

Confluence



Confluence:

The junction of two or more rivers. A change brought about by a confluence of factors.



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Who we are

Loughs Agency is an agency of the Foyle, Carlingford and Irish Lights Commission (FCILC), established as one of the cross-border bodies under the 1998 Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of Ireland.

The Agency aims to provide sustainable social, economic and environmental benefits through the effective conservation, management, promotion and development of the fisheries and marine resources of the Foyle and Carlingford areas.

The Agency has a number of strategic and operational functions which are set out in the North/South Co-operation (Implementation Bodies) (NI) Order 1999, the British-Irish Agreement Act 1999, the Foyle Fisheries Act (NI) 1952 (as amended) and the Foyle Fisheries Act 1952 (as amended).

Under the Agreement, the Agency took over the fisheries protection functions of the Foyle Fisheries Commission and was given both an additional cross-border operational area in Carlingford and the additional functions of developing aquaculture and marine tourism. The governing legislation confers the following specific functions on the Agency:

• The promotion of development of Lough Foyle and Carlingford Lough for commercial and recreational purposes in respect of marine, fishery and aquaculture matters;



- The management, conservation, protection, improvement and development of the inland fisheries of the Foyle and Carlingford areas:
- The development and licensing of aquaculture; and
- The development of marine tourism. .

We report to the North South Ministerial Council and our government Sponsor Departments - Department of Agriculture, Environment and Rural Affairs (DAERA) in Northern Ireland and the Department of Communications, Climate Action and Environment (DCCAE) in Ireland, who fund the Agency on an equal basis.

Shore angling - Carlingford Lough





Introduction

For centuries, the people who settled beside the wonderful rivers, loughs and shores of Ireland harvested the natural riches of our island's waters. The waterways and fisheries were a bountiful source of food. Later generations came to recognise and exploit their financial and commercial importance. But until relatively recently, scant regard was paid to their ecological relevance and their intrinsic value to the ecosystem.

Thankfully, all that has changed. With the benefit of research and experience, we've come to treasure and celebrate the unique, valuable resources that reside in our rivers, loughs and streams.

In 1952, Loughs Agency's predecessor, the Foyle Fisheries Commission, began delivering transboundary fisheries management. Loughs Agency was established under the 1998 Good Friday/Belfast Agreement between the British and Irish governments and inherited the responsibilities of the Foyle Fisheries Commission.

Since 1999, the Agency has been protecting, promoting, enhancing and improving the quality of the cross-border fisheries in the Foyle and Carlingford areas. We have successfully delivered projects and programmes, North and South, which have helped create better local environments, support sustainable development and protect the rich, diverse natural environment and resources under our care.

Our responsibilities include Lough Foyle and Carlingford Lough with 4,070 square kilometres of catchment in the Foyle area and 480 square kilometres in Carlingford. We're also responsible

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for an area extending 12 miles out to sea from Lough Foyle, eastwards to Downhill in Derry~Londonderry, and westwards to Malin Head in County Donegal.

With a staff of 53, the Agency is a small but relevant organisation, providing a unique statutory public service across an international border.

Our aims are clear. We provide sustainable, social, economic and environmental benefits through the effective conservation, management, promotion and development of the fisheries and marine resources of the Foyle and Carlingford areas. We are proud to be entrusted as the keeper and custodian of these amazing natural resources.

Our unique strength is the fact that we have been working on a cross-border basis since 1952, pre-EU and through 'the Troubles' and we have gone from strength to strength since the Good Friday/Belfast Agreement.

We will ensure that our past is the foundation and strength on which we will continue to protect, conserve, develop and enhance our valued ecosystem for present and future generations. We will do this through a confluence of means, including regulation, restoration, development and promotion.

This book gives a brief overview of our achievements as Loughs Agency over the last 20 years.

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History of Loughs Agency

The commercial and financial value of the fisheries on the Foyle has long been recognised.

As far back as the early 17th century, they were valued at $\pounds 2,000$ and placed under the control of the London Companies to encourage the Plantation of Ulster. Initially, the annual income from rents totalled around $\pounds 1,000$ but by 1850 this had more than trebled to $\pounds 3,500$.

It's hardly surprising that bitter disputes erupted over the ownership of the Foyle's valuable fishing rights when Ireland was partitioned in 1921. The new international border dividing counties Derry~Londonderry and Donegal left the Foyle fisheries under two separate jurisdictions. Management of the salmon stocks was plagued with problems.

It wasn't until 1952, and after the 48-day 'Foyle Case', one of the most protracted and expensive court battles in Irish history, that the British and Irish governments finally reached agreement. They paid The Honourable The Irish Society $\pm 100,000$ for the fishing rights to the Foyle and introduced groundbreaking legislation to manage and protect its wonderful ecosystem.

Showing remarkable foresight for that time, the two governments introduced parallel Acts of Parliament in the Stormont House of Commons and Dáil Éireann. The legislation created and empowered the Foyle Fisheries Commission, the first ever crossborder body and the foundation on which Loughs Agency was built nearly 50 years later.

'I think we are making history. I think we are making good history because it is a great experiment in co-operation which has evoked a very considerable measure of goodwill' — Rt. Hon. Edmond Warnock MP, Northern Ireland Attorney General (1952).

The Commission carried out their conservation and protection duties, and ran a commercial fishery to fund their other work, until the mid-1980s. As salmon numbers declined, the commercial fishery was closed as a protection measure, with the two governments sharing the financial burden of this evenly between them.

During this period, the Commission protected the legitimate commercial draft and drift net fisheries by targeting illegal fishing, and seized around 800 items of unlawful fishing equipment per year. They also introduced a requirement, for commercial fishermen and anglers alike, to tag all caught and retained salmon, and sea trout over a certain size.

In the 1990s, political relationships within the island of Ireland and between Britain and Ireland were transformed. The changes were reflected in the way the resources of the Foyle and, latterly, of Carlingford were conserved, protected and developed.

Under the 1998 Good Friday/Belfast Agreement, the Foyle, Carlingford and Irish Lights Commission (FCILC) was established as one of six cross-border Implementation Bodies. As well as continuing and developing the work of the Foyle Fisheries Commission, its geographic role was expanded to include managing and protecting Carlingford Lough and its waterways.

Unlike Foyle, the Carlingford area had been managed by both the British and Irish governments until Loughs Agency was created.

Before 1999, fishery protection was carried out by the Eastern Regional Fisheries Board on the southern side and by the Fisheries Conservancy Board on the northern side. Likewise, pollution and water quality issues were dealt with by Louth County Council/ Environmental Protection Agency and by the Environment and Heritage Service. The expansion of the loughs' aquaculture industry during the '80s and '90s gave rise to other contentious issues.

Nature, and issues relating to the natural environment, don't recognise jurisdictional borders. So, it makes commonsense to deal with them on a cross-border, catchment-wide basis.

Loughs Agency became operational at the end of 1999. Its 12-member Board met for the first time in February 2000 at an inaugural North South Ministerial Council meeting. Our staff worked with anglers, landowners and other statutory organisations to assert our legislative authority for handling fishing, water quality and aquaculture issues and the development of the natural resources. Evidence-based management tools, like those used in the Foyle area, were introduced into Carlingford. They focused on water quality monitoring and improvement, habitat enhancement and creation, the establishment of a fish counter programme and legislative change.

Since then, we've been dealing on a daily cross-border basis with the conservation, protection, management and development of the rich resources of the Foyle and Carlingford areas. We continue to battle against unlawful exploitation of the fishery and increased our remit to include species other than salmon.

In 2007, amendment legislation was enabled and while the majority is being enforced, there is also provision for future licensing and management of the native oyster fishery.



Our Headquarters

'Half a mile down the road, but from the nineteenth to the twentyfirst century in one go' – that's how architect Tom Mullarkey described the Loughs Agency's new headquarters when they were officially opened in 2001.

Our premises at Victoria Road in Derry~Londonderry grace the banks of the River Foyle and are only a short distance away from where our predecessors, the Foyle Fisheries Commission, had their headquarters.

Until the Commission's establishment in 1952, those Victorian headquarters belonged to The Honourable The Irish Society, trading as Foyle and Bann Fisheries. They included a railway halt and two ice houses where salmon were stored before being sent by train to London's Billingsgate market, and other destinations.

By the mid-90s, a reinvigorated Commission was being asked to take on new responsibilities and adopt a more public role. The old headquarters didn't suit their profile as an outward-looking organisation, with eyes fixed firmly on the future, the headquarters were deemed no longer fit for purpose.

This was a time for new beginnings. While the Commission identified and purchased a new site, and successfully applied for European funding, politicians were preparing to put their signatures to the Good Friday/Belfast Agreement.

Loughs Agency was created under the Agreement and became operational in December 1999. Building work on our new headquarters at Victoria Road, Prehen was completed and we opened for business in June 2000.

When the Foyle Fisheries Commission decided in the mid-90s that they needed a new headquarters, they envisaged one that would encourage visitors, and particularly schoolchildren who'd eventually become custodians of the river.

Our Victoria Road base has delivered that vision. Since opening our doors, we've welcomed more than a quarter of a million people to our highly-acclaimed interpretive educational facility, Riverwatch.

Our headquarters include a modern suite of offices, areas for public meetings, facilities for field staff's operational needs, including the storage of vehicles, boats and seized equipment, hatcheries and laboratories.



'...half a mile down the road but from the
19th century to the 21st century, in one go.'
— Tom Mullarkey, Loughs Agency
HQ Architect

New Loughs Agency headquarters



Regulating the Fishery

The legal protections afforded to fisheries in the Foyle and Carlingford areas throughout the history of the Loughs Agency and during that of its predecessor the Foyle Fisheries Commission, have always been a source of pride for the organisation, putting them at the forefront of effective fisheries protection.

Between the enforcement of the Foyle Fisheries Acts and the introduction of a series of adaptable secondary regulations, the legal protections cover an array of issues and have reflected the changing pressures exerted on the fisheries over the years. Introducing regulations to manage, conserve, protect and improve our fisheries is one of the Loughs Agency's key responsibilities.

Since 2000, we've introduced more than 40 statutory rules across several areas including fish and oyster conservation, angling and its development, and river mouth definitions.

As well as applying our own secondary regulations, the Agency enforces a range of primary legislation. We also implement legal and policy provisions stemming from European Directives, on pollution and water quality. So, although we're operating under two jurisdictions, the rules in both are ultimately the same.

The Agency prides itself on transparent evidence-based fishery management. We complete an annual review using the latest scientific information to inform, adapt, and improve the regulatory framework and enhance the protections provided to the fisheries of the Foyle and Carlingford areas. As part of the review we consider updates on conservation needs, best practice, current case law and changes in other regulations that might affect our work.

Protecting Coarse Fisheries

The Carlingford area boasts several long-established coarse fisheries including Camlough Lake and Newry Canal, host to the 1982 World Coarse Angling Championships. Wonderful populations of fish, including large pike and bream, swim in their waters.

Surveys conducted by Loughs Agency in 2002 and 2007, however, noted a decline in coarse fish numbers and quality, as well as some questionable fishing practices. We identified a gap in existing legislation which meant that people killing coarse fish weren't actually breaking the law.

Legislation that we introduced consequently in 2009 has improved the protection for coarse fish. Populations increased significantly and the abundance of coarse fish in Newry Canal has resulted in the fishery being used regularly for angling competitions, attracting local and visiting anglers alike.

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Protecting the Fishery

Loughs Agency's primary focus is on the conservation and protection of the fisheries. Enforcement is an often unpopular but essential part of the job and we do it in a number of ways: partnership; consultation; licencing; inspection; seizure and prosecution.

Every year, our officers seize a significant quantity of illegal fishing material, including nets, boats and cars. In the five years since 2014, for example, we've seized almost 1,000 items.

The Agency has instigated a significant number of prosecutions in both jurisdictions as a result of our enforcement activities. The prosecutions range across a wide variety of offences, including illegal netting, illegal angling, pollution, unauthorised in-river works and works which affect fish habitat, and the illegal taking of oysters.

We also use what is known as 'domiciliary prosecution' which means offenders can be prosecuted in the country where they live rather than where an offence took place.

There are other ways too of carrying out protection work. During the 2018 angling season, for example, Fishery Officers performed more than 600 angler licence checks. Almost 117 pollution incidents were investigated with associated site visits to farms, construction sites and other pollution sources. All this information is stored and managed on our digital mapping system.



Patrol, River Foyle

We take our role as a consultee very seriously and provide advice on proposed developments that could impact the inland fisheries or aquaculture of the Foyle and Carlingford areas. The Agency examines housing, agricultural, forestry, wind farm and discharge applications. We weigh up their potential impact on the basis of water quality, habitat integrity, river flow, fish passability, timing of works and biosecurity. We then give our response to the planning authority with the aim of protecting the fisheries resource.

We've established successful partnerships with enforcement agencies in both Northern Ireland and Ireland. We have carried out inspections and enforcement actions in conjunction with the Northern Ireland Environment Agency and with Donegal and Louth County Councils.

Loughs Agency trains and works in partnership with more than one hundred Private River Watchers from angling clubs across Foyle and Carlingford in order to ensure effective management and protection of the numerous angling estates.

We, in the Agency, are uniquely placed to implement protection and conservation legislation on a cross-border basis and we're proud of our exemplary enforcement record.

We can use 'domiciliary prosecution' to prosecute offenders in the country where they live rather than where an offence took place.

Patrol, River Foyle

Atlantic Salmon River Finn, County Donegal

Sustaining the Atlantic Salmon

For centuries, people have depended on this seasonal return. Many of Ireland's earliest settlements, such as Mountsandel near Coleraine, were established along rivers where salmon would have been plentiful. Over the years, as settlements have changed and human influence on the environment has increased, the one constant has been the annual return of 'the King of Fish'. It's our job to ensure that these homecomings continue for future generations.

The wild Atlantic salmon is one of our most celebrated native species (even earning a place in Irish mythology, in the story of Fionn MacCumhaill and the Salmon of Knowledge). During its life, this remarkable creature migrates from its home stream to the ocean and back again, returning to breed in the upper reaches of the tributary rivers of Foyle and Carlingford.

Loughs Agency is responsible for managing salmon stocks within the Foyle and Carlingford areas. The Foyle catchment, in particular, is renowned worldwide for its salmon fishing, and at its peak, in the 1960s and early 1970s, annual catches numbered 180,000 fish. Salmon were exported daily to London's famous Billingsgate Market.

However, changing ocean conditions and the onset of the salmon disease, Ulcerative Dermal Necrosis, took their toll and catches fell alarmingly. In the seventies, the Foyle Fisheries Commission invited two Canadian experts to review the management of salmon in the Foyle catchment. Their subsequent report was groundbreaking and still forms the basis of our management programme.

The report set out a 'real time' management structure, identifying an ideal number of fish for optimising the available habitat, recommending Conservation Limits and setting Management Targets.

Globally there has been a decline. In the 1980s, for every 100 smolts leaving our rivers, around 30 would come back to the coast. This number has since fallen to about five. In an effort to address the decline, commercial fishing licences have been suspended and an angling 'catch and release' scheme has been introduced on the Rivers Foyle and Finn.

Today, Loughs Agency continues to monitor the situation and undertakes work to optimise the number of young salmon which our catchments can produce. We carry out significant habitat enhancement work, as well as monitoring and tackling pollution. Our decisions are based on information from our electronic fish counters on a number of key rivers such as the Mourne, the Finn, the Roe and the Faughan. We constantly strive to meet our critical Management Targets to ensure there are enough fish at the end of the season to maintain the salmon population.

Incidentally, the Foyle is the only place across the Atlantic salmon's range where this real time management system is used and we're



delighted that it's regarded internationally as the gold standard for salmon management.

Governments and other institutions have united to address the threat to salmon and we have played our part. The SALSEA-Merge Project investigated the migration and distribution of salmon in the North-East Atlantic. IBIS (an £8m EU-supported cross-border partnership in which Loughs Agency was the lead partner) has left a legacy of expertise in sustainable aquatic resources and is dealt with in greater detail later, as is our involvement in the SeaMonitor project.

We're incredibly proud of our tradition of using science to inform our decision-making. From our first scientific advisors in Arthur Went (Dublin) and Ken Vickers (Belfast) to the present day, we've adopted an evidence-based approach. We use an audit point management system to monitor Atlantic salmon populations in the Foyle and Carlingford areas. Fish counters, redd counts (salmon nests), electrofishing, tagging, smolt trapping and even genetics are used to gather the information on which our management decisions are based.

We work with partners at regional, national and international levels to implement best practice conservation actions. All of our decisions are focused on one aim: ensuring that 'the King of Fish' will be around for many generations to come.

Our catchment area is the only place across the Atlantic salmon's range where this real time management system is used. We're delighted that it's regarded internationally as the gold standard for salmon management.



River Restoration

Habitat protection and restoration are among the most vital aspects of the Agency's work. Wild Atlantic salmon have a complex life cycle and complex habitat requirements. The salmon's conservation and restoration can only be achieved if existing habitat is protected and degraded habitat restored.

Essentially, we are the guardians of Atlantic salmon stocks from their migration through the estuaries and their journey upstream to their spawning grounds, through their juvenile development, right through to the smolt stage when they return again to sea. Through its life cycle, the salmon faces many perils, not least the numerous threats to the environment in which it lives.

Sadly, in most of our salmon rivers, much freshwater habitat has been lost or degraded for a variety of reasons such as pollution, unsympathetic drainage schemes, bankside erosion, deforestation and changes in river morphology because of water or material extractions. It's become imperative, therefore, that we in the Agency act to protect habitat for all freshwater life stages of the Atlantic salmon.

Adult salmon require suitable holding areas where they can rest and shelter from predators, and clean, oxygenated gravel areas in which to lay their eggs. These gravel beds are important, too, for salmon fry. And even after the fry develop into parr, they need cobble and boulder in which to hide from predators and feed.

Over the last 20 years, Loughs Agency has invested significantly, restoring salmonid habitats in the Foyle and Carlingford catchments. Core and externally funded projects have been developed to conserve and improve the environments essential for sustainable populations of Atlantic salmon and other native fish.

These projects have all been scientifically evaluated by successive monitoring, for example through electrofishing and redd counts. This has proven to be extremely beneficial, increasing the number of young salmonids in our rivers and reinforcing the recent adage, 'build it and they will come'.

The Agency has developed a Habitat Improvement Strategy to guide this work. We've completed significant improvement projects in both the Foyle and Carlingford catchments, including: tree-planting; fencing; the installation of cattle drinkers to keep livestock away from watercourses; bank protection work; and woody debris installation.

Many of these enhancements have been undertaken in partnership with groups like the Wild Trout Trust, Woodland Trust, landowners and local angling associations, and we're constantly on the lookout for new partnerships.

All our habitat enhancement and protection plans are laid out under North Atlantic Salmon Conservation Organisation (NASCO) guidelines for the protection, restoration and enhancement of Atlantic salmon habitat. Indeed, the Agency is represented in NASCO and helps update and develop policy. NASCO's objective is to "maintain, and where possible, increase the current productive capacity of Atlantic salmon habitat."

In 2007, we introduced a regulation to protect in-stream habitat and it's now an offence to remove or disturb any substrate in any river in the Foyle and Carlingford areas without Loughs Agency approval. This has proved a very useful, even powerful, piece of legislation under which the Agency has successfully prosecuted offenders.

We've also successfully prosecuted many landowners and bodies for pollution incidents, some of which resulted in significant fish kills. The Agency has brought civil cases through the courts and secured compensation for these losses. Loughs Agency ring-fences these settlements and spends the money on habitat enhancement and protection schemes in the very areas where fish kills occur. This has helped restore fish stocks in the areas affected.

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Fish Counter Operations

For over 30 years, the Agency, and the Foyle Fisheries Commission before us, have been operating a network of electronic fish counters to monitor the migration of Atlantic salmon. The counters are used to assess the attainment of Conservation Limits and Management Targets for key catchments.

The 2100C Logie fish counter, first introduced as a management tool on the rivers Faughan and Mourne in 1996, proved revolutionary. It uses an ingenious 'resistivity method' to count fish. This was developed by the Scottish company, Aquantic, over 35 years ago but is still regarded as one of the most reliable systems of its kind in the world.

We currently operate seven fish counters across our catchments. These are intricate but sizeable pieces of apparatus, each a feat of engineering in its own right. Each counter records the number of fish travelling upstream or downstream, and it even tells us the size of fish by examining the signals they generate as they swim over the counter boards.

The Agency carries out validation exercises using fish trapping methods, and we constantly keep abreast of emerging technologies to validate our fish counts.

The data from our fish counters is used to inform the unique 'real time' management system which has been used to monitor and control salmon stocks in the Foyle catchment since the 1970s, and more recently to monitor populations in Carlingford.

The system was initially based on the numbers of salmon crossing the weir at Sion Mills on the River Mourne but, over time, has been refined and extended to include other rivers such as the Finn, the Faughan and the Roe. Each has its own optimal target number of salmon which the catchment should hold if stocks are to be sustained.

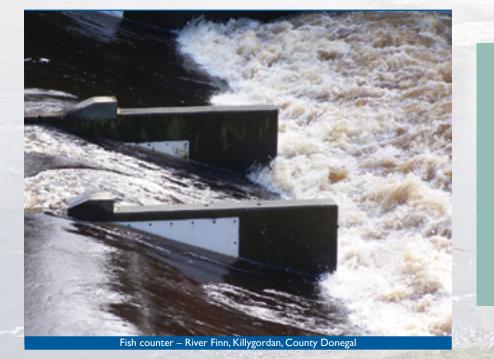
The information we gather from our fish counters has been critical to the successful regulation of our catchments. The data lets us know when we should open or close rivers, depending on the numbers of fish entering the river. Our fish counters have proved to be an invaluable resource in the ongoing work to sustain the salmon.

Carlingford

One of the achievements we're proudest of is the extension of the fish counter programme to the Carlingford area. The huge benefits of such a management tool had already been demonstrated in the Foyle system.

In 2007, a counter was installed at Thompsons Weir on the Newry/Clanrye River, the biggest river in the catchment. This was achieved by modifying an existing in-stream structure.

To date, the counter has proved invaluable in identifying a number of migration trends in the river. It has also informed key management decisions, such as when to undertake in-stream works or when to schedule protection patrols.



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Freshwater Fisheries Monitoring

The Foyle Fisheries Act (1952) empowers us to carry out the research needed for conserving, protecting, developing, improving and managing the salmon and inland fisheries of the Foyle and Carlingford areas.

This is undertaken through our freshwater fisheries monitoring programme. The programme involves checks on still-water fish, salmon, sea trout, brown trout and rare fish such as European smelt, lamprey and Arctic charr. We also carry out habitat assessment, noting invasive species and barriers to migration. All this work is completed under the EU Water Framework Directive which aims to improve the aquatic environment. The information collected is critical when developing and delivering fisheries orientated management, conservation, protection and improvement actions.

We also have obligations under the EU Habitats Directive, which lists species and habitats of importance at a European level. The Directive outlines measures for protecting these species, and we share information with national reporting authorities. EU Eel Regulations establish measures to restore populations of European eel, and the Agency has implemented a number of actions to meet its responsibilities. These include a scheme to install eel passes at known barriers to migration to support local populations.

'Think globally, act locally' is a phrase that was coined at the 1992 World Earth Summit in Rio and it fits in perfectly with the Loughs Agency's ethos. Loughs Agency operates at a scale in which it can act to improve and develop resources locally and has been empowered to engage with international efforts to comanage migratory fish species across international borders. The 'polluter pays' principle, outlined at the summit, contends that those responsible for pollution should bear the cost of managing the consequences. We apply this principle in the context of water quality and pollution infringements by taking both criminal and civil proceedings against polluters. Any compensation resulting from our action is invested in improving the fisheries environment.

The Agency takes its sustainability responsibilities incredibly seriously. In 1987, the Brundtland Commission defined sustainable development as that which "meets the needs of the present without compromising the ability of future generations to meet their own needs". That definition still shapes our approach more than 30 years later.

In carrying out our day to day functions, the Agency is feeding into these national and international agreements and providing a real example of an organisation acting locally and thinking globally.





River Finn Water Framework Directive surv

We apply the 'polluter pays' principle in the context of water quality and pollution infringements by taking both criminal and civil proceedings against polluters. Any compensation resulting from our action is invested in improving the fisheries environment.



Owenkillew River – seine net surve

Mayfly

The biological and chemical test results are pooled with electrofishing and habitat data to identify rivers that could benefit from enhancement work. This allows us to target resources quite precisely, with positive results for fisheries, habitat and water quality.

Water Quality Monitoring

Every year, the Agency carries out biological and chemical sampling at more than 100 freshwater sites in the Foyle and Carlingford catchments to measure the concentration of any harmful pollutants in our waters. We're looking for potential threats to the ecosystem and identifying pollution trends in order to prevent any future problems. We're also keen to keep the public informed about the quality of our aquatic environment.

Sampling usually takes place from June to September. Each site is tested monthly, giving us four chemical samples for each location. Our Water Sampling Officers use probes to measure dissolved oxygen levels, and to gather conductivity, temperature and pH readings (for acidity).

The findings can tell us a great deal about the quality of our waters. Low levels of dissolved oxygen are often linked to fish kill incidents while optimum levels can result in good growth. Significant increases in conductivity may be a sign of pollution. River temperatures are critical. Fish can become stressed if the water gets too warm and this can affect spawning. If the pH reading is too high or too low, the aquatic organisms living in the water may become stressed or even die.

Samples are sent to our laboratory for analysis. The various chemical tests can help identify rivers that are under pressure from pollution from a variety of sources, such as agriculture, forestry, urban wastewater and construction. The biological and chemical test results are pooled with electrofishing and habitat data to identify rivers that could benefit from enhancement work. This allows us to target resources precisely, with positive results for fisheries, habitat and water quality.

All our proactive monitoring, testing and enhancement measures ensure that any potential threats to fish health or aquatic ecosystems are minimised so that native species can thrive in the natural riverine habitats of Foyle and Carlingford.



IBIS – 70 Years of Applied Research

We in the Agency have long prided ourselves on the weight we attach to scientific evidence as a basis for our management decisions. We're just as proud of the role we've played in furthering research in the field of marine science.

IBIS, an ambitious £8 million cross-border project in which Loughs Agency was the lead partner, is an outstanding example of this.

We joined forces with the University of Glasgow and Queen's University Belfast to improve understanding of aquatic habitats and resources in Northern Ireland, border areas of Ireland and western Scotland. The project was backed by the European Regional Development Fund, the administrations in Dublin and Belfast, the University of Glasgow and Queen's in Belfast.

World-class research facilities were built at SCENE (the Scottish Centre for Ecology and the Natural Environment) on Loch Lomond. Research, education and training were divided between the Loch Lomond site, the Marine Laboratory in Portaferry, and Loughs Agency facilities in Northern Ireland and Ireland.

IBIS delivered 70 years of applied research in Doctoral and Masters projects. Training was offered to future aquatic resource managers through PhD and Masters studentships supervised by leading experts, and we provided continuing professional development for present-day managers. Knowledge transfer workshops, such as the stocking conference, raised awareness and skills, and significant new learning was published.

IBIS leaves a rich legacy which will be of great practical benefit to our industry. It includes cutting edge research which people can draw upon and tools that can be used for managing marine and freshwater resources in the three jurisdictions.



Dyster hatchery course



IBIS, an ambitious £8 million cross-border project in which Loughs Agency was the lead partner, delivered 70 years of applied research in Doctoral and Masters projects.





Commonwealth competitor on the River Dennett

SeaMonitor

Loughs Agency prides itself on leading the way in tackling fishery issues. The continued decline in salmon stocks in the North Atlantic area represents a problem that needs a new approach. Using science and innovation as our route map, we are working on a partnership basis to address common problems across borders and frontiers.

Loughs Agency are proud to be leading the SeaMonitor project – a groundbreaking and comprehensive research programme, and the first of its kind in Europe. Its programme area comprises the seas around Northern Ireland, Ireland and Scotland.

Using new and existing data from tracking studies, the SeaMonitor project will deliver five models supporting the conservation of basking shark, skate, salmonids, seals and cetaceans.

It will also provide three Management Plans for skate in the area from Loch Sunart to Sound of Jura, and for salmon in both the Foyle and Clyde estuaries.

The project will rely on acoustic technology for gathering information and will install a number of large-scale marine telemetry arrays to track migratory fish and marine mammals across the programme area. An existing network of buoys – delivered by a sister project COMPASS – will be extended so that a line of acoustic receivers runs between the island of Ireland and Scotland.

SeaMonitor is funded by the EU's INTERREG VA Programme and combines expertise from nine institutions. It delivers directly towards the objective of building cross-border capacity for monitoring and managing Marine Protected areas and species.

Its work will contribute to the growth of a regional 'blue economy' and the alignment of regional activities within the EU's Atlantic Strategy.



Basking shark monitoring





Conserving the Native Oyster

Loughs Agency have responsibility for managing and licensing the Lough Foyle native oyster fishery. Lough Foyle has been an important resource for hundreds of years, supporting lucrative fisheries for oysters, mussels and salmon. The native oyster (Ostrea edulis) has been harvested from Lough Foyle since the 17th century.

Native oyster populations right across the continent have been in steep decline since the mid-1900s, largely because of overexploitation. Unless properly managed, the oysters can be over-harvested in a short period of time. The species is already vulnerable because of its long lifespan and sporadic reproduction. It can be badly impacted, too, by disease, poor habitat quality and fluctuations in environmental conditions. It's also vulnerable to invasive species. The decline of native oyster stocks has been so significant that since 2003 the species has been listed as 'threatened and/or declining' by OSPAR (Oslo/Paris Convention).



Native oyster, Lough Foyl

Oysters are considered as keystone, habitat-forming species because they form reefs. These reefs affect the character of the areas in which they're formed, as well as the flora and fauna.

Until recently, the size of the Lough Foyle native oyster population and the area it occupies had declined because of overfishing and disease. For years, the problem was exacerbated by the absence of a licensing system. The lough's dual jurisdictional nature meant that historically there was little regulation of the oyster fishery.

In 2008, the Agency introduced licensing and regulation of the native oyster fishery in Lough Foyle. Vessels are licensed to fish for native oysters on weekdays only between the 19^{th} September and the 31^{st} March. The fishery is closed the rest of the year when the oysters are breeding.

We've introduced a Minimum Landing Size (MLS) of 80mm, which is the largest MLS for native oysters in the whole of the UK and Ireland. Licence holders are required to complete logbooks recording their catch and to return these to us every week. Our Fishery Officers carry out regular patrols on land and water, and infringements of regulations result in prosecutions. We even have the power to postpone harvesting or close the fishery altogether. The Agency completes annual population surveys to assess stock stability and density, spawning and settlement success, and to monitor the health of the population and disease prevalence. Our Native Oyster Management Cell considers the results of the surveys alongside reported landings, and makes 'real time' decisions on the fishery's sustainability.

Survey data has also allowed us to document demographic changes in the native oyster population in Lough Foyle since the introduction of the regulations. Landings vary from year to year. Spawning success in wild native oysters is susceptible to environmental changes and, consequently, largely beyond our control. However, improving their habitat and increasing stocks can enhance the chances of successful spawning. We strive constantly to find new and innovative ways of achieving this.

Our surveys report a higher proportion of larger oysters within the population since fishery regulation started in 2008. We put this down to the introduction of the 80mm MLS. Currently, over half the sampled population measure above 70mm.

In 2008, the Agency introduced licensing and regulation of the native oyster fishery in Lough Foyle. There is now a set season with the fishery being closed when the oysters are breeding.

Larger oysters are an invaluable resource for breeding purposes. While oysters as small as 35mm are capable of spawning, larger oysters can produce much larger quantities of larvae for the fishery. When there's a higher percentage of large oysters present, and environmental conditions are favourable, there's a better chance of spawning success.

We're satisfied that regulation of the oyster fishery is having a positive impact on the oyster population, but further monitoring and research need to be undertaken to ensure the long-term sustainability of the Lough Foyle native oyster population.



Oyster survey, Lough Foyle

Greencastle Pontoon – The project at Greencastle has been developed to support the lucrative cruise industry. A cruise ship tender berth has been built, along with an anchor pontoon for a temporary marina, a staging post for visiting yachts and disabled access for boat-users.



Marine Tourism Development and Promotion

The governments here have long recognised the potential economic benefits of marine tourism. It is sustainable, eco-friendly and potentially lucrative, especially for smaller, more isolated communities. Clearly, we are well-placed to contribute to this developing aspect of the economies North and South, and a number of significant marine tourism projects have been completed.

We work to ensure the catchments realise their potential for the sustainable development of naturebased tourism and activities, including angling, water activity and bird watching. To this end, we have developed strategic partnerships and delivered a €3.7m INTERREG-funded infrastructural project which has transformed facilities for tourists and anglers at some of the North West's best known or most attractive riverbank and seaside destinations. These include the Foyle Pontoon, Gribben Quay, Benone Beach Activity Centre, Malin Head, Mellon Beat, Backwater and Greencastle Pontoon.

For almost ten years, up until 2015, the Agency operated its own Sustainable Development Fund, a strategic intervention that yielded great results. The programme provided small grants to public, private and community projects which developed the marine tourism and angling sectors in Foyle and Carlingford.

The promotion of marine tourism events has been an important and rewarding feature of our work, and made a significant contribution to economic development. We've been busy hosting, supporting and exhibiting at a whole range of events such as the Carlingford Oyster Festival and the Foyle Maritime Festival. We've published and shared promotional material, such as the Foyle and Carlingford Boat Trails, and distributed illustrated maps highlighting the marine tourism attractions of our catchments. We've produced promotional videos which have been published online through social media channels. And we've worked in partnership with other groups to publicise initiatives such as Cruise NW and Sail West.

Our three-year 'Maritime Ambassador' programme – a partnership with Derry City and Strabane District Council, funded under the European Social Fund – provided powerboat training for some local people and helped others to qualify as canoeing instructors. We also engaged in capacitybuilding work with local sailing clubs, offering sailing instruction and rescue training.



Malin Head (Donegal) – Ireland's most northerly point is famous as the location for the Star Wars films and is popular with visitors all year round. We worked in partnership with Donegal County Council to develop sustainable visitor access to the iconic cliff top area at Malin Head, building a viewing platform, erecting information panels, developing a walking trail and putting in vehicle passing bays.



Mellon Beat, (near Omagh) – The instream works at the Mellon Beat, on the River Strule, near Omagh included installing groynes and revetment in the river to enhance habitat for fish and other river life. Access for anglers has also been improved with the provision of car parking, timber steps to the river, signage, stock-proof fencing, gates and stiles, angling shelters, bench seating and a water depth gauge.



Foyle Marina and Cruise Ship Quay (River Foyle) – Located 17 miles from the mouth of Lough Foyle but right in the heart of the city of Derry~Londonderry. The marina has already hosted three Foyle Maritime Festivals. The pontoon has a cruise ship quay, an events platform, a hoist for visitors with disabilities, toilets and changing area, shore power, freshwater and waste reception facilities.



Gribben Quay (Bready, River Foyle) – The Gribben Quay brings visitors face to face with this aspect of our fishery's commercial past. It has a stone quay where fish were once landed, and an ice house that held stores of ice for packing fish before they were transported to far-off markets. The quay has been restored and a slipway built. There is managed access, disabled parking and toilet facilities.



Benone Beach Activity Centre – Benone's blueflag strand is one of Northern Ireland's longest beaches. The activity centre includes toilets, showers and changing facilities, and a multi-use area with boardwalks to beach.



Backwater (Ballymagorry) – The Backwater project on the River Foyle, near Ballymagorry, was designed to provide a top-quality game-fishing experience for anglers, as well as improving the habitat along the river. Fishing huts, footpaths, stiles and parking were provided to improve access for anglers.

Angler on the River Dennett, County Tyrone

Angling Development & Promotion

The Foyle and Carlingford catchments offer some of the best fishing in Europe including rich, untapped, wild resources of game, coarse and sea fish.

The Foyle system is internationally-renowned for the quality of its salmon fishing. Less well-known is its excellent wild brown trout fishing. The Carlingford catchment, too, offers tremendous variety for game, coarse and sea angling.

Partnership working has long been the cornerstone of the Agency's approach and we welcome the support of others to achieve our objectives. These include involving more people in angling; reducing barriers to participation; teaching people how to fish; looking at models of sustainability; encouraging visitors to experience the natural assets of the Foyle and Carlingford areas, and developing our natural resources.

The Agency was a key partner in the 2013 Strategic Review of Angling for Northern Ireland. The review identified challenges that need to be overcome if Northern Ireland is to realise its angling potential. A consultation process yielded more than 30 recommendations for change. Since then, the NI Angling Forum has been established and meets quarterly to monitor progress and consider opportunities for development.

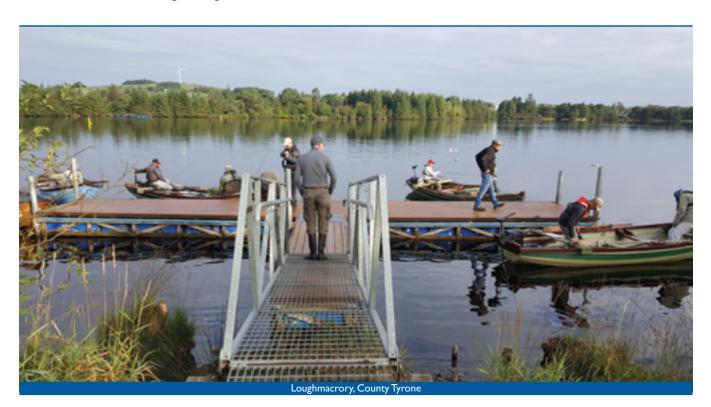
We, ourselves, identified such an opportunity by taking advantage of emerging technology. We've introduced an online system for buying angling licences. Anglers and tourists can buy the new eLicences outside normal business hours and even before they arrive. Licences can still be bought, though, in traditional outlets. There've been other benefits, too. Anglers can now file their catch returns online, and Fishery Officers 'in the field' can check licences against our up-to-date database.

As part of our mission to encourage greater participation in angling, the Agency has been working hard to improve skills within the sector. We've supported training and developing Level 1 and Level 2 coaches from various angling clubs throughout the Foyle and Carlingford areas. The Angling Trust has developed the CAST Awards to help anglers of all ages improve their skills – something we have adopted as a model of best practice.

Efforts continue to encourage people of all abilities to enjoy angling by receiving competent tuition in a safe environment. The establishment of an angling hub at our headquarters in Prehen was a major step forward. Two fully accessible ponds were created there for game fishing and coarse fishing and these provide a controlled environment where new enthusiasts can get a safe introduction to angling.

The Agency has promoted the opening of new angling clubs and supported the needs of existing clubs by providing support and guidance on many angling related matters. We're working closely with partners to form new community angling hubs, particularly on waters that are presently under used.

We've been encouraging clubs to organise angling events as a way of showcasing their sport, promoting local areas and advertising the quality of fishing available to visitors and club members.



LOUGHS AGENCY

In 2018, we hosted the Commonwealth Fly Fishing Championships which were held in Northern Ireland for the first time. The competition was based in Omagh and had five competitive venues, three of which were in the Foyle system: the Quiggery River, River Dennett and Loughmacrory.

The Agency worked with local angling clubs to prepare their fisheries for the Commonwealth competition by carrying out habitat improvement, building footbridges and stiles to improve accessibility, and building a pontoon for mooring boats.

This competition attracted almost 90 anglers from ten different countries including Australia, New Zealand, South Africa and Canada. Competitors and their companions stayed in Omagh for a week, providing a significant boost to the town's economy.

Other notable competitions held here in recent years include the 2013 World Youth Fly Fishing Championships, and the 2013 World Police and Fire Games Shore Angling Competition which drew 60 competitors from ten countries to the shores of Lough Foyle.

Coarse competitions have also been held here with Newry hosting the Irish Open Junior Canal Championships.

For a number of years, Loughs Agency hosted the Angling Fair in the North West of Ireland, attracting more than 6,000 visitors

annually. Among the highlights was the World Distance Casting Championship in which a new world record was set.

In seeking to popularise angling at home and promote it abroad, we've identified the need for infrastructural improvements. We want more foreign visitors to come here to fish, more young people, more people with disabilities, and more females taking part.

Information gleaned from numerous Angling Development Status Reports identifies the improvements needed to existing infrastructure and where work is required in future. Emerging themes in both the Foyle and Carlingford catchments include the need for improved access (stiles, footbridges and disability considerations), better signage, more parking and toilet facilities.

Angling clubs have used this information to support grant applications to community and sport-based funding programmes. The Agency has responded by carrying out significant programmes of work at the Backwater on the River Foyle, and at the Mellon Beat on the River Strule. Both were funded by the EU's crossborder INTERREG Programme.

The Agency has changed tack in its efforts to promote the Foyle and Carlingford areas over the last ten years. Originally, at promotional shows, we'd have used our own staff to describe the beautiful, unspoiled angling opportunities that our catchments had



to offer. Over time, though, we've begun using videos and visual aids to showcase our 'product'. And, more recently, we've engaged local people to tell their stories first-hand, relying on them to enthuse target audiences.

We've produced a variety of resources to support our publicity and marketing efforts. These include promotional videos, publications, articles in specialist magazines, and a strong online presence through our website and social media outlets.

We've worked in partnership with Inland Fisheries Ireland and the Inland Fisheries Division of DAERA (Department of Agriculture, Environment and Rural Affairs) to develop an all-island marketing approach internationally - 'Angling in Ireland'. Fáilte Ireland, Tourism NI and Tourism Ireland are now selling our angling 'product' jointly to audiences around the world.

As well as the positive economic impacts, particularly in rural areas, the health and social benefits of angling are well recognised. Angling as a tourist attraction, sport and recreational pastime has much to offer locals and visitors alike. We have great ambitions to develop angling further, in a sustainable way, so that the natural resources of the Foyle and Carlingford will be enjoyed by generations to come.







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Riverwatch – Environmental Education

The Riverwatch Aquarium and Visitor Centre is one of Loughs Agency's greatest achievements and plays a central role in delivery of our education and outreach activities. Its tanks, videos and interpretive displays have drawn in an amazing quarter of a million visitors since we opened our doors in 2003.

Riverwatch is both an educational resource and a tourist attraction. But we like to think of it primarily as a window to a wonderful underwater world. It educates people, young and old, about the rivers, streams and loughs in the Foyle and Carlingford areas.

We want the public to understand the impact that 21st century life is having on the creatures which inhabit our waterways.

We want to encourage public stewardship of the waterways and river-responsible practices.

Most of all, we want locals and tourists alike to respectfully experience and safely enjoy these unique and valuable resources.

It's the Agency's belief that when people get to know and develop a connection with the waterways, they're more likely to respect them. To report illegal fishing. To highlight pollution activities.

Everyone visiting Riverwatch gets the opportunity to share the river's journey, witness the life it supports and experience the essence of our local environment. Our educational activity packs help schoolchildren to understand the river's habitats and their inhabitants. Our Aquarium tanks introduce visitors to eight distinct habitats and contain a variety of native species. We never cease to be thrilled by the delight on children's faces when they encounter up close, often for the first time, live lobster, crabs, starfish, coalfish and blennies, as well as more unusual examples of marine life. Freshwater species like trout, sticklebacks, minnows and roach are also featured.

We also offer a series of workshops on, for example: freshwater invertebrates; fish anatomy and dissection; biodegrading; microplastics, and habitat, river and rocky shore surveys. These workshops can be delivered anywhere and provide hands-on, participative experiences that engage participants with their local environment.

Over the years, we've continued adding to our Centre's attractions and we welcomed support from Tourism NI to enhance the Aquarium as a visitor destination. With the support of Greencare North West, we added a bird-hide and a woodland walk that leads down to the River Foyle. The Foyle Wetlands project, supported by Groundwork NI, enabled us to build a log cabin that's used as a learning space for visiting groups.

Visitors who are keen to learn or improve their fishing skills enjoy the two new ponds we've provided, stocked with game and coarse fish. And hundreds of young people have completed the CAST angling course under the guidance of qualified coaches.







The Agency wouldn't have flourished the way it has without the many exciting, rewarding partnerships we've formed since we started out.

In 2008, for example, we collaborated with the British Council on the Rivers of The World programme - an art and education project connecting pupils around the globe to their local rivers. Magnificent pieces of art produced by these young people held pride of place outside the Tate Gallery on the banks of the Thames, on the banks of the Foyle at Ebrington, in local schools and in our Riverwatch Centre.

Events like the Foyle Maritime Festival, Carlingford Oyster Festival and the NI Science Festival provide us with opportunities to work with local councils and community organisations. Everywhere we go, our mobile discovery tanks, stocked with marine life, draw big crowds who are eager to hear our Education staff describing these creatures, their life cycles, habits and habitats.

The Agency has joined forces with many like-minded conservation and science-based organisations such as Belfast Zoo, W5, RSPB, and the Ulster Wildlife Trust. We've worked with schools, and young people who found academic work challenging and spent a week with us - exploring the Foyle, picking up litter, canoeing, angling and participating in art workshops. They completed the John Muir Award which encourages enjoyment and care of wild places, and returned to their schools as more confident individuals.

At Riverwatch, we work constantly to inform and educate, and we try to make it fun. Working with the Whale Workshop from Devon, for example, we installed a temporary exhibition which included a 15-metre model of a blue whale along with other lifesize exhibits, for a 'Monsters of the Deep' event at Halloween.

Key messages promoting positive action to protect and improve the local environment underpin everything we do at Riverwatch.



Riverwatch – original fit out



Riverwatch - marine discovery tank

'As a teacher, I found and pitched at the level of were spellbound and still talk facilitator, Michael Cosgrove, engages the children and sparks their interest.' – Steelstown

'I have a GCSE group and the trip brought quite difficult concepts to life. The students really enjoyed the good. The support at the Loughs Agency was excellent, in particular the input from Michael Cosgrove and his skill with follow-up work at the school.' – St. Brigid's College

and educational. We found Michael and aquarium.



Foyle Ambassadors – Community Engagement

There can be few better ways to safeguard the future of our rivers, loughs and coastlines than by familiarising our young people with their delights, and preparing them to be their future custodians.

The Foyle Ambassador programme does exactly that and is one of the Loughs Agency's most successful outreach schemes.

To date, around 100 young men and women have graduated under the annual project which is funded by Loughs Agency and supported by others such as the National Lottery and Cooperation Ireland.

Developing the role of Riverwatch, the Foyle Ambassador programme brings 14 to 17-year-olds from across the North West on a journey of both environmental and personal discovery. To qualify as Ambassadors, they undertake personal development and leadership training through involvement in watersports and conservation projects.

Each Ambassador programme differs slightly from those that precede it but gaining new skills is integral to them all. Agency staff plan the activities to ensure that, as well as being better equipped for the future, young people discover the economic, social, recreational and environmental importance of the Foyle and Carlingford catchments.



Foyle Ambassadors

More than 100 teenagers have already completed John Muir Awards and achieved qualifications in angling, canoeing and powerboating.

The John Muir Award invites individuals to discover the catchments from source to sea, to explore their lakes, tributaries, estuaries and coastlines, to conserve their natural beauty – and then share their knowledge and experiences with the wider public.



LOUGHS AGENCY

When working towards their CAST angling qualifications, teenagers learn how to attach bait, cast a line, and to land and unhook a fish – the concept of catch and release.

Canoeing and powerboating are ideal ways of exploring and learning about the Foyle system. Not only are they great fun, they connect young people to rivers and coastlines in a unique way. With the wind in their hair and spray on their faces, the Ambassadors work towards their paddling and powerboating certificates. What better way to connect with wild places!

The Ambassador programme also makes young people more aware of the threat that modern living poses to the natural environment. They're often shocked by the amount of rubbish they come across during litter picks, and many were spurred on to carry out similar clean-ups, even after their programmes had finished. As newly-qualified Ambassadors, they're keen to spread the word about the damage pollution causes.

Participating in different, new activities not only tests these young people's physical capabilities, it also enhances areas of personal development, such as team-building and problem-solving. Whether they're working together to build a raft or learning to catch a wave, they always seem to have smiles on their faces.

The Ambassadors build lasting connections with the river and they also form lasting friendships with people from different backgrounds. The experiences the Ambassadors gain through friendship, fun and adventure equip them with skills for life. And we, in the Agency, like to keep in contact with them by creating further volunteering opportunities at our public events.

To date, around 100 young men and women have graduated from the Foyle Ambassador programme – these young people are now more aware of the threat that modern living poses to the natural environment.





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