

## Joint Industry Programme on E&P Sound and Marine Life - Phase III

Request for Proposals Number: JIP III-15-03

### Long Term Fixed Acoustic Monitoring of Marine Mammals throughout the Life Cycle of an Offshore E&P Field Development

Release Date: 25th March 2015

#### Introduction

This Request for Proposals (RFP) seeks proposals to conduct studies that will critically assess the viability & value of using fixed acoustic monitoring to determine animal density based on the methodologies developed from the DECAF project. (<http://www.creem.st-and.ac.uk/decaf/>) Feasibility and assessment of integrating data from other monitoring platforms and methods, such as visual and/or towed acoustic monitoring is also of interest. Activities related to this subject area will build on previous JIP supported efforts related to acoustic monitoring by contributing to industry's ability to assess potential effects of offshore operations on animals through the life cycle of oil / gas fields.

The research called for in this RFP is required to meet the information needs of the above JIP, specifically Research Category 4 *Mitigation and Monitoring* - see [www.soundandmarinelife.org](http://www.soundandmarinelife.org) website.

The Proposals being requested must address the Proposal Description, Proposal Features, and Project Deliverables detailed below.

Organisations submitting Proposals should also adhere to the Application Procedure and Critical Dates set out below. In addition, the Terms & Conditions referred to at the bottom of this RFP shall apply.

#### Application Procedure

To respond to this RFP, please follow the relevant instructions given on the **Funding** page of the JIP website. Proposals should refer to the above RFP number and should be submitted electronically to [info@soundandmarinelife.org](mailto:info@soundandmarinelife.org).

Those organisations submitting Proposals should refer to the outline contract on the JIP website. This sets out the terms & conditions, which may from time to time be amended, of a contract with the International Association of Oil & Gas Producers (IOGP), acting as agent for the participants in the JIP. In particular, attention is drawn to the specific term relating to management of health, safety, security and environment aspects of a contract. All IOGP contracts have such a section, but the specific wording that will appear in this section depends on the type of activity (desk-top study, field work, etc.) to be conducted. Please also note the guiding principles on the *Policy on the use of live animals in experiments* on the website.

## Critical Dates

Proposals are due by: **Thursday, 30<sup>th</sup> April, 2015.**

We will confirm receipt of proposals. If you have not received confirmation of receipt of your proposal within 1 week of the above deadline, please contact John Campbell at IOGP (Tel +44 (0) 20 3763 9700; e-mail [info@soundandmarinelife.org](mailto:info@soundandmarinelife.org)). The review of proposals will conclude within 2 months of the submission deadline, after which applicants will be notified by the JIP.

## Background

Fixed installation Passive Acoustic Monitoring (PAM) systems offer the capability to monitor and characterise sound sources, ambient or background sound levels and/or presence and abundance of vocalizing marine mammals over a given area for extended periods (days, weeks, months or years).

The DECAF project successfully developed, demonstrated and assessed methodologies for using fixed PAM datasets to determine animal density. Such information being available before, during and after an industry activity could contribute to assessing potential effects of activities on cetacean species within the area of oil and gas operation, informing long term risk assessment and management plans, and help reduce the risk of negative interactions with marine mammals.

The DECAF project utilized a number of available datasets from existing (primarily military) fixed PAM systems that were already in place. The choice of datasets and species being studied was constrained by both the technical specifications and the physical spatial layout of equipment used.

An increasing number of autonomous fixed acoustic monitoring systems have become commercially available in recent years, all of which are able to collect data over extended periods of time for later recovery and analysis. Whilst further development may still be needed to enable specific applications, significant technology improvements, particularly in relation to power usage, data storage and data transmission have improved the usefulness of such systems to industry activities and research.

In order to optimize the outcomes of density estimation methods for species of interest, particular data characteristics (such as frequency range, duty cycle, duration and aerial coverage of data collection) are needed in order to determine key attributes for each species (such as call or vocalisation rates over a given area). These attributes in turn require specific equipment and system technical design in terms of hardware and software, as well as consideration of both the physical temporal and spatial deployment configurations of equipment (number of recorders needed for a given area and species) as well as their physical deployment/recovery and data telemetry capabilities.

## Description of Proposals being Requested

The IOGP E&P Sound and Marine Life JIP is requesting proposals which address all of the following:

- Critically assess the viability & value of designing and implementing a ‘life of field’ type ‘demonstration’ project that uses fixed acoustic monitoring to determine animal density based on methods developed by the DECAF project.
- The assessment may be in the form of either analysis (using the DECAF methodology) of **existing datasets or new datasets acquired via a dedicated demonstration field deployment** of a fixed acoustic monitoring installation:
  - Existing datasets must be relevant to areas of E&P activity and anticipated species of interest in these areas.

- The technical specification of equipment and physical configuration of the fixed acoustic monitoring system must consider the following:
  - Areas of E&P activity and anticipated species of interest in these areas.
  - Spatial extent that is representative of a 'typical' oil and gas field development.
  - Data collection duration of up to 1-2 years.
  - Equipment deployment, maintenance, data retrieval and analysis must minimise potential interaction with nominal E&P activities, Operational Health, Safety & Environment (HSE) considerations during offshore activities.
- Assessing the feasibility of integrating data from other monitoring platforms and methods, such as visual and/or towed acoustic monitoring is also of interest.

### **Desirable Features of Proposals**

Responses to this RFP should address each of the following (see also **RFP Response Format** page of website):

- Demonstrate a knowledge and understanding of:
  - Density Estimation of Cetaceans from Acoustic Fixed sensors (DECAF) methods, monitoring data, and integration of data from other monitoring platforms. How to address the various data requirements, assumptions, and uncertainties in applying the DECAF method for E&P areas, and in collecting the required data.
  - Marine mammal species present in areas of E&P development, and the practicalities of using fixed PAM systems near E&P operations.
- A detailed scope of work to prepare and provide the deliverables detailed below.
- A detailed work plan to review E&P industry needs.
- Timeframe for completion of project and significant milestone events during the project.
- A detailed cost estimate in US dollars, which includes:
  - Support for travel in order to interface with related company representatives or others with expertise in this subject area;
  - Assumptions to support the cost estimate; and
  - Any contingencies to address unknowns.
- A list of personnel to be involved in the project and their qualifications, their proposed role in this project, and associated cost/time allocation throughout the project.
- Researcher experience in this area and previous work.
- Operational HSE considerations during offshore activities.
- Where appropriate to the project, a discussion on how you manage animal care and use in your proposed work (see also Application Procedure above)
- An overall proposal summary (one paragraph).

### **Project Deliverables**

Project deliverables shall include:

- a) **Monthly Progress Reports** that summarise the work conducted, tasks planned for the coming month, amount spent (vs budget), and that forecasts a spend plan for the duration of the project. The specific reporting formats will be determined following contract award.
- b) **Draft and Final Project Reports** to include:
  1. *Identification of species of interest and resultant temporal and spatial scale of monitoring system design representative of a typical oil and gas field development.*
  2. *Identification of potential existing datasets for analysis and relevance to areas of E&P activity and anticipated species of interest in these areas.*
    - *This should include consideration of ancillary or metadata associated with any acoustic data that is needed to successfully implement a density estimation calculation.*
  3. *An overview and critical assessment of capabilities and application of the various fixed acoustic monitoring technologies and methods currently available to enable the implementation of an appropriate demonstration deployment of sensors. This should include:*
    - *Ability to successfully detect/classify/localise marine mammals at sea*
    - *Accuracy of detection, classification and localisation techniques and how this varies with distance and species*
    - *Deployment/recovery versus water depth of operation and likely E&P activities*
    - *Data transfer, collection and access*
    - *What other oceanographic/environmental information can be collected?*
    - *Different environmental conditions (arctic temperatures vs temperate).*
    - *Contact details of providers for each technology.*
  4. *Design of acoustic monitoring equipment and physical footprint required for relevant species of interest.*
  5. *Operational implementation plans for equipment deployment, maintenance and data retrieval. This must include operation HSE considerations and interface requirements with any oil and gas installation.*
  6. *A comparative discussion of the merits of analyses based on relative density measures vs absolute density/abundance.*
  7. *A quantification of the uncertainty involved in the various fundamental inputs/assumptions and how this uncertainty might impact results (particularly for absolute density/abundance estimates)*
  8. *Data analysis and assessment of the accuracy (compared to other density estimation methods), viability & value of designing and implementing a 'life of field' type field trial using fixed acoustic monitoring to determine animal density based on the outcomes of the DECAF project.*
  9. *Identification of potential areas of further development and suggested ways forward in order to provide or improve effectiveness of fixed acoustic monitoring datasets and systems needed to estimate animal density. This should include improved or simplified logistics and financial viability.*
  10. *Recommendations for a path forward to address the potential areas of further development, which balances factors such as:*
    - *Feasibility of successful development*
    - *Likely development costs and timing of availability*
    - *Perception of need and its urgency.*

- c) **One or more manuscripts submitted for publication** in a peer-reviewed journal, describing and discussing the low-visibility monitoring methods and viability for detecting/classifying/localising marine mammals at sea.

### **Terms & Conditions**

By submitting a proposal to JIP, the potential contractor accepts the terms and conditions set out in this RFP. This RFP does not commit the JIP, through IOGP, to contract for any supply or service and the JIP shall not be deemed to have accepted any proposal submitted by any potential contractor unless and until a duly executed written agreement is in place and then only for such scope as specifically identified in the written agreement. The potential contractor acknowledges that IOGP and the JIP participants may accept or reject any proposal for any reason whatsoever. The JIP may decide to fund a study in part or as a whole.

Those responding to this RFP are advised that the JIP will not pay for any costs incurred in preparation of a response to this invitation, including without limitation costs and expenses of attending meetings and worksite visits related to this RFP. All correspondence and documentation associated with this invitation will be in English. Submissions and information will not be shared with other potential contractors.