



## **Research Fellow in Fisheries Acoustics**

### *School of Biological Sciences*

**Closing date:** 08 August 2020

**Interview date:** TBC

**Reference number:** SBS084R



# Introduction

*“Aggregation, production and spillover: the cumulative impact of man-made structures on fish” is an INSITE2 research project recently funded by NERC. The School of Biological Sciences, University of Aberdeen, is looking for an enthusiastic marine scientist or engineer to conduct the research associated with the field component of this project, as well as the analysis of fisheries acoustic survey data.*

It is well known that certain fish species congregate at man-made marine structures (MMS) such as oil and gas installations. However, the extent to which this reflects enhanced productivity, a behavioural phenomenon, or protection from fishing afforded by the structure is unclear. “Spillover effects” are a well-known benefit of marine protected areas but have not been studied in relation to offshore structures in the North Sea and data on the spatial extent of fish aggregations beyond the immediate vicinity are sparse. In this project, we will use an autonomous surface vehicle equipped with state of the art high resolution acoustic and video surveying equipment to evaluate the densities and spillover of fish around North Sea MMS. Data from the surveys will be used to parameterise a high spatial resolution model of fish dynamics and movements which we will use to test hypotheses about the whole North Sea scale effects of networks of structures, including the extent to which they arise from enhanced productivity or the protection from fishing afforded by proximity to hard substrate, and the North Sea scale consequences of their removal.

Studying such detailed features requires quantitative underwater sampling at high spatial resolution over large areas: fisheries acoustics has this capability. The principal tool is the scientific echosounder, operated at multiple frequencies to determine the species detected. Acoustic survey data of this nature is available from one dedicated exercise, with transects approaching 14 oil and gas platforms in the North Sea. You will analyse these data and assemble new data from other MMS (other oil and gas platforms, pipelines, and wrecks) by examining data from MSS’ acoustic survey archive. In a major innovation you will also conduct a dedicated survey of northern North Sea oil and gas assets with a novel unmanned surface vehicle (USV, see [xocean.com](http://xocean.com)) operating to within ten’s of metres of MMS. You will play a key role in designing and overseeing the USV survey, as well as analysing the results.

The School of Biological Sciences is a vibrant and dynamic centre, internationally renowned for excellence both in teaching and research. Hosting over one hundred academic and research staff, 120 research students, 80 postgraduate taught students and 400 undergraduates; it is a close knit and friendly community. Based on the main campus at Kings College, the School also has facilities at the Cromarty Lighthouse, a field station at Bettyhill and a presence at the National Decommissioning Centre at Newburgh.

The School is proud of its legacy in delivering research led teaching in fields that include; Biology, Marine Biology, Zoology and Environmental Science. Teaching, training and research in the field highlight the locational advantage of Aberdeen.

The School’s research portfolio is based on four pillars; Evolution, Ecology, Environment and Physiology and investigators are incentivised to work across these units. This leads to innovative science addressing local, national and international challenges. The School is partner in three Doctoral Training Partnerships (2 NERC funded – QUADRAT & SUPER and 1 BBSRC funded – EASTBIO). Much of our research operates alongside stakeholder and we cooperate closely with Marine Scotland Science.



## Job description

### Main purpose of the role:

The Research Fellow in Fisheries Acoustics is central to the NERC project and complements a range of activities at the National Decommissioning Centre. The successful candidate will have primary responsibility for undertaking field work in the North Sea and to analyse existing datasets. It requires an ability to learn the principles of fisheries acoustics rapidly and with minimal supervision, to work with acoustic post-processing systems, develop and robustly test novel methods, write high quality scientific manuscripts and work as part of a multidisciplinary research team. The PDRA will join the FEAST research group at the University of Aberdeen, under the leadership of Prof. Paul Fernandes. Much of your research will be in close collaboration with the University of Strathclyde (Prof. Mike Heath & Dr Dougie Speirs) and Marine Scotland Science (Dr. Sally Rouse) where more data is available for analysis.

### Key responsibilities:

#### Research Fellow

- To undertake analysis of an existing dedicated fisheries acoustics dataset where MMS were approached and determine the scale and extent to which fish of two different types (schooling and single fish) aggregate around MMS.
- To explore additional datasets from Marine Scotland Science to investigate their potential to study fish at MMS and associated structures such as pipelines.
- To design, plan and oversee the execution of a fisheries acoustics survey of the northern North Sea using an Unmanned Surface Vehicle.
- To analyse the acoustic data to estimate the density of fish as a function of distance to MMS and other covariates and estimate abundance of fish at all MMS.
- To liaise with project partners (University of Strathclyde) and provide them with data to validate their fish population dynamics model.
- To present your research in the form of high-quality papers and conference presentations.
- To liaise with an industrial steering panel.
- To assist the PI in teaching & research on fisheries acoustics through demonstration in practical classes, PhD student supervision, and marking, providing timely feedback.

### At a glance

#### Salary:

Grade 6 (£33,797 per annum)

#### Hours of work:

Full-Time (37.5 hours per week)

#### Contract type:

Project Limited (30 months)



## Candidate background

*We seek a marine scientist or engineer with demonstrated abilities of working at sea and a strong analytical capacity. A good level of understanding of marine ecology or underwater acoustics is desirable, as well as some ability in computer programming. Experience in using acoustic techniques is preferred, with a capacity to develop novel post-processing approaches when required.*



### Knowledge

- *PhD research in a relevant discipline (e.g. marine ecology, physics or engineering).*
- *Knowledge of underwater acoustics, preferably related to active sonar systems.*
- *Broad knowledge of key topics in marine ecology, particularly fish and fisheries, or other animals which are studied using acoustics.*

### Skills

- *Understanding of, and ability to implement, a range of relevant statistical and numerical analyses.*
- *Computer programming in R, Matlab or Python.*
- *Ability to effectively communicate complex concepts in underwater acoustics to broad audiences through both written and verbal presentation.*
- *Initiative, self-motivation and ability to effectively manage own time and undertake independent research activity.*
- *Excellent inter-personal skills, with ability and commitment to work effectively as part of a collaborative research team.*
- *Ability to instigate new collaborations and fulfil collaborative responsibilities.*



### Experience

- *Working with marine ecosystems in, preferably with fish and /or fisheries.*
- *Surveys at sea, preferably using acoustic equipment.*
- *Experience of publishing primary scientific research in relevant disciplines.*
- *Experience of effective verbal communication of marine ecology.*
- *Experience of effective research collaboration or team-working.*



## Terms of appointment

*Salary will be at the appropriate point on the Grade 6 salary scale and negotiable with placement according to qualifications and experience.*

*Consideration will be given to applicants who are nearing the completion of their PhD, who may be appointed as a Research Assistant on the Grade 5 salary scale and assimilated to Research Fellow upon successful completion of their PhD.*

*Any appointment will be made subject to satisfactory references and a 12 month probation period.*

*For further information on various staff benefits and policies please visit [www.abdn.ac.uk/staffnet/working-here](http://www.abdn.ac.uk/staffnet/working-here)*

*As this post is externally funded by NERC it is available for 30 months.*

*Should you require a visa to undertake paid employment in the UK you will be required to fulfil the minimum points criteria to be granted a Certificate of Sponsorship and Tier 2 visa. As appropriate, at the time an offer of appointment is made you will be asked to demonstrate that you fulfil the criteria in respect of financial maintenance and competency in English. Please do not hesitate to contact Grant Rae, HR Adviser on +44 (0)1224 437068 or email [grant.rae@abdn.ac.uk](mailto:grant.rae@abdn.ac.uk) for further information.*

# Person specification

	Essential	Desirable
<b>Education/Qualifications</b> Academic, technical and professional education and training	<ul style="list-style-type: none"> <li>PhD research in a relevant discipline (marine ecology, physics, engineering)</li> </ul>	
<b>Work and Other relevant experience (including training)</b> eg Specialist knowledge, levels of experience, supervisory experience, research	<ul style="list-style-type: none"> <li>Experience of working at sea</li> <li>Expertise in numerical and statistical analyses.</li> <li>Broad awareness of relevant topics in marine ecology or acoustics.</li> <li>Experience of effective verbal and written communication.</li> <li>Demonstrated ability to publish primary scientific papers.</li> </ul>	<ul style="list-style-type: none"> <li>Broad awareness of relevant topics in fish ecology and fisheries science</li> <li>Experience of surveys at sea</li> <li>Acoustic signal processing</li> <li>Teaching and/or demonstration in small groups</li> </ul>
<b>Personal qualities and abilities</b> eg initiative, leadership, ability to work on own or with others, communication skills	<ul style="list-style-type: none"> <li>Demonstrated initiative and self-motivation and ability to effectively manage own time and undertake independent research activity.</li> <li>Ability to effectively communicate ideas and technical details to a broad audience.</li> <li>Ability and commitment to work effectively as part of a collaborative research team.</li> </ul>	
<b>Other</b> eg special circumstances (if any) appropriate to the role such as unsocial hours, travelling, Gaelic language requirements etc.	<ul style="list-style-type: none"> <li>Ability to work at sea for prolonged periods (up to 4 weeks)</li> </ul>	

# The University



*Founded in 1495, Aberdeen is Scotland's third oldest University and the fifth oldest in the UK. Ranked within the world top 160 in the Times Higher Education Rankings 2019 and named Scottish University of the Year in the Times and Sunday Times Good University Guide 2019. Aberdeen is 'open to all and dedicated to the pursuit of truth in the service of others'.*

*Aberdeen is a broad based, research intensive University, which puts students at the head of everything it does. It has significant academic strengths and potential across a wide variety of disciplines. Outstanding in a wide range of discipline areas, Aberdeen has also been credited for its international reach and its commercialisation of research ideas into spin out companies.*

*The University has over 14,000 matriculated students and 3,600 staff representing 130 nationalities. We encourage bold thinking, creativity and innovation and we nurture ambition with many opportunities for professional and personal development in an inclusive learning environment which challenges, inspires and helps every individual to reach their full potential.*

*The University combines a distinguished heritage with a forward looking attitude. In the past few years, the University has encouraged creativity in its academic staff, broken new ground with an innovative curriculum, and developed state-of-the-art facilities including the new Sir Duncan Rice Library and the Aberdeen Sports Village and Aquatics Centre. In looking to the future, the University seeks to enhance its reputation as one of the world's leading Universities by moving forward with ever more ground breaking research; ensuring students have an intellectual and social experience second to none; and capitalising upon the dual role as one of the major institutions of the north and as a cornerstone of regional economic and cultural life.*

## The city and the region

### Aberdeen and Aberdeenshire

*With a population of approximately 230,000, the city stands between the Rivers Dee and Don. This historic city has many architectural splendours and the use of its sparkling local granite has earned Aberdeen the name of the Silver City. Recognised as the oil capital of Europe, Aberdeen nevertheless retains its old-fashioned charm and character making it an attractive place in which to live.*

*Aberdeen enjoys excellent communication services with other European cities - e.g. flying time to London is just over one hour with regular daily flights. There are direct air links to London (City, Heathrow, and Luton), Manchester, Birmingham, Leeds, Southampton, Belfast and East Midlands within the U.K. There are also flights to international hub airports: Amsterdam (Schiphol), and Paris (Charles De-Gaulle as well as flights to other European destinations. <http://www.aberdeenairport.com> Road and rail links are also well developed.*

*The Grampian Region which took its name from the Grampian Mountains has a population of approximately 545,000. It is made up of five districts – Aberdeen, Banff & Buchan, Gordon, Kincardine & Deeside and Moray. The city and the surrounding countryside provide a variety of urban, sea-side and country pursuits. Aberdeen has first class amenities including His Majesty's Theatre, Music Hall, Art Gallery, the P&J Arena, Museums, and Beach Leisure centre. Within a short time, beach pursuits, equine activities, salmon, trout and sea fishing, hill-walking, mountaineering, golf, sailing, surfing and windsurfing can be reached. The city and the surrounding countryside are repeatedly given high ratings for quality of life in surveys.*

*Aberdeenshire is one of Scotland's most appealing regions. Royal Deeside and the Cairngorms National Park are within easy access of the city, and there are a variety of towns and villages scattered along the coastline.*

*Aberdeen and Aberdeenshire cater for a wide range of tastes in sporting and cultural activities.*

*To find out more about Aberdeen and Aberdeenshire go to [www.visitabdn.com](http://www.visitabdn.com)*





## Equality & Diversity

*The School of Biological Sciences welcomes a diverse working environment and recognises the benefits this can bring. School of Biological Sciences is keen to receive applications from individuals from across all of the equality protected characteristics (age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, sexual orientation).*

*The University supports opportunities for flexible working for a range of reasons and has policies in place to facilitate this. The policies can be found here:*

<https://www.abdn.ac.uk/staffnet/working-here/flexible-working--5607.php>

*The University's commitment to gender equality has been recognised through the achievement of an Athena SWAN Bronze award. The University is also a Stonewall Diversity Champion to further LGBT+ equality.*

*The University is signed up to Advance HE's Race Equality Charter, affirming the University's commitment to the charter's aim of improving the representation, progression and success of minority ethnic staff and students within higher education.*

*Candidates who are British Sign Language (BSL) user can contact us directly by using [contact SCOTLAND-BSL](#)*

*The University is delighted to be accredited as a [Disability Confident](#) employer Committed and strives to ensure that disabled staff and students have the opportunity to work and study in an inclusive, accessible and supportive environment.*

<https://www.abdn.ac.uk/staffnet/governance/equality-and-diversity-277.php>

## How to apply

Online application forms are available at [www.abdn.ac.uk/jobs](http://www.abdn.ac.uk/jobs)

---

*The closing date for receipt of applications is 08 August 2020*

---

*Should you wish to make an informal enquiry please contact:*

*Professor Paul Fernandes, Chair in Fisheries Science*  
[fernandespg@abdn.ac.uk](mailto:fernandespg@abdn.ac.uk)

*Please do not send application forms or CVs to Professor Fernandes.*

**Please quote reference number SBS084R on all correspondence**