

# AN SLIOGÁN DUBH – FRESHWATER PEARL MUSSEL

## PROJECT NEWSLETTER – SPRING 2012

**Donegal County Council, in partnership with Northern Ireland Environment Agency (NIEA) - grant aided under the European Union's INTERREG IVA Programme, as part of the Environment strand, under Priority 2.2**

This is the spring edition of our project newsletter, and many thanks to all who commented on our previous issue. Comments were generally very complimentary and we have had numerous requests for inclusion in future circulations. The project is really getting traction on the ground now as you will see from updates below.

But first a quick word on our slightly revised title. The pearl mussel is a unique animal and many of the locations in

Ireland where it survives are still Irish speaking areas. It is for this reason that we produce an Irish language version of the newsletter. In Irish the pearl mussel is called the Sliogán Dubh – pronounced 'shlugawn doo' and meaning 'Black Shell'. It therefore seemed appropriate to have a bilingual title for both versions of the newsletter. Perhaps there are other local names for the mussel and we would love to hear from you.

## PROJECT UPDATE

The previous edition of the newsletter outlined the tasks that we planned to undertake. As part of the preparation for plans to conserve the mussel, we have now surveyed the Ballinderry, Owenkillew and Swanlinbar catchments and gathered all relevant data. Although hampered by floods and hurricane force winds, we have assessed the number of remaining mussels and the condition of the gravels and the local environment in which they live. We have also assessed salmon and trout populations because they form a vital link in the lifecycle of the mussel. All of this information will inform the future catchment plans.

Project members have been introducing themselves to catchment residents and talking to stakeholders about the measures and sites for trials. These stakeholders include private and state landowners, farmer representative groups, research, recreational and environmental groups. We are very grateful for all their assistance and support. Catchments have been selected in both jurisdictions to test measures to see if they can be effective in conserving the mussels. The catchments include the Owenkillew and Owenreagh in Tyrone, and the Glaskeelan and upper Leannan in Donegal.



Mussel Survey



Mussel spat (larvae) on trout gills



Measuring mussel sizes

## Water Quality Stations

If you happen upon a big green box on the river bank in one of the catchments mentioned above, it is probably one of ours! The project name and contact details are shown on the box for anyone who would like to speak to us or get more information. What's in the box???

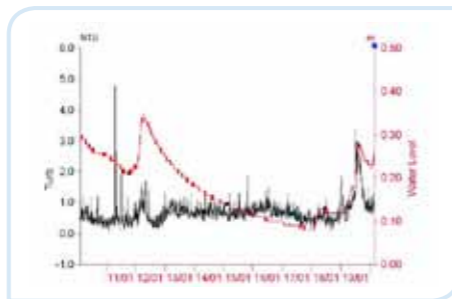
The box is connected to sensors in the water that measure a number of things, including the oxygen levels, the turbidity of the water, the water depth, the temperature and acidity level. It takes a reading every 15 minutes and stores the information on a data recorder. A couple of

times a day that data is sent back to a computer in the project office for storage and analysis. We also have some other portable samplers that can take water samples for analysis in the laboratory.

Most of the time the water is of excellent quality but sometimes, for example in floods, the quality changes sufficiently to have a potential impact on the young mussels. Hopefully we can determine what is happening and come up with some solutions that help the mussel.



Water quality station



Water level and turbidity trace



Portable Sampler

## Odds of Survival

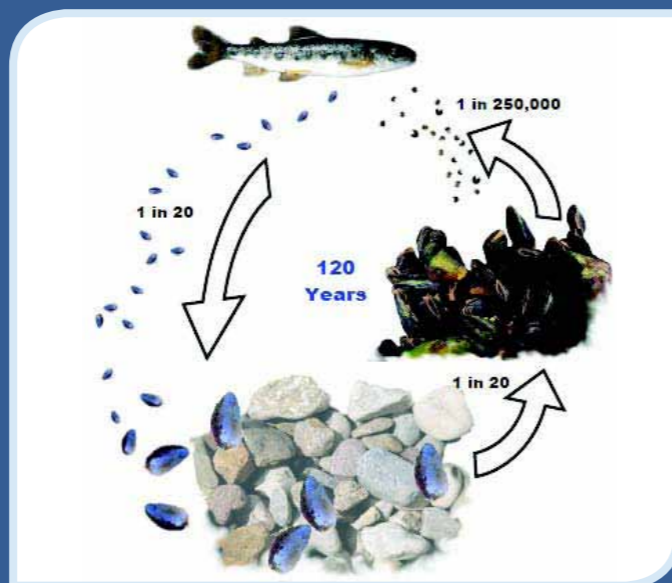
The pearl mussel has a peculiar life cycle which involves the release of millions of tiny larvae or spat. These must attach to the gills of a young trout or salmon to develop further. They fall off after several months and hopefully settle in nice clean gravel where they can burrow down and remain hidden for up to five years. When they are big enough they emerge at the surface and become adult mussels filtering the water for a living. Although this strategy for survival has served the mussel well for many thousands of years, it is very vulnerable to disruption by our modern lifestyles and practices.

What odds might you expect from a bookie if you were betting on the survival of a mussel for its first five years?

Well an adult mussel could produce somewhere from 200 thousand up to 10 million larvae each year. Sounds good! But maybe as few as 1 in a quarter of a million of them will successfully find and attach to salmon or trout gills. The rest die. Ooops – not so good! Of those that succeed in attaching, only one in twenty will drop off and make it to suitable gravels. And of these, even in the best rivers, only one in twenty make it to 5 years old and emerge from the gravel.

Put all that together, and it means that to get one new five-year-old, the mussels must produce something like 100 million larvae to begin with. Not good odds, but what makes it work is the longevity of the mussel. During a reproductive lifespan of perhaps 120 years, a single mussel might produce 1.2 billion larvae.

In recent decades we have been stacking up the odds even further against the young mussels in the gravels, so that in some rivers the chance of them surviving is zero.



## Catchment Snapshot

Below is a brief description of one of our selected catchments to give a flavour of where the freshwater pearl mussel (FPM for short) lives. We will cover others in future editions. You can see more photographs on our website <http://www.freshwaterpearlmussel.com>.

Gliskeelan in Donegal is the smallest (1738 hectares), but one of the best, FPM catchments on the island. The catchment straddles the Glenveagh National Park boundary. The Gliskeelan river drains a section of the eastern side of the Derryveagh mountains and flows into Gartan Lough. Walkers will be familiar with the path that leads from Derryveagh to Glenveagh castle, a beautiful 8km hike that allows stunning panoramas over most of the Gliskeelan catchment including Lough Nambraddan and Lough Inshagh. It is an area steeped in history, famous as the birthplace of Colmcille (521 - 597), and infamous for the Derryveagh evictions by Lord John George Adair in 1861. The pearl mussel also deserves a central place in that heritage. Indeed many of the pearl mussels alive in the catchment today were born around the time of the evictions. Locals recount stories of pearl fishing in the days before laws were introduced to protect the pearl mussel, including one notorious German pearl fisher who reputedly had two wives.

Like nearly all the pearl mussel populations on the island, the Gliskeelan pearl mussels are not thriving. There are virtually no young mussels coming through to adulthood and the population has decreased.

The upper part of the catchment is mostly bog with some mountain grassland that provides commonage for grazing sheep. Red deer are abundant and the National Park carries a herd of about 250. One of the biggest land owners, especially in the lower catchment, is Coillte, the Irish state owned forestry company. Coillte owns over 445,000 hectares of land nationally in Ireland and has about 120 hectares of forestry in the Gliskeelan catchment. Landowners in the catchment have been extremely supportive of the project in providing information, access to the river and in some cases a helping hand. Coillte is working closely with the FPM project in this catchment and has made a large experimental plot (about 4 hectares) available so that we can investigate how foresters can best do their business in such sensitive areas without impacting on the mussels in the river below. We have great hopes for the future of this catchment.

Gliskeelan River



## FURTHER INFORMATION / CONTACT DETAILS

The project is scheduled for completion in March 2014. Donegal County Council is the lead partner, and is overseeing delivery of the project through a full time project coordinator and consultancy services provided by RPS.

Further information is available at [www.donegalcodb.ie](http://www.donegalcodb.ie), or by contacting the Project Coordinator:

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The Special EU Programmes Body is a North/South Implementation Body and is responsible for managing the INTERREG IV programme. For more information on the SEUPB please visit [www.seupb.eu](http://www.seupb.eu)

## Pearls and Pearl Fishing



Pearl mussels were indeed once killed for the pearls they produce, although only about one in ten-thousand mussels might have contained a pearl of any worthwhile quality. Most can hardly be regarded as 'pearls' since they are very small, deformed and flawed, and of no value. Most importantly, nowadays it is **ILLEGAL** to interfere with freshwater pearl mussels for any reason, including pearl fishing. Since the beginning of the 20th century, freshwater pearls have been artificially cultured in America, Japan and, in recent years, mostly in China which produces about 1,500 tonnes of freshwater pearls annually to satisfy demand.

Rivers in all provinces of Ireland were formerly heavily fished for their pearls, but particularly in Ulster where pearl mussels were once found in all counties. Pearl fishing resulted in the killing of thousands (perhaps millions) of mussels. It was never sustainable as stocks were wiped out by fishing, and it was effectively banned in both jurisdictions to protect the now threatened pearl mussel.

The Bann in Antrim, and the Strule in Tyrone were the main Ulster rivers where pearl mussels were exploited and pearls were sold in Omagh and Banbridge. There are records of pearls being fished from

these two rivers, as well as from the Eske in Donegal, from the 1600s onwards. Bann pearl mussels were exploited until the coming of the linen industry (ca. 1700) which, although it brought pollution that damaged mussels, also led to more gainful employment for pearl fishers!

Pearl mussels were also exploited in other areas such as the Slaney in Wexford, the Nore in Kilkenny, the Bandon in Cork and the Laune in Kerry. Unfortunately, the pearl mussel has now disappeared from many rivers and locations at which it formerly thrived.



Gold brooch with pearl, from River Eske, presented to Queen Victoria on her visit to Ireland in 1849 (National Museum of Ireland)

While exceptional pearls may have fetched high prices 400 years ago, their value fluctuated from the end of the 17th century onwards. Nowadays they have been replaced by cultured pearls from the Orient. In truth, the freshwater pearls could never compete for colour, lustre and quality with the salt-water variety.

A detailed account of pearls and pearl fishing in Ireland can be found in the book: *The Irish Pearl: A Cultural, Social and Economic History* (Wordwell, 2005) by John Lucey who provided much of the information above. Hopefully pearl fishing is now consigned to history and people will gain a new appreciation of the true value of living, thriving populations of remarkable mussels.