fred O'Regan CEO   |

|   |   |
|---|---|
| 1.3 Scientist in charge of the project (include CV and passport photo): |   |
| Name:   | Dr Oliver Boisseau  |
| Address:  | Marine Conservation Research<br>1 High Street<br>Kelvedon, Essex, CO5 9AG, UK |
| Telephone:  | +44(0)1376 573071   |
| Fax:  | +44 (0)1376 573071  |
| Email:  | oboisseau@mcr-team.co.uk  |

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|--|--|
| 1.4 Scientist(s) from coastal state involved in the planning of the project: |  |
| Name(s):   | Dr Marianne Helene Rasmussen and team/colleagues |
| Address:   |  |

|                         |   |
|-------------------------|---|
| 1.5 Submitting officer: |   |
| Name and address:       | Anna Moscrop<br>Marine Conservation Research<br>1 High Street<br>Kelvedon, Essex, CO5 9AG, UK |
| Nationality:            | British   |
| Telephone:              | +44 (0)1376 573071  |
| Fax:                    |   |
| Email:                  | amoscrop@mcr-team.co.uk   |

**2. Description of Project (Attach additional pages as necessary)**

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| 2.1 Nature and objectives of the project:   |
| Research on cetaceans with the aim of further developing the use of passive acoustic techniques for the study of cetaceans, particularly large baleen whales. Previous projects off Iceland in 2004 and 2006 focused on the acoustics of fin and blue whales; this will be continued in 2012. In addition, the team will be collaborating with Icelandic researchers to deploy an acoustic EAR autonomous recorder between Iceland and Greenland, west of Isafjordur, and on a study of |

minke whale behaviour in Faxaflói. Acoustic recordings and photo-identification images of all cetacean species of interest will also be collected. Studies of minke whale movement and diving patterns will aim to investigate any differences in behaviour between animals in areas used by whale watching vessels and in the area of shore based observations by (Christiansen et al., 2011).

#### 2.2 Relevant previous or future research cruises:

The IFAW Song of the Whale team has carried out passive acoustic surveys over the last 25 years on a variety of cetacean species around the world. The team carried out visual and passive acoustic research on cetaceans around Iceland in 2004 and 2006 (see Boisseau et al 2008), and have also studied N Atlantic right whales off the USA and Canada for many years between 1997 and the present, sperm whales in the Mediterranean, Azores, Canary Islands, Caribbean Sea and beaked whales in the Canary Island and the Azores (2008) and off Scotland and Ireland (2010). The team has conducted extensive work on the development and use of passive acoustic detection systems for various species of cetaceans, including harbour porpoises (see references below), sperm whales and N Atlantic right whales. The team has also developed techniques for visually tracking the movements of whales using video cameras and these methods will be used to track minke whale movements and dive patterns in Faxaflói.

#### 2.3 Previously published research data relating to the project:

The team has extensive knowledge and experience in the field of marine mammal acoustics and survey design. The group has produced a body of work relating to surveys of marine mammals, particularly using acoustics, including:

Boisseau, O., Lacey, C., Lewis, T., Thorne, T. Moscrop, A., Gillespie, D. and Aguilar de Soto, N. In prep. Mid-Atlantic surveys for beaked whales: The potential for acoustic prediction of critical habitats.

Boisseau, O. J., Gillespie, D., Leaper, R. & Moscrop, A. 2008. Blue (*Balaenoptera musculus*) and fin (*B. physalus*) whale vocalisations measured from northern latitudes of the Atlantic Ocean. *J. Cetacean Res. Manage.* 10(1): 23-30.

Boisseau, O., Matthews, J., Gillespie, D., Lacey, C., Moscrop, A. & El Ouamari, N. 2007. A visual and acoustic survey for harbour porpoises off North-West Africa: further evidence of a discrete population. *African Journal of Marine Science* 29(3): 403-410.

Chappell, O. P., Leaper, R. & Gordon, J. 1996. Development and performance of an automated harbour porpoise click detector. *Rep. Int. Whal. Commn.* 46: 587-593.

Christiansen, F., Rasmussen, M., and Lusseau, D. 2011. Whalewatching boats disrupt the foraging activities of minke whales in Faxaflói bay, Iceland. Unpublished paper presented to IWC Scientific Committee meeting, Tromso, Norway, June 2011.

Gillespie, D. & Chappell, O. 2002. An automatic system for detecting and classifying the vocalisations of harbour porpoises. *Bioacoustics* 13: 37-61.

Gillespie, D., Berggren, P., Brown, S., Kulik, I., Lacey, C., Lewis, T., Matthews, J., McLanaghan, R., Moscrop, A. & Tregenza, N. 2005. The relative abundance of harbour porpoises *Phocoena phocoena* from acoustic and visual surveys in Baltic waters during 2001 and 2002. *Journal of Cetacean Research and Management* 7(1): 51-57.

Leaper, R. and Gordon, J. 2001. Application of photogrammetric methods for locating and tracking cetacean movements at sea *J. Cetacean Res. Manage.* 3(2):131-141

Lewis, T., Gillespie, D., Lacey, C., Matthews, J., Danbolt, M., Leaper, R., McLanaghan, R. & Moscrop, A., 2007. Sperm whale abundance estimates from acoustic surveys of the Ionian Sea and Straits of Sicily in 2003. *J. Mar. Biol. Ass. U.K.* 87(1): 353-358.

Matthews, J. N., Brown, S., Gillespie, D., Johnson, M., McLanaghan, R., Moscrop, A., Nowacek, D., Leaper, R., Lewis, T. & Tyack, P. 2001. Vocalisation rates of the North Atlantic right whale (*Eubalaena glacialis*). *Journal of Cetacean research and management* 3: 271-282.

Moscrop, A., Matthews, J., Gillespie, D., & Leaper, R. 2004. Development of passive acoustic monitoring systems for northern right whales. *Canadian Acoustics* 32 (Special Issue on Detection and Localisation of Marine Mammals): 17-22.

### 3. Methods and Means to be Used

|   |   |
|---|---|
| 3.1 Particulars of vessel:  |   |
| Name:   | R.V. <i>Song of the Whale</i>   |
| Nationality (Flag state):   | British   |
| Owner:  | International Fund for Animal Welfare   |
| Operator:   | Marine Conservation Research Ltd.   |
| Overall length (meters):  | 22m   |
| Maximum draught (meters):   | 3m  |
| Displacement/Gross tonnage:   | 51.58   |
| Propulsion:   | Auxiliary sailing vessel  |
| Cruising & Maximum speed:   | 8 knots, 10 knots   |
| Call sign:  | MDSX7   |
| Method and capability of communication (including emergency frequencies): | The vessel is fully equipped with GPS, AIS, SSB & VHF radio and Inmarsat in accordance with MCA for a vessel of this type. Contact details to be provided to permitting body as required. |
| Name of master:   | Mr Richard McLanaghan   |
| Number of crew:   | The vessel is operated by a dedicated crew of 3 or 4 (including a skipper, 1 <sup>st</sup> mate engineer and deckhand.  |
| Number of scientists on board:  | Variable (up to 7)  |

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| 3.2 Aircraft or other craft to be used in the project: |
| None   |

|   |   |  |
|---|---|--|
| 3.3 Particulars of methods and scientific instruments |   |  |
| Types of samples and data                             | Methods to be used                      | Instruments to be used   |
| Visual  |   | Binoculars   |
| Passive acoustic recordings                           |   | Towed and dipping hydrophones                                      |
| Photographs   | Photo-identification                    | Digital cameras and high-definition video recorder                 |
| Tracking of minke whale movement and diving patterns  | Visual observations combined with video | Combined video and binocular mount with bearing measurement system |

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| 3.4 Indicate whether harmful substances will be used: |
| None  |

3.5 Indicate whether drilling will be carried out:

None

3.6 Indicate whether explosives will be used:

None

#### 4. Installations and Equipment

Details of installations and equipment (dates of laying, servicing, recovery; exact locations and depth):

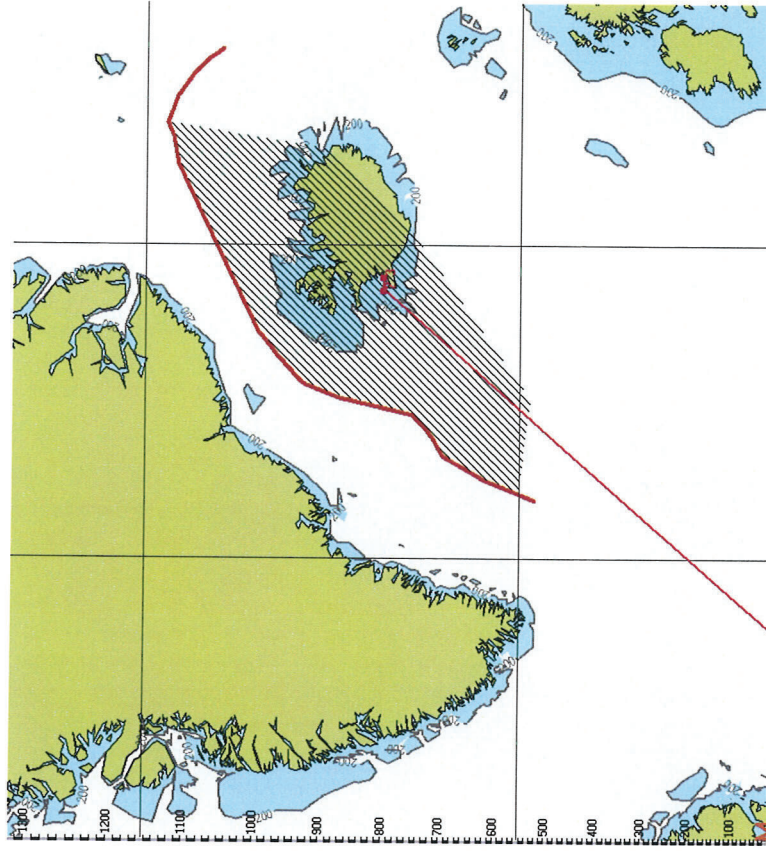
Acoustic EAR recorder (details of deployment, position and recovery to be agreed with Dr Rasmussen)

#### 5. Geographical Areas

5.1 Indicate geographical areas in which the project is to be conducted (with reference in latitude and longitude):

The aim is to deploy the acoustic EAR to the west of Ísafjörður (exact location to be confirmed). Studies of blue and fin whales found in the vicinity of the EAR will be conducted time permitting. The minke whale research will be conducted in Faxaflói. Tracking and recording of whales will most likely take place to the north and west of Iceland, but permission is requested to potentially work within Iceland's EEZ.

5.2 Attach chart(s) at an appropriate scale (1 page, high-resolution) showing the geographical areas of the intended work and, as far as practicable, the positions of intended stations, the tracks of survey lines, and the locations of installations and equipment.



The shaded area shows likely study area. Red line marks Iceland /Greenland EEZ. Permission is also being sought from the authorities in Greenland for permission to conduct research there.

The likely track of the vessel from the USA is also shown.

## 6. Dates

6.1 Expected dates of first entry into and final departure from the research area of the research vessel:

25<sup>th</sup> July – 30<sup>th</sup> September 2012

6.2 Indicated if multiple entry is expected:

Possibly.

## 7. Port Calls

7.1 Dates and names of intended ports of call:

Dates of port calls are still to be confirmed but may include Ísafjörður, Sandgerði, Garður/Keflavík, Reykjavík, Akranes and Ólafsvík

7.2 Any special logistical requirements at ports of call:

None

7.3 Name/Address/Telephone of shipping agent (if available):

None

## 8. Participation:

8.1 Extent to which coastal state will be enabled to participate or to be represented in the research project:

Visiting scientists and students are invited to take part in the project. The number of available spaces will be confirmed asap. Several members of Dr Rasmussen's team are expected to spend time onboard. Fredrik Christiansen and an assistant plan to participate on board during the studies of minke whales in Faxaflói.

8.2 Proposed dates and ports for embarkation/disembarkation:

To be confirmed

## 9. Access to data, samples and research results

9.1 Expected dates of submission to coastal state of preliminary reports, which should include the expected dates of submission of the final results:

A preliminary cruise report would be submitted on the 15<sup>th</sup> December 2012 and a final report by 30<sup>th</sup> March 2013.

9.2 Proposed means for access by coastal state to data and samples:

Data will be made available to interested parties

9.3 Proposed means to provide coastal state with assessment of data, samples and research results or provide assistance in their assessment or interpretation:

Databases can be provided to the coastal state in digital format

9.4 Proposed means of making results internationally available:

Results will be made available through releasing reports on the MCR website and published as

appropriate in scientific journals.

(Revised June 5, 2002)

**General Background Information on the research project to be conducted in Iceland, summer 2012 by Marine Conservation Research and the International Fund for Animal Welfare.**

Anna Moscrop, February 2012. amoscrop@mcr-team.co.uk

**Song of the Whale Research Team**

The R.V. *Song of the Whale* is staffed and run by Marine Conservation Research Ltd (MCR) on behalf of the International Fund of Animal Welfare. The team comprises a British Captain and operations director, Richard McLanaghan and crew (a Skipper, First Mate/Engineer and second mate), a project manager, Anna Moscrop and scientists, Dr Oliver Boisseau and Anna Cucknell.

In addition to members of the full time team (who will be onboard for various periods of time), a selection of international student interns and scientists, including participants from Iceland will be invited to join the team for short periods to assist with the survey and learn about the techniques used, and the project will be conducted in collaboration and coordination with local research groups in the region.

The project will be sponsored by the International Fund for Animal Welfare (IFAW). The President of IFAW is Mr Fred O'Regan. IFAW has owned and operated a research vessel, *Song of the Whale*, specifically for cetacean studies since 1987. A new purpose built research vessel was launched in 2004. Much of the research conducted from *Song of the Whale* has been to develop new research techniques with an emphasis on the use of passive acoustics. In order to assist other researchers, IFAW has made its data collection and processing software freely available ([www.marineconservationresearch.co.uk](http://www.marineconservationresearch.co.uk)).

Between 1987 and 2012, cetacean research has been conducted from R/V *Song of the Whale* in the waters of over 20 countries including Algeria, Canada, Cyprus, Denmark, Dominica, Dutch Antilles, France, Germany, Greece, Grenada, Iceland, Ireland, Italy, Libya, Malta, Martinique, Mauritania, Monaco, Morocco, Poland, Portugal and the Azores, Spain, St Lucia, Sweden, Trinidad and Tobago, Turkey, Tunisia, UK and USA. The team have also worked with the national Antarctic research programmes of Australia, Germany and the UK on cetacean surveys in the Southern Ocean and on collaborative projects with international organisations including the International Whaling Commission, ASCOBANS<sup>1</sup> and ACCOBAMS<sup>2</sup>.

**The Research Vessel**

The research will be conducted using IFAW's 22m (72 ft) research sailing vessel *Song of the Whale* (SOTW). This is a British registered vessel and is an auxiliary powered, cutter-rigged, sailing research vessel. The R/V *Song of the Whale*, was built by Blondcell Ltd in Southampton, UK and was launched on 6<sup>th</sup> June 2004. It is a purpose designed and built research vessel, is registered in the UK and certified category 0 by the Maritime and Coastguard Agency<sup>3</sup>, and is the first Sailing Special Service Craft design to be given the highest rating possible in accordance with Lloyds Register of Shipping Rules in 30 years. The vessel has 2 tenders; 4.2m Zodiac inflatable with 25hp Honda 4 stroke outboard engines. *Song of the Whale*'s auxiliary 370 HP Yanmar diesel engine and long-range fuel tanks hold 3300 litres of fuel to provide the vessel with a range of approximately 1,500 miles under power when required.

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<sup>1</sup> Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas

<sup>2</sup> Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area

<sup>3</sup> The relevant statutory authority in the United Kingdom. Category 0 vessels are considered suitable for operation unrestricted by distances from a safe haven.



## **Equipment and materials**

Equipment and materials to be used for the study include:

- A range of hydrophones (underwater microphones) of various specifications for passive acoustic detection and tracking of whales, dolphins and porpoises. This includes several stereo element oil-filled and potted hydrophones (towed arrays) along with associated electronic modules. These cover a wide range of frequencies – from low frequency (i.e. 10Hz which covers infrasonic sounds from blue and fin whales); medium frequency (200Hz to 40 kHz, for sperm whales and dolphins) and high frequency (from 2 to 200 kHz to detect beaked whales and porpoises). These allow the scientists to detect the sounds made by the largest whales and the smallest porpoises. Much of this equipment has been specially designed and built by Song of the Whale scientists.
- Free-floating autonomous recording buoys, comprising a single hydrophone element suspended from a free-floating buoy with a digital recorder, dedicated power supply and a GPS unit. These are only used in good weather conditions and are retrieved after each recording.
- Specialist data logging software is installed on four onboard computers and is used to automatically log the boat's position, direction, speed, water depth, weather and other environmental variables important to the team's research.
- In addition, IFAW's marine mammal detection software is run on the onboard computers including: Rainbow click automated sperm whale detection software, porpoise detector software, and a whistle detector software. PAMGUARD is also used.
- Digital photographic equipment. Images for photo-identification will be taken using Cannon EOS 10D digital cameras and be submitted to the appropriate photo-identification catalogues or otherwise made available. Additionally a laser-mount, to allow relative size estimation, will be added to the lens of the digital cameras when taking photos of baleen whales.
- The study will not involve the deployment of any non-recoverable equipment. The SOTW team promotes the use of benign (non-invasive techniques) to study cetaceans. The study will be conducted with the minimum of disturbance to the study subjects. The study will be conducted through observation and passive listening i.e. no direct contact will be made with the animals. Close approaches to whales will only be made for the purposes of photo-identification and no whale will be approached closer than 50m.
- The vessel is fully equipped with the normal communications and navigation equipment found onboard a modern vessel (GPS, AIS, SSB & VHF radio and Inmarsat).
- A preliminary report of the results from the survey will be available to interested parties following the completion of the survey.

## **Itinerary**

The vessel is due to leave the USA at the beginning of July and conducting research en route through the waters of Canada and Greenland, aims to reach Iceland by the end of July. Research will continue, weather permitting, through August and into September. The vessel's itinerary will be governed by weather conditions, which are the dominant factor for this type of research. The work around Iceland will finish by the end of September 2012.

Port stops are provisionally envisaged in Ísafjörður, Sandgerði, Garður/Keflavík, Reykjavík, Akranes and Ólafsvík

We kindly seek advice on whether there are any areas from which the survey would be prohibited, should permission be granted.

## **Participation by local researchers, scientists and students etc**

R/V *Song of the Whale* is a small vessel with limited space for accommodation and equipment. However, IFAW and the team wish to collaborate closely with researchers and scientists in the

region and space on board the vessel for two local researchers/scientists or participants to take part in the proposed research will be made available throughout the project. We are planning aspects of the research project in cooperation with Dr Marianne Rasmussen and Fredrik Christiansen and it is hoped that members of their team will join the SOTW team for periods during the project.

**Contact with the Maritime authorities.**

If required the National Coastguard and relevant authorities would be contacted by email 24 hours prior to the arrival of Song of the Whale in national waters and would be notified by email upon the departure of the vessel from national waters. In addition, the vessel is contactable 24 hours a day via VHF radio and satellite telephone. The radio call sign is MDSX7 and MMSI 235007200. The satellite telephone number is +881621464312.

**Pollution & emissions**

The vessel is a specially designed research vessel and works under sail whenever the wind conditions allow. All emissions are reduced to the minimum and all care is taken to avoid accidental discharges of any kind.