



Mussel Reintroductions Research Officer Information for applicants

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Contact for enquiries

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Welcome

Thank you for your interest in the Freshwater Biological Association.

If you have heard of us, you will already know that the work we do is incredibly important and is becoming increasingly so as we seek to understand, advise and promote the sustainable management of our freshwaters.

The significance of our freshwaters, the network of lakes, rivers and streams, cannot be underestimated as they provide us with the water we drink, are used in agriculture and industry together with the vital function of providing habitat for wildlife as well their role for our own recreation. The threats and pressures to all of our freshwaters as a result of natural events and changes in the way that we go about our lives cannot be underestimated.

The FBA is home to England's only Ark for the critically endangered freshwater pearl mussel, *Margaritifera margaritifera* (IUCN 2011) and has recently delivered a unique conservation project working nationally to improve river conditions ready to reintroduce the juvenile mussels we have reared over the last 10 years. Now we have a further 4 years of funding from United Utilities to deliver a research project on the best methods for reintroduction and monitoring the survival of these captive-reared juvenile mussels

I'm immensely proud of the team of people that make the FBA what it is and I hope that once you have read further you will want to join us and play your part in the important work that we do.

Dr. Bill Brierley
Chief Executive



Mussel Reintroductions Research Officer

£32,500 to £35,000 pa.

4 years fixed-term

Full-time, Windermere

The Freshwater Biological Association (FBA) is a charity dedicated to the understanding and sustainable management of fresh waters around the globe. Founded in 1929, we are a membership organisation with a rich history and we pride ourselves on being one of the finest sources of freshwater information in the world.

The work that we do together with the resources and facilities that we provide are incredibly important. This is increasingly so, as along with others, we seek to improve our understanding and promote the effective management of our rivers and lakes to ensure the sustainable use of freshwaters. The importance of the essential network of rivers and streams cannot be underestimated nor can the threats that they face as a result of unsustainable use, which may have effects far beyond their immediate catchment.

On-site at the Windermere facility, we run two mussel projects; the long-running Ark to conserve and augment *Margaritifera margaritifera* populations and a new Reintroductions Research project working with United Utilities, Natural England and Environment Agency. The later follows on from a recently completed 3 year programme working nationally to 'Restore Freshwater Mussel Rivers in England', funded by Biffa Award.

The Reintroductions Research Officer will be responsible for developing and delivering a programme of research into improving encystment technique, reintroduction technique for a variety of age / size juvenile mussels, captive-reared at the FBA, and monitoring of their survival.

The successful candidate will have a biological-science background and experience of maintaining technical equipment for holding freshwater species and monitoring water-quality. In addition he/she will have excellent data-recording and analysis skills, be able to produce regular, accurate progress summaries both internally and for funders and conferences. From time to time the project invites volunteers to help with daily tasks; the candidate will work to ensure a positive experience for the volunteer.

Interested applicants can download further information from www.fba.org.uk.

For an informal discussion about the role, please contact Dr Ceri Gibson, Pearl Mussel Projects Manager:

Email: cgibson@fba.org.uk

T: 07903 942238

About us

The Freshwater Biological Association (FBA) is a thriving membership association, independent organisation and a registered charity. Founded in 1929, we are dedicated to increasing the understanding and sustainable management of fresh waters.

Our aim is to encourage as many people as possible to be interested in fresh waters and understand the importance of sound evidence and information – whether scientific, technical or other knowledge – in protecting and managing our precious waters. We do this by:

- disseminating information through websites, publications, meetings and courses
- facilitating innovative and essential research, including undertaking targeted research
- providing sound independent advice and opinion

Located on the shore of Windermere, in Cumbria and alongside the River Frome at East Stoke in Dorset; the FBA is governed by a board of trustees elected by the members who collectively guide the strategic direction of the Association in line with the charitable objectives. The FBA is a registered charity and a company limited by guarantee.

Mission & Vision

- Our vision is to be the leading independent UK organisation for freshwater information and advice.
- Our mission is to promote the sustainable management of freshwater ecosystems and resources, underpinned by the best available science.

Objectives.

To achieve our mission and vision, we have four key objectives:

- to widen active membership
- to provide evidence and information
- to influence and broaden advocacy
- to facilitate the setting of the research agenda.

What we do:

Membership - FBA Membership is open to everyone who is interested in freshwaters and wishes to support the Association. Joining the FBA you will be welcomed into the growing international community of freshwater scientists and enthusiasts.

Publications - For over 70 years the Freshwater Biological Association has published scientific and general interest books designed for the researcher, professional and enthusiast.

Data & Information - The FBA collection of information on freshwater science, built up over 70 years, is one of the finest in the world. In recent years digital services have also been added to the FBA's portfolio of information assets.

Training & Events - The FBA arranges a variety of national and international meetings (by itself or jointly with others), and runs general and specialist courses in freshwater biology.

Research & Facilities - The Freshwater Biological Association manages a wide variety of research facilities for field and laboratory work at its sites in Dorset and Cumbria.

Science - The FBA supports science in a variety of ways including; our laboratory and library facilities, Honorary Research Fellows and research coordination.

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The Mussel Projects

The freshwater pearl mussel (*Margaritifera margaritifera*) is a large freshwater filter-feeder inhabiting pristine streams and rivers but is currently critically endangered, due mainly to human-induced impacts on habitat. In 2007, the Freshwater Biological Association (FBA) in partnership with the Environment Agency and Natural England embarked upon an ambitious project to safeguard some of the last remaining pearl mussel populations in England. The Freshwater Mussel Ark Project (referred to as 'The Ark') is based at the FBA's Windermere site and has three main objectives:

1. Act as a genetic Ark for imperiled populations to protect against population loss in the wild;
2. Captive breeding to rear juvenile mussels for release into native rivers;
3. Assist with introductions of captive-reared juvenile mussels.

Cumbrian rivers are the last stronghold for English *Margaritifera margaritifera* mussels, harbouring the majority of the total English population. The Ark project aims to rear juvenile mussels for reintroduction in order to safeguard threatened populations and protect them from extinction. In addition, the FBA aims to build an internationally recognised pearl mussel research programme focused on furthering knowledge on this fascinating species and to aid conservation efforts.

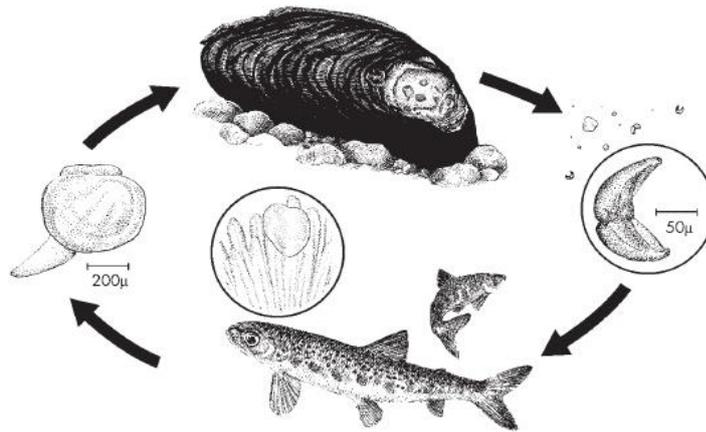
The species – *Margaritifera margaritifera*

Margaritifera margaritifera (right) is a large, long-lived mussel which inhabits clean, well oxygenated rivers and streams. Populations declined extensively during the 20th Century, mainly due to human-induced pressures on their habitat. The species exploits a fish host (normally salmon or trout) in its larval (glochidial) stage which grows within the gills of the host fish for several months prior to dropping off into river gravels as juvenile mussels (see life cycle below). *M. margaritifera* filter water to remove algae on which they feed. Other organic and inorganic particles are rejected and deposited around them in the sediment, thereby improving water quality.



Margaritifera margaritifera at the FBA's captive-rearing facility.

Adult mussels can filter up to 50 litres of water per day. Historically mussel populations consisted of mussel beds of up to several million mussels thus providing an important influence on the river environment. A sustainably recruiting population of *M. margaritifera* is an indicator of excellent water quality but sadly there are few sustainable populations remaining in Europe.



The life cycle of Margaritifera margaritifera involves a parasitic stage (which normally does not harm the host) on a salmonid fish. When juveniles drop off of fish to bury into gravels they measure 0.4 mm in length.

Since 2015 the FBA has been leading a three-year project 'Restoring Freshwater Mussel Rivers in England' funded by Biffa Award. This project delivered restoration activities on selected catchments, including practical work on the River Irt delivered by West Cumbria Rivers Trust (WCRT). In 2017 an initial reintroduction of juvenile mussels was successfully completed at a suitable site identified in the Irt.

The Compensatory Measures Scheme will allow a variety of population augmentation and reintroduction methods to be researched and trialled. A key part of this role will be to understand the benefits and disadvantages of the current rearing system, to develop a robust procedure to prepare the juveniles before reintroduction and to adapt the reintroduction method to suit different cohorts and different locations. A monitoring system after the juveniles have been reintroduced will be developed.

How to apply

Application is by way of a CV and supporting statement to b.brierley@fba.org.uk

The supporting statement should concentrate on the experience and knowledge requirements outlined above and in the job description to be 1,000 words maximum.

Closing date: 12 noon Friday 12th October 2018

Interviews

All interviews will take place at The Freshwater Biological Association, The Ferry Landing, Far Sawrey, Ambleside, Cumbria, LA22 0LP week beginning 22nd October 2018

Location: <http://www.fba.org.uk/contact-us>

Accessibility

Please let us know if you have any special requirements which we might need to consider in relation to the selection process. Any requests will not be taken into account in the selection process.

Mussel Reintroductions Research Officer

Job description

Job Title:	Mussel Reintroductions Research Officer
Salary	£32,500 to £35,000
Hours:	37 hours including weekend duties on a rota
Location:	Windermere, Cumbria
Contract	4 years fixed-term
Reports to:	Chief Executive Officer

Job purpose:

To research and trial a variety of mussel augmentation and reintroduction methods; this will require a clear understanding of the current rearing system and development of a robust procedure to prepare several different cohorts of juvenile mussels for reintroduction and adaptation to suit the different sizes / ages.

Key external contacts:

United Utilities, Natural England, Environment Agency, UK regulatory and conservation agencies, NGOs, UK and European scientific community

Key internal contacts:

Chief Executive Officer, Honorary Research Fellows, Pearl Mussel Officer (Hatchery), Publications Officer, Estates team

Background to the role

Margaritifera margaritifera is declining throughout its range with some river populations facing extinction. As such the species is fully protected by law and listed in: IUCN Red List, Habitats Directive 1992, Natural Environment and Rural Communities Act 2006, The Wildlife and Countryside Act 1981. *M. margaritifera* populations have been affected by multiple pressures; primarily declining water quality and habitat degradation. This role will conduct conservation measures of rearing and successfully reintroducing juvenile mussels to suitably restored locations identified in the River Irt, Cumbria.

United Utilities Compensatory Measures Package

The River Ehen in West Cumbria is designated as a Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). Freshwater mussels (*Margaritifera margaritifera*) and Atlantic salmon (*Salmo salar*) are both of high conservation importance and are the primary and qualifying reasons, respectively, for the designation of the upper River Ehen as an SAC. The river supports the largest population of freshwater mussels in England. The SAC is divided into two management units and both are currently assessed as being in 'unfavourable declining' condition due to insufficient freshwater mussel recruitment making the current population unsustainable.

Ennerdale Water, upstream of the River Ehen SAC, and part of Ennerdale SSSI, is currently a key source of public water supply for West Cumbria and United Utilities is licensed to abstract water under the Water Resources Act 1991. The Ennerdale Water abstraction licence has recently undergone a series of reviews by the Environment Agency through the Habitats Directive 'Review of Consents' process. The current abstraction and a potential future drought order at Ennerdale Water have been determined to have potentially significant negative impacts on both interest features of the River Ehen SAC. In December 2013 the Environment Agency confirmed the decision 'to revoke the Ennerdale Water abstraction licence as soon as is reasonably practicable and to investigate options with regard to timing of weir removal and withdrawal of the compensation flow'.

United Utilities will continue to significantly decrease public water supply abstraction from Ennerdale Water until the complete removal of abstraction is possible in 2022, when the West Cumbria water resource zone will be connected to United Utilities Integrated resource zone via the Thirlmere Transfer pipeline. There is over-riding public interest to continue to provide public water supply until the replacement source is fully connected. In accordance with Article 6(4) of the Habitats Directive, compensatory measures need to be secured because it cannot be concluded that continued abstraction will not lead to an adverse effect on site integrity.

United Utilities, in conjunction with Natural England and the Environment Agency, has developed a package of compensatory measures that will reduce, or offset, adverse impacts on the River Ehen SAC as a result of continued abstraction from Ennerdale Water, and a potential drought order, whilst the alternative public supply is put in place. This package includes both physical ecological measures and research measures and was submitted to Defra in February 2014. There is a legal agreement, signed in July 2015 between United Utilities, Natural England and the Environment Agency which describes each physical and research measure, programme and governance of the package. The aim of the agreed package of measures is to restore the habitat which enables the sustainable recruitment of freshwater mussels and salmon, and to undertake research and monitoring to understand how this outcome would best be achieved.

This project relates to Compensatory Research Measure 8 and Physical Measure 7. The overall objective of the research measure is to trial mussel reintroduction in the River Irt to make scientific advances in understanding best techniques to be employed in translocation and encystment in Cumbria. Physical measure 7 is linked and aims to remove risks to any reintroduction sites in the River Irt. The physical measure will be delivered by a River Irt Project officer as part of separate contract.

The compensatory measures package is governed by the terms of a legal agreement as described above. The agreement specifies governance and routine reporting requirements and frequency. A project steering group (PSG) comprising United Utilities, the Environment Agency and Natural England has been established for this research measure and the supporting physical measure. The post holder will be required to attend PSG meetings which take place twice a year to present and obtain PSG endorsement for research proposals and to present results. The post holder will also be required to input into bi-annual reports on the progress of the Compensatory Measures package which are prepared by United Utilities for submission to Defra, and an annual research review (February) and director level annual review of the whole package (July).

Captive-bred Juvenile Reintroductions

The Freshwater Biological Association (FBA) has been rearing juvenile freshwater pearl mussels since 2007. Year cohorts are maintained separately to collect data on development. There are now several cohorts ready for reintroduction to native rivers.

Since 2015 the FBA has been leading a three-year project 'Restoring Freshwater Mussel Rivers in England' funded by Biffa Award. This project delivered restoration activities on selected catchments,

including practical work on the River Irt delivered by West Cumbria Rivers Trust (WCRT). In 2017 an initial reintroduction of juvenile mussels was successfully completed at a suitable site identified in the Irt.

This post will allow a variety of population augmentation and reintroduction methods to be researched and trialled. A key part of this role will be to understand the benefits and disadvantages of the current rearing system, to develop a robust procedure to prepare the juveniles before reintroduction and to adapt the reintroduction method to suit different cohorts and different locations on the River Irt.

Key responsibility areas

Business and Strategy Development

- Review current and keep up to date with monitoring techniques for evolving habitat improvements specific to FPM, encystment and reintroduction.
- Develop and implement a strategy for research into the best reintroduction techniques for juveniles of a variety of age / size.
- Identify and lead the development of these techniques specific to FBA populations.
- Work with FBA staff to develop and promote the research through other services – including membership, publications, and training.

Operational Management

- Manage the research elements which includes the review of current literature and the practical experiments within the Ark and at the river location, liaising with all key partners (UU, NE, EA) on project ambitions, financial planning and delivery
- Develop and deliver monitoring and evaluation protocols for the experiments conducted.
- Manage their own workload and work with other members of the team, students and volunteers at the hatchery and river sites to achieve the best research to time and budget.
- Manage relationships with delivery partners – both as lead and a supporting partner (including sub-contractors)
- Appoint and supervise consultants and/or contractors – to support delivery of research projects & programmes.

People management

- Responsible for good working relations with other team members and wider FBA staff.
- Develop strong communication and working relationship with dedicated project staff UU, EA, NE and other partners.
- To take personal responsibility for any staff brought in to help deliver research work; to include ensuring resources, skills, competence and training to deliver the highest standards of performance.
- Responsible for the day-to-day management, leadership and motivation of all people required to deliver the research project; including development of infrastructure (Estates team), recording of data (other PM team), river survey (other PM team), finance reporting to UU (Admin team).

Person Specification

Specialist knowledge and experience

- Extensive experience of FPM and large-scale research projects,
- Degree/higher degree in biological related subject
- Significant experience of working with a range of partners, agencies and funders

Key skills and behaviours

Planning

- Establishes procedures for monitoring experimental success and reporting successes as well as failures against agreed experimental hypotheses.
- Manages the activities of self and others through effective prioritising, organising, planning and scheduling of activities and resources
- Is agile, works with the organisation to confirm priorities when facing challenging timescales, seasonal issues and weather dependent activities

Impact and influence

- Speaks clearly, fluently and in a compelling manner to both individuals and groups
- Impresses, influences and convinces others in a way that results in acceptance and agreement
- Builds commitment to a recommendation or course of action
- Adapts style and content according to the recipient
- Offers fresh and creative solutions to potential obstacles

Problem solving and analysis

- Evaluates information from multiple sources, applying intuition and judgement to weigh their value and relevance to the decision at hand
- Identifies how best to distil a mass of complex data into distinct, clear and concise concepts others can understand
- Analyses both tangible and intangible information and data rapidly to develop critical insights

Teamworking

- Builds a sense of team spirit, encouraging shared ownership of objectives and deliverables
- Promotes a team ethos across organisations
- Understands the needs of both internal and external colleagues
- Makes time to get to know individuals, listens to and builds understanding of their skills, interests and motivations, to work together more effectively

Professionalism

- Considers how best to add value and ensures own expertise is sufficiently developed to do so
- Provides formal and informal development support to peers in the organisation

Determination

- Maintains enthusiasm and commitment to deliver results in the face of difficulties

People Management

- Motivates and empowers others in order to reach goals

- Provides clear direction to others.
- Rigorously tackles any poor performance within the research project
- Contributes to creating a climate of learning and delegated decision-making to drive innovation

Special requirements

- Weekend and holiday working required as pearl mussel project activities are carried out 365 days a year
- Will be expected to travel to partner organisations in the UK
- Role requires working outdoors in all weathers and often as a lone worker