Iascach Intíre Éireann
Inland Fisheries Ireland

Annual Report

& Financial Statements

2018

Mission statement

“To ensure that the valuable natural resources of inland fisheries and sea angling are conserved, managed, developed, and promoted in their own right to generate a positive return for the community and the environment.”

Principal Functions of Inland Fisheries Ireland

Inland Fisheries Ireland is the statutory body responsible for inland fisheries in Ireland. It operates under the aegis of the Department of Communications, Climate Action and Environment (DCCAE).

The principal function of Inland Fisheries Ireland is set out under Section 7 (2) of the Inland Fisheries Act of 2010. This is the protection, management and conservation of the inland fisheries resource. The general functions of IFI are to:

a. Promote, support, facilitate and advise the Minister on the conservation, protection, management, marketing, development and improvement of inland fisheries, including sea angling.

b. Develop and advise the Minister on policy and national strategies relating to inland fisheries including sea angling, and

c. To ensure implementation and delivery of policy and strategies developed under (b) as agreed with the Minister.

Inland Fisheries Ireland
3044 Lake Drive
Citywest Business Campus
Dublin D24 Y265

Web: www.fisheriesireland.ie
Email: info@fisheriesireland.ie
Phone: + 353 (0)1 8842 600

Contents

Chairman's Introduction

It gives me great pleasure to present the 2018 Inland Fisheries Ireland Annual Report. The report focuses on the principal functions of Inland Fisheries Ireland, as set out in the Inland Fisheries Act 2010, which are the protection, conservation and management of the inland fisheries resource.

A specific function of the Board is to advise the Minister on policies and strategies relating to inland fisheries including sea angling. The Act allows the Board to establish such sub-committees, as it considers prudent to assist the Board in the formulation of policies in specific areas.

The Board is accountable to the Minister for Communication, Climate Action and Environment and is responsible for ensuring good governance and compliance with the provisions of the Code of Practice for the Governance of State Bodies. The Board performs its statutory remit by setting out strategic plans and targets in its five-year corporate plan and in its annual business plan and accompanying budget. The Board takes strategic decisions on key business issues and also deals with the reserved functions as outlined in the 2010 Act.

The ordinary day-to-day management, direction and control of Inland Fisheries Ireland is the responsibility of the Chief Executive and the senior management team. The Chief Executive and senior management must follow the broad strategic direction adopted by the Board and must ensure that all board members are regularly apprised of progress on strategic policy implementation and any significant risks likely to arise. The Board is also responsible for the keeping of adequate accounting records and for the safeguarding of its assets and hence for the taking of reasonable steps for the prevention and detection of fraud and other irregularities.

The Chief Executive Officer is an ex-officio member of the Board of Inland Fisheries Ireland and acts as a direct liaison between the Board and the management team.

Protection staff continued their sterling efforts to protect our valuable fish stocks and habitats throughout 2018 and the removal of any uncertainty with regard to Inland Fisheries Ireland's authority to prosecute fisheries offences was essential for the operation of the service. The Board acknowledges and appreciates the fraught and difficult environment in which much of the core protection functions are carried out and is

very conscious of the deterrent value of highly publicised convictions for infringements of the Fisheries Acts. The phased delivery of the twelve new sea-going rigid inflatable boats (RIBs) will further support and enhance protection patrols at sea.

The summer 2018 heat wave affected fish and angling in many adverse ways. Freshwater fisheries suffered for a prolonged spell of significantly low water levels and high temperatures in some salmonid streams necessitated fish rescue operations. Healthy fish stocks require well-tended habitats and the maintenance and enhancement of fish habitats continues to be a priority for the organisation. Capital investment in the National Strategy for Angling Development continues to fund infrastructural projects to provide improved facilities and greater access to angling.

However, the Board recognises that a sustainable source of operational funding is required to engage in the levels of fish habitat enhancement and maintenance required to significantly improve fish stocks.

The Board recently approved substantial capital funding to upgrade the vehicular fleet. The fleet manager will ensure that the number and type of vehicles is appropriate to the organisation's requirements.

Many of Inland Fisheries Ireland's processes continue to be digitised and this will improve efficiency and allow us more time to concentrate on core activities.

I wish to express my gratitude and the appreciation of the Board, to Ministers of State for Communications, Climate Action and Environment, Seán Kyne and Seán Canney and to their courteous and dedicated officials for their unstinting support and commitment.

In conclusion I want to again express my appreciation and that of the entire Board to the dedicated and committed staff who continue to facilitate the delivery of an efficient and professional fishery service.

Chairman

Chief Executive Officer's Foreword

I am delighted to have the opportunity to welcome you to the 2018 Annual Report of Inland Fisheries Ireland (IFI), which sets out at a high level the work we have done in 2018. From the outset I would like to thank all our staff for their immense contribution in making 2018 as successful as it was in often challenging conditions.

From an environmental perspective the extreme weather events were the stand-out issues we experienced in 2018, for the country generally and for the inland fisheries in particular. We went from significant snowfall in March and a temperature low of -7°C to a summer drought, hose pipe bans and a temperature high of 32°C – the highest in almost 40 years and not far off the highest temperature ever recorded in Ireland (33.3°C in Kilkenny in 1887). Our inland fish populations were particularly challenged by water temperatures in excess of 20°C for prolonged periods of the summer, during which our operational staff spent a considerable amount of time rescuing and relocating fish trapped by low waters or that had become vulnerable where rivers had dried out. Both the weather conditions and the more intense impact of pollution events in low, warm water conditions did lead to a number of fish mortalities. Given the extreme conditions, however, it was a welcome relief that fish populations were not impacted even further. One of the positive aspects to emerge from this extreme weather event was that it brought together a range of agencies with statutory responsibilities pertaining to water to help manage the crisis and to work together in a much more cohesive fashion than previously. The weather crisis also brought a stronger focus on the impact of climate change on our freshwater systems and fish populations, and an examination of the actions that we might take to assist in mitigating such events in the future.

On the fisheries development side of IFI there was a continued focus on governance, and particularly on how IFI delivers fisheries development projects while ensuring that the highest financial and environmental governance standards are achieved. The National Strategy for Angling Development (NSAD) is our flagship fisheries development strategy and through its funding streams we have enhanced the levels of financial and environmental governance throughout the sector. The Programme Management Office of the NSAD was established in 2018 and its project officers liaised with clubs and voluntary groups up and down the country to plan and deliver fisheries projects and to ensure that appropriate standards were

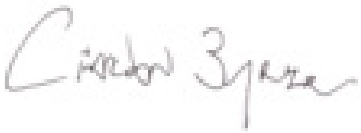
achieved. Understandably, this has been a difficult transition for some stakeholders, as the level of governance surrounding projects has increased significantly in recent years.

On the internal side of the business 2018 was also very successful and IFI has continued on its path of improvement and modernisation. Almost €3.5 million was spent on twelve sea-going RIBs which will significantly enhance our staff's capacity to protect salmon stocks at sea. These boats are built to the highest and most up-to-date standards, and with 2019 being International Year of the Salmon, their deployment represents a significant and timely investment in salmon. IFI also introduced an organisation-wide Time Management System for all staff – this is operated through mobile phones and will allow a better understanding of how and where we face the most pressure on our staff resources. Rolling out the system is a significant achievement given the dispersed nature of our staff and the range of working patterns in operation throughout the organisation. It will also ensure that we manage our obligations in relation to governance and employment legislation.

We overhauled our vehicle fleet in 2018, reducing the number of vehicles in operation and changing the composition of the fleet and our fleet management systems. All staff now have a mobile app on which they can record their vehicle check before they begin driving, in compliance with the Road Safety Acts. All vehicles have also been fitted with a telemetry system which ensures the fleet can operate to its optimum level of efficiency. Another significant positive benefit of the changes to the fleet system has been the reduction in fuel usage, which will not only save money but will also help us achieve our emission reduction targets.

Finally, towards the end of 2018 IFI initiated a new programme management approach to how we deliver our services. This will help us to better identify priorities and allocate resources, so that we can be more effective in delivering on key organisational programmes – ensuring that we do the right things and do things right. This programme management approach is one of the sub-actions advocated in the Department of Expenditure and Reform's development and innovation plan, Our Public Service 2020.

Finally I would like to thank Ministers Kyne and Canney and the Board of IFI for the firm support they have given us throughout 2018 and which has enabled the leadership team and staff to deliver on all of the activities outlined in this annual report. I also take this opportunity to renew our strong commitment to focusing all our efforts on our core role of protecting, managing and conserving Ireland's inland fisheries resource in the most efficient manner possible



Chief Executive Officer
April 2019

Inland Fisheries Ireland: Board Members

Fintan Gorman, Chairperson

Fintan has served on the Board of Inland Fisheries Ireland since 2013 and he became Chairman in 2015 and was re-appointed for a second term of 5 years in September 2018. He was previously Principal of St. Joseph's National School, Cong, County Mayo, and has considerable experience on Boards of management, community projects and with his local angling club, which he established.

Dr Ciaran Byrne, Chief Executive Officer (ex officio)

Ciaran was instrumental in the development of the 2010 Inland Fisheries Act and in leading the establishment of Inland Fisheries Ireland, through the amalgamation of eight separate State Agencies. He has been CEO since 2010, and in that time he has provided the strategic leadership to ensure that the organisation's vision, mission and values are delivered on.

Martin McEnroe

Martin was a member of the Shannon Regional Fisheries Board for twenty years and has been involved in projects both locally and nationally, and has served on a number of Board sub-committees.

Niall Greene

Niall chairs the Board of Salmon Watch Ireland Limited and is a member of the Shannon, Mulkear and District Anglers Association and of the Tralee and District Anglers Association.

Professor Frances Lucy

Frances is Head of the Department of Environmental Science and Director of the Centre for Environmental Research Innovation and Sustainability at the Institute of Technology, Sligo. Her main research interests are aquatic invasive species, fisheries science and water quality.

Patrick Gibbons

Patrick is a commercial lawyer with strong experience in corporate governance and enterprise risk management. He serves on the Board of financial services companies, on the Board of the National Treatment Purchase Fund and on the Board of the Loughs Agency in Northern Ireland.

Sean Coady

Sean was elected in 2015 as Inland Fisheries Ireland's workers' nominee on the Board. He has spent most of his working life in fisheries, and is currently an Assistant Inspector based in Galway.

Bernadette Orbinski Burke

Bernadette is a chartered accountant with twenty three years senior financial management experience in a number of large organisations. She has been involved in managing change and risk in organisations. She also has substantial experience serving on Boards, both national and international.

Inland Fisheries Ireland: Senior Leadership Team

Dr Ciaran Byrne
Chief Executive Officer
(and ex officio Board member)

Mr Pat Doherty
Head of Finance & Logistics

Ms Roisin Bradley
Head of Human Resources

Dr Greg Forde
Head of Operations

Dr Cathal Gallagher
Head of Research & ICT

Ms Suzanne Campion
Head of Business Development

Mr Brian Beckett
Director, IFI Dublin (Eastern River Basin District – ERBD)

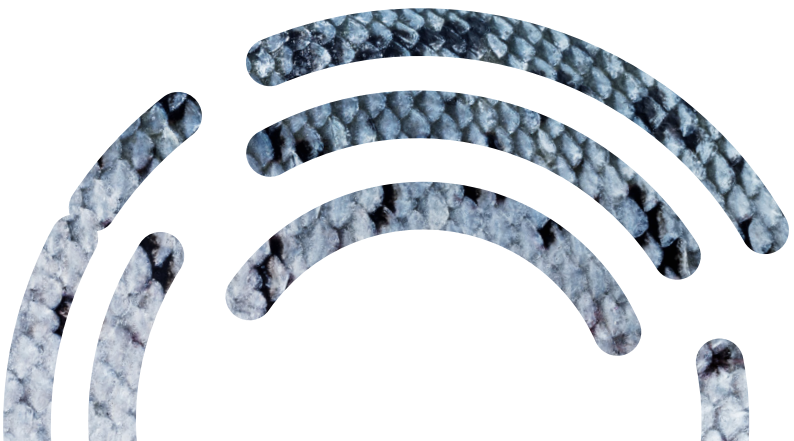
Mr David McInerney
Director, IFI Clonmel (South Eastern River Basin District – SERBD)

Mr Sean Long
Director, IFI Macroom (South Western River Basin District – SWRBD)

Ms Amanda Mooney
Director, IFI Limerick (Shannon River Basin District – ShRBD)

Dr John Conneely
Director, IFI Galway Ballina (Western River Basin District – WRBD)

Dr Milton Matthews
Director, IFI Ballyshannon (North Western River Basin District – NWRBD)



1. Protecting and Conserving Ireland's Fisheries Resource

Inland Fisheries Ireland is responsible for the protection and conservation of Ireland's fisheries resource, the fish and their habitats in all inland waterways and out to a twelve-mile limit offshore.

The species we protect comprise all freshwater fish species including migratory fish such as salmon, sea trout, eel as well as lamprey and other important conservation species including Arctic char and shad. We are also responsible for protecting and licensing wild oyster fishing and through a Memorandum of Understanding (MOU) with the Sea Fisheries Protection Association (SFPA) we enforce bass fisheries legislation.

In addition to enforcing the provisions of the Fisheries Acts 1959 to 2017, we are empowered to enforce the Water Pollution Acts 1977 and 1990 when discharges to fisheries sensitive waters lead to a deterioration in water quality and on occasion to fish kills.

We meet our responsibilities to protect and conserve Ireland's fisheries resource in four main ways:

- We work to **safeguard fisheries** directly with a network of warrant-carrying field staff located all around the country enforcing a suite of regulations and byelaws enacted to ensure the sustainable management of the fisheries resource
- We protect the **habitats and environment that fish need,** with particular attention to water quality and the immediate area surrounding rivers and lakes
- We **assess and seek to mitigate** the impact of planned developments to ensure that they take account of the need to protect our fisheries and secure the future for fish
- We provide scientific research that helps to underpin the fisheries policy direction.

Safeguarding Our Fisheries

Our work in safeguarding our fisheries involves a wide range of activities using personnel with a range of different skills:

- We **patrol** rivers, lakes, and coastal, estuary and seaareas to deter and prevent poaching
- We **inspect** recreational anglers and licence holders and also **check** fish dealers and restaurants/hotels to ensure that they are in regulatory compliance, and we issue fixed charge penalty notices where appropriate in lieu of taking certain prosecutions through the courts
- We **seize** illegal items and items that have been used for illegal activity, including boats, vehicles, nets, rods and fish that have been caught illegally
- We **prosecute** people for breaches of fisheries and environmental legislation.

Our patrols

Our anti-poaching patrol teams actively seek to deter and prevent poaching. They use local intelligence to identify where poaching is most likely to occur, and they use a range of equipment to carry out their patrols –

including boats, kayaks, personal water craft (PWCs), all-terrain vehicles and, bicycles; and, of course, they also carry out foot patrols. In addition to the use of traditional patrol methods, the availability of advanced surveillance equipment including night vision scopes, infra-red heat sensing scopes and enhanced optical surveillance have proven instrumental in the apprehension of a number of illegal operators. We also have a dog team specially trained to detect hidden or buried nets.

Our patrol teams aim to protect the species most at risk during specific seasons, including salmon, trout, sea trout, bass, pike, coarse fish, oysters and eels. The teams place particular emphasis on monitoring known poaching 'hotspots', and applying enhanced protection efforts at known vulnerable times.

About our field staff

Inland Fisheries Ireland has a field staff of around 200 warrant carrying officers. Given the size of Ireland's aquatic resource, this means that each officer has a huge area of ground to cover. Much of the time they are working in inhospitable locations, in poor weather, and through unsociable hours. They bring a great deal of skill, dedication and know-how to the job, and their hard work is enormously appreciated by all of their colleagues.

We also urge the general public to help our field staff in the valuable work they do to protect our fisheries resource. We have a 24-hour confidential hotline (1890 347424) for reporting pollution or illegal fishing activity events as they are happening.

Our new Delta Rigid Inflatable Boat (RIB) fleet

Following a lengthy design and tendering process our new offshore RIB fleet started to come onstream in 2018. In total we are getting twelve 7.8 metre Delta Fisheries Protection vessels, each equipped with all the latest technology and powered by twin Yamaha 115 horsepower engines. These have enabled us to patrol safely further offshore – up to twelve miles from base. Each boat has been fitted out to an extremely high specification and is licensed by the Marine Survey Office of the Department of Transport. All the necessary staff have been trained in the safe use of these vessels.

The first of these RIBs was delivered to Letterkenny staff on 18 April 2018. In early July its crew seized 1,100 metres of illegal salmon fishing netting at an offshore island.

Patrol activity in 2018

During 2018, our patrol staff dedicated a total **172,559 hours** to patrolling activities, as set out in Table 1.1. The number and breakdown of different types of patrol is shown in Table 1.2.

Table 1.1: Hours spent on anti-poaching patrols

Hours spent on anti-poaching patrols	2018	2017
Lake patrols	31,030	33,370
River patrols	84,273	104,006
Sea patrols	6,507	6,078
Coastal/estuary patrols	36,794	36,670
Bass patrols	13,955	7,302*
Total number of hours	**172,559**	**187,426**

*Covers a 6-month period only as recording of hours specific to bass patrols commenced in July 2017

Table 1.2: Number of patrols by type

Patrol type	2018	2017
Total vehicle and foot patrols	28,640	29,899
Boat patrols	807	873
Kayak patrols	187	190
PWC patrols	16	30
Quad patrols	21	18
Bicycle patrols	758	489
Air Corp patrols	16	2
Total number of patrols	**30,445**	**31,501**

Mayfly season patrol campaign

In 2018, we ran a high-profile protection and enforcement campaign to ensure compliance during the mayfly season on the major limestone lakes – Lough Arrow, Lough Conn, Lough Cullin, Lough Mask, Lough Corrib, Lough Ennell, Lough Owel, Lough Ree, Lough Key and Lough Sheelin.

There was an initial education and awareness campaign during which the regulations pertaining to wild brown trout were widely advertised. And this was followed by enforcement checks where a total of 2,452 anglers were checked for compliance. Six anglers were cautioned for having undersized fish, and one angler was issued with a fixed penalty notice for having a fish that was significantly under size. The high level of compliance demonstrated the effectiveness of the media campaign alerting anglers to adhere to regulations.

Protecting vulnerable salmon

Every year in spring and summer, the salmon return to Ireland and start their arduous journey up river to their spawning sites. The salmon are extremely vulnerable at this stage as a net set from one bank to the other of a river can take all of the fish migrating at that location at that time. For that reason, we allocate very significant staff time and resources to salmon rivers – in surveillance, patrolling and gathering intelligence.

It takes a great deal of effort on our part to capture illegal salmon fishing 'in the act', but these patrols have proven, time and time again, to be a very effective long-term deterrent against illegal fishing.

Bicycle patrols

In certain parts of the country we use bicycle patrols as a safe and environmentally friendly method of patrolling. This is particularly useful along canal tow paths and the river Barrow where bicycles can cover large distances efficiently. Bicycle patrols have also been particularly useful on the river Suir Blueway from Clonmel to Carrick-on-Suir, a very busy stretch of angling water where a number of fixed charge penalty notices (FCPNs) were issued by staff on bicycle patrols in 2018.

Air Corps and Navy support for patrols

During 2018 we also carried out sixteen air patrols with the Air Corps as well as four man weeks on inshore patrols in Navy coastal patrol vessels. For inshore work, the Air Corps Cessna patrols give us rapid cover of long rivers and estuaries, but as they are single-engine aircraft, they do not patrol offshore. We used the twin-engine Casa maritime patrol aircraft for offshore fisheries protection patrols.

National Drone Unit

2018 also saw the launch of Inland Fisheries Ireland's National Drone Unit, and the staff associated with this development received training from the Civil Defence – these will be in active service in 2019.

Dealing with exceptional weather

Weather plays a very significant role in determining the priority we give to different protection activities.

We had exceptional weather in 2018, with some really cold weather into late spring accompanied by heavy snow in the east of the country. This was followed by a summer drought and very high water temperatures, which forced our staff to change their planned activities and to work on ensuring that there was water in our rivers and that fish were not killed by high temperatures and low water. This was a major factor in the summer and prevented our salmon from entering many rivers until August and even later. In the east, low water levels persisted for many weeks after the rest of the country had recovered.

Our fisheries inspections and compliance checks

Our inspection teams carry out spot checks on recreational anglers, salmon and sea trout licence holders and on commercial fishermen. The purpose of these inspections is to ensure that anglers and licence holders are in compliance with all the terms of their permit or licence, including those relating to equipment, bag and size limits, and so on. In 2018, we carried out **37,525** such inspections – see Table 1.3 for details of fisheries inspections.

We also carry out spot checks of fish dealers and restaurants/hotels/guesthouses to ensure that no illegally caught fish are being made available for sale or consumption. In 2018, we carried out 806 checks – see Table 1.5 for details of these.

Arising from our inspections and spot checks, we issue cautions for minor breaches and fixed charge penalty notices for more serious breaches of the Fisheries Acts, regulations or bye-laws – see Table 1.4. For very serious offences, we initiate prosecutions – **see Table 1.7 Prosecutions Page 16.**

Table 1.3: Number of fisheries inspections

Inspections of licence holders and anglers	2018	2017
Inspections of commercial salmon and sea trout licence holders	2,069	1,375
Inspections of recreational anglers for licence and/or permit	15,674	17,448
Inspections of other anglers	17,321	15,506
Number of bass anglers checked for compliance with fisheries legislation and regulations*	2,461	1,301
Total number of fisheries inspections	**37,525**	**35,630**

See **www.fisheriesireland.ie/Press-releases/new-eu-regulations-for-irish-seabass-fishery.html**

Table 1.4: Number of cautions and fixed charge penalty notices issued

Cautions and fixed charge penalty notices	2018	2017
Cautions issued to anglers	588	343
Fixed charge penalty notices issued	165	128

Table 1.5: Number of compliance checks

Compliance checks	2018	2017
Fish dealers checked	433	375
Restaurants/hotels/guesthouses checked	373	300
Total number of compliance checks	**806**	**675**

Illegal items we seized in 2018

In the course of our patrols and inspections, we come across and seize a wide variety of illegal items and items being used for illegal purposes.

In 2018, the items we seized included fishing rods, dinghies, spears and forks, longlines and nets. In total **808** illegal fishing items were seized, included 266 nets with a total length of **11,575m**. We also seized a number of vehicles including a quad as well as boats and outboard engines.

Table 1.6: Illegal items seized

Seized items	2018	2017
Nets seized (total length in 2018 was 11,575m)	266	264
Seized at sea	42	*54*
Seized in freshwater	147	*145*
Seized in estuaries	77	*65*
Fish seized	363	184
Rods seized	151	114
Other items seized	28	85
Total number of items seized	**808**	**647**

Increase in the number of traps seized

In 2018 we saw a very significant increase in the number of traps for fish that were seized. Some of these were capable of taking the protected freshwater crayfish. In the past two years we also encountered a significant spread of the crayfish plague and as a consequence any such traps seized by our staff are destroyed to try to prevent the spread of this disease.

Use of illegal fyke nets

Another area of concern in 2018 was the ongoing use of illegal fyke nets set to catch eels on the bottom of lakes in the Corrib and Shannon systems. Eels are currently on the European red list of endangered species and all commercial fishing for eels is currently illegal – except in the cases where they are taken under special authorisation to transfer them safely past hydroelectric facilities. Nevertheless, we continue to seize nets every year. As these are set on the bottom of lakes and rivers, they also become lost sometimes and continue to 'ghost fish' for years, leading to significant fish mortality as well as killing otters and birds.

Prosecutions we initiated and concluded in 2018

For more serious offences against fisheries and environmental legislation, Inland Fisheries Ireland initiates prosecutions. In 2018, 83 prosecutions cases were initiated for breaches of fisheries and environmental legislation. This marks a decrease on the 2016 figures of 103 prosecution cases.

As it takes some months to process the necessary paperwork and legal processes, the prosecutions we take usually relate to incidents that occurred in the previous year. So, in 2018 we concluded 54 cases for fisheries offences and commenced a further 52 cases.

We also concluded 13 for environmental offences and commenced a further 31 cases.

In cases where our patrol staff are threatened or assaulted, the Director of Public Prosecutions becomes involved. One such prosecution was successfully concluded in 2018.

Table 1.7: Number of prosecutions initiated and concluded

Prosecutions	2018	2017
Prosecutions **initiated** for fisheries offences	**52**	66
Prosecutions **initiated** for environmental offences	**31**	16
Prosecutions **concluded** for fisheries offences	**54**	14
Prosecutions **concluded** for environmental offences	**13**	8

Fisheries offences

Many of the fisheries cases relate to the use of nets in freshwater where a poacher has been caught 'red handed'. Such cases tend to be the best deterrent against future illegal activities, and convicted poachers are usually named in local newspaper reports of the cases.

One conviction of significance relates to an individual who was caught in late June 2017 in possession of 40 fresh illegally caught salmon – this matter came to conclusion in early 2018. In another case we seized 22 illegally caught salmon following a surveillance operation, and prosecution in this case is pending.

Every year we bring a number of cases for the illegal taking of undersized wild oysters. Such activity is very damaging as the presence of *Bonaemia sp*. (a pathogenic parasite) means that wild oysters are struggling to recover to a good breeding population. The proper sustainable management of wild native oysters is essential to grow the recovery of the stock.

Environmental offences

We initiate prosecutions for environmental offences in cases where significant habitat damage, fish kills or pollution have occurred. Often these are against companies, organisations or individuals (including farmers) who have not ensured that a local river is adequately protected against their activities. Fines and costs in some of these cases can be very substantial.

Protecting The Habitats And Environment That Fish Need

Protecting the habitats and environment that fish need is an essential part of our work to protect and conserve fisheries, and it involves the following activities:

- We **inspect water quality** and fisheries habitats
- We i**nvestigate and report** on any fish kills that occur.

Our work in protecting habitats and the environment for fish was particularly difficult in 2018. We had thunderstorms, heat waves and storm force winds to contend with, and the summer was exceptionally dry and warm. Drought, in particular, presents a major threat to the survival of juvenile fish populations.

Inspecting water quality

Water quality is the single most important factor in ensuring that fish have a habitat in which they can thrive. We carry out routine water quality inspections to assess levels of pollution in different habitats. And we also assess water quality at particular sites where we have reason to believe there might be a threat to water quality, arising either from a known event or issue or from some routine human activity.

Table 1.8 summarises the different types of environmental inspections we carried out in 2018.

Table 1.8: Number of water quality and habitat inspections

Type of Inspection	2018	2017
Agricultural inspections	**2,060**	1,511
Industrial inspections	**1,527**	956
Wastewater and Water Treatment Plant inspections	**2,611**	2,379
Civil engineering / infrastructure project inspections	**2,599**	2,999
Forestry inspections	**995**	637
Habitat inspections	**18,862**	18,244
Total inspections	**28,654**	26,726

A total of **28,654** inspections were carried out in 2018, with particularly strong increases in the number of agricultural and industrial inspections.

Investigating and reporting on fish kills

A fish kill is a large and localised die-off of a fish population that can arise from disease or other natural causes, from agricultural practices, from industrial operations, from municipal works or from other causes including changes in water levels and temperatures. In each case, where a fish kill does occur, we need to:

- Establish the cause of the fish kill
- Determine how many fish of what species have been killed
- Report on what can be done to minimise the risk of such an event reoccurring.

For these reasons, as soon as Inland Fisheries Ireland becomes aware of a fish kill, our expert teams visit the affected location to investigate and report on what has happened.

Inland Fisheries Ireland continues to monitor known sources of effluent discharges as well as any reported instance of pollution that are identified by Inland Fisheries Ireland staff in the course of their work or that are reported to us by members of the public. Where appropriate, Inland Fisheries Ireland liaises with Irish Water where there is concern about a possible abstraction or discharge issue, but we act completely independently and undertake prosecutions where fish kills or serious pollution occurs.

Table 1.9 summarises the origin of the 40 fish kills reported in 2018. In one particularly bad fish kill (in the Ollatrim River, Co. Tipperary) over 10,500 lamprey were killed as well as over 4,000 fish of other species,

Table 1.9: Fish kills by origin

Fish kills	2018	2017
Total of reported fish kills	**40**	14
caused by agricultural practice	7	0
caused by industrial operations	2	0
caused by municipal works	8	4
other causes (disease, natural causes)	15	3
cause unconfirmed	8	7
Estimated number of fish casualties*	**21,703**	**2,123**

* These are the numbers of fish recovered; there may be many other fish lost or suffering chronic effects of the fish kills.

Dealing with a summer of drought

Lower water levels, higher water temperatures and lower levels of dissolved oxygen were among the consequences of the drought of summer 2018. And all of these factors presented a serious threat to our fisheries – to the fish themselves and also to their food sources.

Throughout the summer, we worked closely with the Department of Agriculture, Food and the Marine's Water Quality Sub-Committee and provided fisheries environmental data for crisis management purposes. We also worked with other agencies (Irish Water, EPA, OPW, ESB) to monitor water levels and water quality.

Because of the high water temperatures, our practice of fish survey and removal was suspended as it was considered to be too high-risk. In some cases, however, we had to undertake emergency salvage of fish from small rivers and streams that were drying out, particularly in limestone catchments where the water disappears through fissures on the rocks.

We also engaged closely with the angling community and asked them to help minimise the impact of the drought conditions on our fish populations. In particular, we asked them:

- To voluntarily cease salmon angling on catch and release rivers because of the high water temperatures and drought conditions
- To cease angling on open rivers once their daily bag limit was reached
- To suspend the use of keep nets on coarse fisheries for the duration of the drought.

We are grateful for to the angling community for their cooperation during this period.

For the future, Inland Fisheries Ireland is committed to leading by example in mitigating the impact of severe weather events and wider climate change. This will be challenging, but we do need to find innovative ways of coping with evolving environmental risks and to ensure resilience of our remit into the future. The summer of 2018 was certainly a learning experience and we have identified a number of 'lessons learned' that we can apply in preparation for similar or more extreme conditions when they occur.

Assessing and Mitigating the Impacts of Development on the Fisheries Resource

Local authorities and other agencies are obliged under legislation to notify and engage Inland Fisheries Ireland on certain planning matters where an impact on the fisheries resource is possible. In addition, several agencies and authorities (under their statutory powers) require stakeholders to consult with us as part of a planning process, and subsequently to submit proof of compliance with any requirements.

Inland Fisheries Ireland evaluates and assesses any infrastructure developments impacting on surface waters from a fisheries perspective - such developments include, for example, wastewater/water treatment plants projects, water abstractions for potable supply schemes, flood relief schemes, roads projects, housing projects, commercial waterside development projects, forestry schemes, and so on.

Our staff work from design through construction with relevant parties (including public agencies) and with contractors working on site to ensure habitat protection, control of pollution and conservation of the fisheries resource - all with the goals of securing a future for fish and protecting biological diversity.

In 2018, Inland Fisheries Ireland personnel monitored a range of infrastructural works, including flood relief schemes, road developments, bridge maintenance, waste and wastewater treatment plants, forestry development, hydropower and water extraction. The more substantial of these are described below.

Flood relief schemes

During 2018, we worked with the OPW, local authorities and associated contractors to ensure protection and conservation of the fisheries resource on a number of multiannual flood relief schemes and other flood relief/ defence projects including:

- River Dodder Flood Alleviation / Defence Multiannual Scheme
- Athlone Flood Defence Scheme / Main Drainage Project
- Clonakilty Flood Relief Scheme Skibbereen Flood Relief Scheme
- Dunkellin River and Aggard Stream Flood Relief Scheme
  Rivers Abbey, Swilly, Bruskey and Duff Flood Maintenance Programmes
- Flood Defences, Kings Island, Limerick City River Bandon Flood Relief Scheme
- Templemore Flood Relief Scheme
- Rinn Bridge Scheme (see photographs below)

As a member of the *Shannon Flood Coordination Working Group,* Inland Fisheries Ireland liaised on the 2018 work programme for the river Shannon and provided advice and recommendations towards targeted maintenance works.

Rinn Bridge before flood relief works and bridge replacement

Rinn Bridge after flood relief works and bridge replacement

Road developments

Throughout 2018, Inland Fisheries Ireland engaged in consultations and site inspections with contracting authorities and their contractors to ensure the protection and conservation of the fisheries resource during road scheme planning and implementation; this included work on the following schemes:

- Enniscorthy By-Pass Scheme
- N5 road scheme from Ballaghaderreen to Scramoge, Co Roscommon (see case study below)
- M7 Naas / Newbridge Upgrade Project
- N56 at Mountcharles and Kilkenny / Letterilly
- Foynes-Limerick Road Improvement Scheme
- N55 Corduff to South of Killydoon Realignment Scheme
- Castlemartyr Road Scheme

Bridge maintenance, replacement and restoration

Inland Fisheries Ireland liaises with contracting authorities and their consultants on various bridge maintenance, replacement and restoration projects to ensure the protection and conservation of the fisheries resource. In 2018 this work involved attending site meetings, issuing guidelines, agreeing method statements, inspecting sites, and monitoring works. Where necessary, we also carried out electrofishing operations to remove fish from areas to be dewatered prior to works. Bridge projects where we had an input in 2018 included the following:

- North West, Munster and Leinster Bridges Maintenance Programmes
- Limerick City and Co. Council programme for bridge rehabilitation works
- Navigation canal wall works at Killaloe, Co. Clare

Case study: N5 road scheme – planning for fisheries

The N5 Scheme is a 33.4km long stretch of type 1 dual carriageway, with 4 river bridges proposed over the rivers Owenaforeesha, Carricknabraher, Owenur and Scramoge with 14 watercourse culverts including a large culvert on the Strokestown River.

There are 24 drainage outfalls to watercourses with the drainage design including lined, vegetated wetland ponds and 17 watercourse diversions.

Following Inland Fisheries Ireland's initial planning submission, we were involved with more detailed consultations with Roscommon County Council where concerns or requirements that we had raised were addressed to the satisfaction of all parties.

We attended an oral hearing in September 2018 and the scheme was later granted permission to proceed to construction by An Bord Pleanála.

- Donegal bridge maintenance programme including the Tyrconnell Bridge Project
- Tullantanty Bridge over the main river Shannon, Dowra, Co. Cavan
- Lughid Bridge, Co. Clare, Lackamore Bridge, Co. Tipperary, Millbrook Bridge at Dolla, Co. Tipperary, Gourdeen Bridge - Nenagh Co. Tipperary, Barrow Bridge - New Ross
- New forest culvert, on a salmonid tributary stream of the river Brosna in Ardmorney, Co. Westmeath,
- Pedestrian and light rail bridge over the river Suir in Waterford City
- Derrin Bridge, Bruskey River, Co. Cavan and Woodlands Bridge, Arva, Co. Cavan

Water and wastewater infrastructural works

In any case where water or wastewater infrastructural works have the potential to impact on the fisheries resource, Inland Fisheries Ireland engages with contracting authorities and their consultants to ensure the protection and conservation of the fisheries resource.

As a notifiable body, we receive incident reports from Irish Water and the Environmental Protection Agency relating to any breaches of municipal plant licence conditions and other incidents - for example, those arising from the extended dry spell in summer 2018. We reviewed data from all of these cases and followed up with relevant authorities as necessary to ensure protection and conservation of the fisheries resource.

Case study: national bridges maintenance and fisheries protection measures

Inland Fisheries Ireland worked with Transport Infrastructure Ireland (TII) and their engineering and environmental consultants to consider nationwide bridge term maintenance contracts for the period 2018 to 2021. The work under these contracts involves the annual inspection and routine maintenance to 1,721 bridges on national roads.

Consultants undertake ongoing ecological assessments at all bridge sites, and a significant component of this work involves site-specific liaison and consultation with Inland Fisheries Ireland.

Works underway in 2018 on the construction site of the new bridge over the Barrow, downstream of New Ross, County Wexford.

Case study: large potable water supplies and fisheries protection

In January 2018, An Bord Pleanála granted permission to Irish Water for an upgrade to the Vartry Water Treatment facility at Roundwood, Co. Wicklow, subject to conditions, including the following:

- Water abstraction must be limited to 80 million litres per day
- There must be minimum compensation flow of 5 million litres per day to the river Vartry
- Water abstraction downstream of Annagolan Bridge is to be terminated
- Chemical dosing at the existing site is to be decommissioned.

Inland Fisheries Ireland liaised with contractors on this project throughout 2018 to ensure the continuing protection and conservation of the fisheries resource in the Vartry system. Construction on the project is set to continue for two years.

Case studies: wastewater treatment plant upgrades and fisheries protection

Irish Water completed upgrade works at Tinure Wastewater Treatment Plant, Co. Louth during 2018. The work included the construction of a new storm water holding tank and pumping station and the installation of new inlet screening at the wastewater treatment plant. The treated effluent from this plant is discharged to a tributary of the White River (river Dee catchment). Inland Fisheries Ireland raised concerns with Irish Water regarding the quality of the receiving water downstream of the discharge point on a number of occasions. The upgrade works will increase the capacity at the plant and reduce the risk of overflows during heavy rainfall, thereby ensuring protection of the fisheries resource.

We also liaised with relevant authorities and their consultants / contractors at the Athenry wastewater treatment plant upgrade construction site during 2018. The existing plant had been the subject of ongoing concern from a fisheries perspective for a number of years and we had flagged the importance of its upgrade with Irish Water during our inter-agency meetings. The upgrade which is nearing completion will increase the capacity of the plant from the current 6,000 population equivalent (p.e.) to 9,500 p.e. and is expected to improve the water quality status within the Clarin River.

Athenry wastewater treatment plant upgrade construction site during 2018

Water abstraction / hydropower

Inland Fisheries Ireland liaised and consulted on water abstraction and hydropower projects in a number of locations during 2018. Some projects where we had an input with a view to ensuring the sustainable management of the fisheries resource included the following:

- Hydropower development on the King's River, Co. Kilkenny
- SSE Airtricity site at Great Island, Co. Wexford on the Suir/Barrow estuary
- Pollmounty Fish Farm and associated dam and fish-pass, located on the Pollmounty River (tributary of the Barrow), Co. Wexford

Other developments

Other developments on which we had an involvement in 2018 included our involvement in a working group with Coillte, our monitoring of the Center Parcs development in Co. Longford, advice on planned rail infrastructure development, and the development of a biorefinery in Co. Tipperary. Brief case studies of each of these are included here.

Case study: IFI / Coillte Fisheries and Forestry Working Group

As an outcome of standard statutory consultation and liaison with all relevant stakeholders, a working group was set up between Inland Fisheries Ireland and Coillte Teoranta with a view to ensuring the protection and conservation of the fisheries resource in the east of Ireland. Key measures agreed by the group included enhanced engagement and contact between the two organisations at pre-harvesting stage when forest sites have been identified as 'fisheries sensitive'.

Biological Monitoring on the River Ow

In response to concerns we had raised about the impact of tree-felling on river biota in the Ow catchment, Coillte funded a targeted risk-based assessment of the water quality in the river. The assessment followed the EPA Q-index scheme, which assigns a quality rating to water based on macroinvertebrate diversity data. The results indicated an overall improvement in water quality compared to 2017 results. The Ow has been identified as a 'recommended area for action' by the Midlands and Eastern Regional Water and Environment Committee because of its current ecological status ('requiring improvement').

In submissions to the Forest Service in July of 2018, we recommended that the biological monitoring currently in place in the Ow catchment should continue after 2018 to ensure protection of fisheries and freshwater biota. Coillte have confirmed that they are committed to continuing monitoring for the next three years.

Case Study: fisheries and Center Parcs

Inland Fisheries Ireland monitored the large-scale works site at the Center Parcs development in Co. Longford, which is due to open in Summer 2019. A significant resource was provided to ensure that all fisheries environmental interests were monitored during each phase including construction of the lodge and the main building, as well as that of the lake and the road network.

Case Study: rail Infrastructure and fisheries protection

Inland Fisheries Ireland consulted with environmental engineering firms in respect of the proposed Dublin MetroLink project. The 26km rail line will run from Estuary (north of Swords) to Dublin Airport, connecting to Dublin City Centre and through to Sandyford. At an estimated cost of €3 Billion it is hoped that with planning in place construction will commence in 2021 and the line will be open by 2027. We provided Information on the fisheries status of the thirteen waterbodies within the immediate area of impact and also discussed potential impacts and mitigation strategies.

Case Study: legacy extractive industry / renewable fuels and fisheries concerns

A significant planning application relating to the old Lisheen Mine site in Co. Tipperary was reviewed by Inland Fisheries Ireland in November 2018 with a view to assessing the potential impacts of this proposal on the fisheries resource. The plan involves the development of a biorefinery on the site with a discharge to the local stream. IFI submitted a detailed response with particular emphasis on the assimilative capacity of the receiving waters.

Receiving waters for Lisheen mine development

2. Adding to our Knowledge about Ireland's Fisheries Resource

As well as working actively to protect and conserve Ireland's fisheries resource, Inland Fisheries Ireland also seeks to add to our knowledge about our fisheries and their habitats, so that we have a more precise picture of what we are seeking to protect and conserve, and so we know the scale of the challenges we are facing, and can devise programmes and operational strategies to meet those challenges.

Our researchers are driven by a desire for scientific knowledge about fish, as well as by concern for the welfare of our fisheries and the environment and habitats that sustain them. They are acknowledged experts in their areas who between them have published many papers in peer-reviewed journals, and who take considerable pride in the quality of the knowledge that their work makes available to the scientific community.

Our research and monitoring programmes are scientifically rigorous, but they are also focused on the delivery of applied research to support the conservation, protection and development of Ireland's inland fisheries resource, and they also provide us with the well-founded evidence base on which we can base effective policy formation.

Over recent years we have sought to maximise the outputs from our field-based work through increased use of statistical and modelling methods to develop our knowledge in areas of research interest. Additionally, our applied research programmes have invested in the development of skills in areas such as hydro-acoustics, micro-chemistry analysis (laser ablation inductively coupled plasma mass spectrometry, LA-ICPMS), fish tracking telemetry and the use of drones.

For more information:

See **page 46** for a list of peer-reviewed papers published by our staff members in 2018.

See **https://www.fisheriesireland.ie/Research-and-Development/fisheries-research.html** for regular updates on our research publications.

Research highlights for 2018

Our research activity covers a wide area, and in the following pages we present a selection of our successes and achievements in 2018 across the following broad interconnected categories:

- Monitoring programmes to collate data on fish and their habitats
- Focused studies on particular species of fish, including bass, salmon, pike and brown trout
- Research to support national and international reporting requirements
- Other research projects and programmes.

Collating Data On Fish and their Habitats

The monitoring programmes that Inland Fisheries Ireland is involved with include:

- The National Research Survey Programme Lakes and Rivers team (NRSP-L&R)
- The National Eel Monitoring Programme
- The Estuarine Fish Sampling Programme
- The Scientific Eel Fishery
- The Marine Sports Fish Monitoring Programme

Our work in each of these programmes in 2018 is described below.

The National Research Survey Programme: Lakes and Rivers team (NRSP-L&R)

The NRSP-L&R was set up in 2015 to provide expertise in sampling methodologies and field support to a number of research programmes. In 2016 the National Coarse Fish and Pike Programme (NRSP-NCFP) was added to the team's remit.

The main functions of the NRSP-L&R team are to provide expertise in sampling methodologies and field support to a number of research programmes and also to carry out research and monitoring in lakes and rivers covering brown trout, coarse fish and pike, the Water Framework Directive (WFD) (including Arctic char). Method intercalibration and hydroacoustic development also come under the jurisdiction of the team.

In addition, the team undertakes opportunistic sampling in many water bodies to collect genetic and other information samples that might be useful for other programmes - for example, data on eels and sea trout.

River surveys 2018

The NRSP-L&R team surveyed 144 river sites in 13 catchments during 2018. The surveys were carried out for a variety of purposes and to support a number of programmes, including brown trout research, the National Coarse Fish and Pike Research Programme, the Owenriff Project, climate change, and the Water Framework Directive.

Table 2.1: River catchments surveyed by the NRSP team in 2018

		Research programme					
River Basin District (RBD)	**River catchment**	**Number of sites**	**Brown trout**	**NCFP**	**Owenriff Project**	**Climate change**	**WFD**
ERBD/ NBIRBD* *Neagh Bann International River Basin District	Dargle	7	✓			✓	✓
	Dodder	9	✓			✓	
	Vartry	8	✓			✓	✓
	Fane	6	✓				
	Flurry	3	✓				
	Rye Water	3	✓				
SERBD	Suir	10	✓	✓			✓
SWRBD	Bride	27	✓				
	Glashaboy	7	✓				✓
	Licky	7	✓				✓
	Martin	7	✓				✓
WRBD	Owenriff	34	✓		✓	✓	
	Cornamona	16	✓		✓		
Total number of sites		144					

Lake surveys 2018

A total of 18 lakes were surveyed for various research programmes (brown trout research, national coarse fish and pike research, Arctic char research, Owenriff Project, climate change research and Water Framework Directive) during 2018. Data was collected on age structure, diet, growth rate, abundance, biomass, fecundity and distribution for various fish species.

Table 2.2: Lakes surveyed by the NRSP team in 2018

River Basin District (RBD)	Lake	Research programme						
		Brown trout	Pike	Owenriff Project	Climate change	Arctic char	Coarse fish	WFD
ERBD	Corrinshigo						✓	
NWIRBD*	Lough Bawn						✓	
	Lough Drumkeery						✓	
*Neagh Bann International River Basin District	Lough Garadice						✓	
	Lough Rinn						✓	
	Lough Scur						✓	
	White Lough						✓	✓
SHIRBD*	Lough Gur						✓	✓
*Shannon International River Basin District	Lough Owel	✓						✓
SWRBD	Lough Caum	✓						✓
WRBD	Lough Adrehid	✓	✓	✓	✓			
	Lough Arrow	✓						✓
	Lough Ateeaun	✓	✓	✓	✓			
	Lough Corrib	✓	✓					✓
	Lough Cullin	✓	✓					✓
	Doo Lough	✓				✓		✓
	Loughaphreaghaun	✓	✓	✓	✓			
	Lough Shanaghree	✓	✓	✓	✓			

National Eel Monitoring Programme

In 2018 the National Eel Monitoring Programme (EMP) contributed to the national report to the EU on the implementation of Ireland's National Eel Management plan. This report covered the period 2015–2017 and was the third report submitted since the implementation of the EU Eel Regulation in 2009, which was designed to address the critical decline in eel stocks.

For more information:

Full information on the eel monitoring programme and the EU report are available on Inland Fisheries Ireland's website at: **http://www.fisheriesireland.ie/Fisheries-Management/eel-management-plan.html**

Monitoring eels at different life stages

The Eel Monitoring Programme monitors the different life stages of the eel in key eel index catchments around the country. The recruitment of juvenile eels from the ocean into rivers was very disjointed in 2018, with good runs recorded in May. However low water levels in July and August affected the migration run and the operation of the elver traps. It is not known how this affected the total migration numbers for this year, but it is an indication of the negative effect that climate change can have on the migration of young eels from transitional waters to fresh water.

The latest advice from the International Council for Exploration of the Seas (ICES) reports recruitment at 10.1 per cent for the 'elsewhere in Europe' series (up from 9.6 per cent in 2017) and 2.1 per cent for the 'North Sea' series in 2018.

Recording eel data

Mark-recapture studies

The Eel Monitoring Programme assisted the Scientific Eel Fishery's yellow eel programme in 2018. A third year of a mark-recapture study was undertaken in two locations (Waterford Harbour and Lough Muckno). The study in Waterford Harbour was designed to identify movement of eels within an estuarine environment. The study highlighted the movement of eels between the different zones and their site fidelity in returning back to their zone of capture. In Lough Muckno a mark-recapture study was carried out within a small bay of the lake to estimate population and the rate of silvering for yellow eels. The tagged yellow eels in Lough Muckno will be caught in the silver eel fishery on the outflow of the lake over the coming years, so enabling the rates of silvering to be determined.

Use of acoustic tagging

As part of our continuing investigation into the movement of eels in transitional waters, in June 2018 we implanted 20 eels in Waterford Harbour with acoustic tags. The existing array of receivers we deployed in Waterford Harbour was extended for this study, which focused on the confluence of the Barrow and the Suir and sought to capture the movement of eels between these two river systems. This study will complement the information gathered in the two-year mark-recapture study carried out in the area in 2016 and 2017. This mark-recapture study showed how eels caught in fyke nets had moved between locations. Acoustic monitoring will help determine how often these movements take place and how long they last.

Distribution of eels in the Barrow catchment

The Eel Monitoring Programme continued to investigate the distribution of eels in the Barrow catchment, a key index catchment for eels. A fyke net survey of the Barrow was carried out to investigate the distribution of eels within the main channel. This study was initiated following the electrofishing surveys of 2016 and 2017, which found very low levels of eels in the tributaries of the Barrow. The results of the netting survey revealed very low numbers of eels compared to previous surveys in the same areas; however, the low water levels at the time could have influenced the behaviour of the eels and this will be examined in 2019.

Inland Fisheries Ireland staff using boom boat electrofishing equipment to assess fish populations

The impact on eels of the swim bladder parasite

The programme continues to monitor the impact of the swim bladder parasite anguillicola crassus in the eel population in Ireland. A detailed study of the effect of the parasite on the swim bladder of eels was undertaken in Lough Ramor and Lough Muckno in 2017 and again in 2018, when samples were taken in April, May and September. The study aims to investigate the difference in parasite prevalence and swim bladder damage at different times and temperatures.

The effect of low water levels on eel migration

The silver eel season for 2018 was very restricted because low water levels from the summer until late October impacted on the silver eels' ability to migrate downstream. The silver eels generally migrate on dark stormy nights taking advantage of the high discharge that allows them to save energy as they move downstream.

The research we carried out our index silver eel sites since 2011 highlights the risk climate change can have on eel migration and how this in turn can hinder the recovery of the stock.

Investigating the link between eel eDNA presence and eel abundance

In 2018 the Eel Monitoring Programme and the University of West England signed a partnership to investigate the link between eel eDNA presence and eel abundance (from fyke nets) in five lakes around the country.

Estuarine fish sampling

Estuaries are highly productive habitats which provide shelter and food for marine species and are an especially important nursery habitat for juvenile fish until they are available to recruit to adult stocks. Surveying and monitoring the distribution and abundance of marine fish species in estuaries is within Inland Fisheries Ireland's sea angling brief and also addresses a requirement for sampling and reporting fish status in listed transitional waters under the Water Framework Directive. The broadly-based sampling programme is designed to determine fish species presence and distribution in Irish estuaries on a rolling programme basis and included the following activities in 2018:

- Seven transitional water bodies were surveyed in autumn 2018, including the Avoca estuary, Ballysadare estuary, the Boyne estuary, Castlemaine Harbour, the Erne estuary, the Gweebarra estuary and Kinvarra Bay.
- Across all sites, 21,790 fish were captured, counted and identified to species level prior to release. Over the course of the sampling programme, 51 different fish species were encountered.
- Of the sites surveyed, species richness was lowest in the Avoca estuary on the east coast. This estuary was the smallest surveyed in 2018 and it is also considered heavily modified. Castlemaine Harbour, which is located in the South-West and is the largest transitional water body surveyed in 2018, had the highest species richness with 29 species recorded.
- All sites were classified as having 'good' status on the estuarine multi-metric fish index, with the exception of Kinvarra Bay, whose status was 'moderate'. Several estuaries act as important nursery waters for angling species including bass, mullet and some flatfish species.

Scientific Eel Fishery

The Scientific Eel Fishery programme was set up in April 2016 by the Department of Communications, Climate Action and Environment (DCCAE). These scientific fisheries cover the different life stages of the eel (glass eel, elver, yellow eel and silver eel) and are distributed in the key catchments highlighted by the Eel Monitoring Programme. The purpose of the research fisheries is to increase knowledge of eels in Ireland ahead of the next EU review and to inform strategies for the management of eel populations, which are currently in decline.

A pilot glass eel study was undertaken in the Shannon estuary from January to May 2017 to investigate the timing of glass eel arrival. This study was repeated in 2018 and is currently being analysed and a publication is in preparation. An elver study was undertaken in 2017 and 2018 in the river Boyne to identify a suitable monitoring site and to monitor elver and yellow eel upstream migration. In 2018 five lakes (Upper and Lower Lough Corrib, Lough Conn, Lough Ramor and Lough Muckno) and Waterford estuary were surveyed in the third year of the programme. During the silver eel season the programme examined the existing silver eel index sites used in the eel monitoring programme to determine if eels were bypassing the nets or using an alternative route. This information is vital to our understanding of the silver eel migration and the calculation of eel escapement.

Marine Sport Fish Programme

Inland Fisheries Ireland is the statutory body responsible for advising the Minister on policy and national strategies relating to sea angling in Ireland. The Marine Sport Fish Programme embraces studies on species including bass, elasmobranchs and thick-lipped mullet, in addition to regular assessments of fish species status in transitional waters.

The Marine Sport Fish Programme seeks to increase our understanding of these valuable species that populate our coastal waters. Our researchers use a range of sampling methodologies to inform the advice they provide to support conservation and management efforts, including EU bass regulations and Water Framework Directive monitoring. Citizen science plays a strong role in much of this work - for example, since the 1970s Irish charter boat skippers have attached plastic tags to the fins of sharks for a mark–recapture study.

In 2018, IFI Research reported how this tagging has confirmed that porbeagle sharks are true oceanic wanderers. The tagging programme recorded one porbeagle tagged off County Cork that was recaptured 10 years later about 3,300km away off the coast of Newfoundland. This unprecedented finding confirms genetic evidence of the mixing of porbeagle populations across the Atlantic Ocean.

Porbeagle shark tagged as part of the 50 year plus tagging programme

Studies on particular species

Inland Fisheries Ireland's fish monitoring programmes are collated with our research on specific species to help improve our understanding of the status of Ireland's fish populations. The identification and understanding of conservation risks to individual species enables us to provide advice on the appropriate actions that need to be taken to ensure their long-term conservation and to enable sustainable exploitation.

Status of salmon stocks

The annual scientific advice on the status of salmon stocks and associated documentation is produced by the Independent Technical Expert Group on Salmon which reports to the newly formed cross-border scientific committee - the North-South Standing Scientific Committee on Inland Fish (NSSSCIF). To support the provision of scientific advice for the 2018 salmon season, Inland Fisheries Ireland carried out catchment-wide electro-fishing (CWEF) in 26 catchments or sub-catchments to assess the abundance and distribution of salmon fry.

This information so gathered provides an indication of the overall status of the catchment and whether or not it is suitable to open it to catch and release angling. Where it is suitable, the catch and release numbers can then give an estimate of the number of returning salmon. A total of 566 sites were visited in 2018. In the first twelve years of this programme (2007-2018) a total of 455 surveys were undertaken in 148 catchments or sub-catchments, comprising 9,772 individual site surveys.

Based on the CWEF data, ten rivers were determined to be under their conservation limit, but as these had a high average catchment-wide salmon fry index (≥ 17 fish/5 minutes over the years 2007-2018), the recommendation was that they could be opened for angling on a catch and release basis.

Based on the scientific advice Inland Fisheries Ireland management determined that during 2018, of the 143 rivers nationally, 41 would be open for a harvest fishery, 36 would open for catch and release angling and 66 would be closed. Of the 16 spring salmon rivers, 12 were open, and 4 were open for catch and release angling in 2018 stocks.

For more information:

A comprehensive series of reports on Inland Fisheries Ireland's salmon management programme is available on the IFI website at

http://www.fisheriesireland.ie/Fisheries-management/salmon-management.html

The National Salmonid Index Catchment – the river Erriff catchment

The river Erriff is the National Salmonid Index Catchment for salmon and sea trout populations in Ireland. The topography of the Erriff catchment, which combines a riverine and a lake-fed tributary sub-catchment, is representative of typical migratory salmonid habitat in Ireland.

Erriff sea trout

A long-term sea trout monitoring programme has been operating on the Tawnyard Lake sub-catchment of the Erriff since 1985. From March through to June 2018 a total of 1,508 sea trout smolts (juveniles) and 55 sea trout kelts (spawned adults) were recorded in the downstream trap situated near the lake outflow. Returning adult salmon and sea trout were monitored, and during 2018 a total of 2,702 salmon and 2,016 sea trout were counted ascending through the trap/fish counter at Aasleagh Falls.

The National Salmonid Index Catchment programme is critically important in monitoring the Erriff sea trout population currently and into the future and will allow assessment of the impact of environmental factors, including sea lice levels, on the sea trout stock. In 2014 investment was made to enhance the programme's research and monitoring capacities; and as part of this, an array of hydroacoustic receivers was installed in Killary Harbour to monitor sea trout and salmon movement and residency in the marine environment.

This array is central to a five- year programme to investigate the marine phase of salmonids - see **Salmonid West Project overleaf**.

Determining the salmonid survival/return rate

In spring 2016, we began a new project to determine the survival level of sea trout and salmon returning to the Erriff. In 2017 a total of 553 salmon smolts were tagged with passive integrated transponder (PIT) tags, and in 2018 we recorded the return of these salmon after one winter at sea (grilse) at a low rate of just 3.1 per cent. PIT-tagged sea trout returning to the Erriff as finnock (i.e. in the same year as they migrated as smolts) averaged 22.3 per cent in 2016, 4.9 per cent in 2017 and 22.5 per cent in 2018.

Juvenile trout studies

Detailed studies of the spatial distribution, habitat and life history of juvenile sea trout progressed significantly in 2018. Electrofishing and PIT-tagging of juvenile trout, measurement of habitat variables and monitoring of tagged migrant trout has been undertaken and the data are being analysed to develop sea trout production models for the Erriff and these will have applications for management of this fishery and other sea trout fisheries.

Salmonid West Project

The Salmonid West Project uses acoustic telemetry to investigate the migration, distribution, habitat usage and survival of sea trout and salmon smolts in the marine environment at sites on the west coast of Ireland, and it also helps us determine the impact of sea lice on these species. Outputs from this ongoing project will improve the understanding of salmonid ecology in the early marine phase and allow assessment of the impacts of development (wind farms, harbour development, finfish aquaculture and so on) on wild salmonids and so contribute to robust environmental impact assessment and spatial planning. The project focused initially, in 2014, on the river Erriff (the National Salmonid Index Catchment), Killary Harbour and the surrounding coastal waters. In 2016, it expanded to Galway Bay to address knowledge gaps about marine habitat usage by sea trout within the bay.

The changing diet of pike

In August 2018, Inland Fisheries Ireland published *Pike (Esox lucius) in Ireland: Development Knowledge and Tools to Support Policy and Management,* a major report on an intensive research programme conducted over the previous two years. The main findings of the report are that pike in Irish waters may have changed their diet preferences in the last few decades, and that they now predominantly eat roach. Previous dietary research carried out in the 1960s and 1970s in Lough Derravaragh and Lough Sheelin indicated that pike preferred to eat brown trout and perch.

Researchers in Scotland and England have found similar changes in the diet of pike in Loch Lomond (Scotland) and Lake Windermere (England). It is thought the changes in diet are due to the invasion of roach in these waters with pike now preferring to eat roach over brown trout.

Our research also found that pike and brown trout can co-exist within relatively large deep lakes with strong stream connectivity; however, in small, low-complexity systems the introduction of pike could potentially have a devastating impact on resident brown trout populations.

The research also looked at the practice of pike removal and the impact it has on brown trout stocks. The findings suggest that pike removal may only be effective in protecting brown trout populations in systems where trout are the only available prey but will have little effect in systems where other prey, such as roach, is available.

Pike research – recording pike data

Mullet conservation study

There are three species of mullet in Irish waters: thick-lipped, thin-lipped and golden grey, and in 2016 we began a small-scale study designed to capture basic data on the distribution, ecology and movement of mullet species. We acknowledge the considerable assistance we received from anglers in collecting this data, and IFI's estuarine fish sampling activities (see page 29) also contribute to our data on mullet.

Mullet distribution data are now being mapped and angler-supplied mullet scale samples are being analysed to provide an understanding of the population structure and ecology of mullet in Irish waters. Acoustic tagging of mullet commenced in Waterford Harbour in summer 2017 – initial results show variable individual movement patterns within this extensive estuary. All this data is particularly valuable for a species grouping that is non-quota and is not subject to any management within the commercial fishery.

Bass studies

A number of monitoring and assessment studies of bass at various bass life stages were undertaken in 2018.

Juvenile bass nurseries

Annual juvenile bass monitoring was undertaken in seven estuaries, including two new sites. Four estuaries on the south coast have been identified as established juvenile bass nurseries - this is based on the consistent presence of juvenile bass for a minimum of four consecutive survey periods.

Recruitment of 0-group bass was low across all surveyed estuaries in 2018, with the exception of the river Barrow. In contrast, 2017 was a very successful spawning year, but subsequent years may have low recruitment rates.

Pre-adult bass in the Slaney, Munster Blackwater and Barrow

Trawling of sites in the Slaney, Munster Blackwater and Barrow transitional waters targeted pre-adult bass (1-4 years). The 2017-year class (one-year-olds) was abundant in all three water bodies, indicating that last year's recruits survived the 2017-18 winter in good numbers.

Bass scale sampling

Angler-led bass scale sampling continues to prove a valuable asset for adult bass population structure assessment, and 2,476 sets of adult bass scales spanning the 2013-2017 period have been aged. Anglers provided a further 413 sets of scales in 2018, and all of these have now been aged and the details fed back to anglers. Age analysis indicates the strong year class of 2014 has now recruited to the fishery. These bass were recorded as far west as the Shannon and as far east as Wicklow, providing reasonable angling between May and October 2018. Assuming good survival rates, this year class should contribute to the angling fishery for at least a decade. The maximum recorded age of angler-caught bass since 2013 is 22 years.

Bass Floy tagging programme

The bass Floy tagging programme continues along the south, west and east coasts, and 2,076 bass have been tagged to date, of which 1,643 were tagged in the years 2013-2017 and 433 in 2018. The number of recaptured tagged bass was 27 (1.3 per cent), of which the majority were local - 37 per cent within 1 km of tagging and 74 per cent within 40km of the tagging location. One location in Wexford has had seven recaptures of bass tagged in the locality.

Identification of key juvenile bass nursery estuaries

Current monitoring data suggests that few estuaries in Ireland support juvenile bass (0-group) populations. An initial IFI study using laser ablation-inductively coupled plasma mass spectrometry (LA-ICPMS)[1] found that juvenile otolith elemental profiles were estuary-specific. Analysis of 0-group microchemistry from additional estuaries, where bass have been recorded for the first time, is being undertaken to expand the national baseline. In the medium term these studies will form the basis for investigation of the potential for otolith microchemistry to assign adult bass to their estuary of origin.

Research To Support National And International Reporting Requirements

As the statutory agency for inland fisheries in Ireland, Inland Fisheries Ireland has a number of national and international reporting requirements and it carries out appropriate research in order to meet these requirements.

The Habitats Directive and Red Data Book (HD & RDB) fish programme

Inland Fisheries Ireland supports Ireland's obligations to report on the conservation status of natural habitats and species under Article 17 of the EU's Habitats Directive. Article 17 has a six-year reporting cycle and 2018 was the final year of the current cycle of surveys and investigations on which we have reported.

1 Ryan, Diarmuid & Wogerbauer, Ciara & Roche, William. (2016). Establishing nursery estuary otolith geochemical tags for Sea Bass (Dicentrarchus labrax): Is temporal stability estuary dependent? *Estuarine, Coastal and Shelf Science.* 183. 10.1016/j.ecss.2016.10.030.

In parallel with meeting our Article 17 reporting requirements, we also report on two Red Data Book fish species, char and smelt.

For more information:

The annual reports of the Habitats Directive and Red Data Book team's surveys and investigations are available at:

https://www.fisheriesireland.ie/Projects/habitats-directive-and-red-data-book-fish-species.html

Pollan in the Shannon lakes

Pollan is present in the three large lakes on the river Shannon, and in the course of meeting the current 6-year Article 17 reporting cycle, the IFI's Lakes Survey team investigated the status of pollan in these lakes. In addition, surveys of each of the lakes compiled data on the locations of exposed shallow littoral gravelled areas, which are considered to be the typical spawning habitat for pollan.

Locations were geo-referenced, and reports were compiled for each lake. The hydroacoustics sampling undertaken by the IFI Lakes team has been a major success in providing detailed population estimates for pollan in each of the three Shannon lakes, a challenging requirement of the Habitats Directive Article 17. Much of the data collection formed part of doctoral research completed in 2018 by Dr Emma Morrisey-Mc Caffrey, a member of the IFI Lakes team.

Onboard An tSionainn for a hydroacoustic survey

Data-limited stock assessment

Inland Fisheries Ireland conducts national monitoring and assessment for salmon and eels, and we pass on this data as active participants in EU assessments of these trans-boundary stocks. We also assess and report on the state of many other important species/stocks, including brown trout and pike. However, assessment of these species has typically been trends-based, with little objective comment on the ecological status of specific stocks.

A current study at Inland Fisheries Ireland is developing indicator- and model-based approaches to assessment of inland fish stocks. This study will provide quantitative tools for assessing stocks regarded by Inland Fisheries Ireland as being of strategic importance. The study has already produced three scientific papers, and a new collaboration with the United Nations Food and Agriculture Organisation demonstrates international interest in this novel approach.

Water Framework Directive: fish monitoring

In 2007, Inland Fisheries Ireland began a fish monitoring programme to assess the ecological status of Ireland's rivers, lakes and estuaries/lagoons. This work is done to meet Ireland's obligations under the EU's Water Framework Directive, and it is a comprehensive three-year rolling fish monitoring programme covering over 300 water bodies - rivers, lakes and transitional water bodies (estuaries and lagoons). Information collected in each survey is used to assign an ecological status to each water body, ranging from high status to bad status.

Since 2015 our National Research Survey Programme team have had responsibility for monitoring fish in lakes and rivers only (for WFD purposes), but also provide support in the form of staff and expertise to the transitional water survey programme. In 2018 we surveyed 18 lakes and 16 river sites and assigned fish ecological status to these sites. We also assigned fish ecological status to lakes and rivers sites that we had surveyed for other purposes, including our research programmes on brown trout, Arctic char, coarse fish and pike.

Water Framework Directive: hydromorphology

The Water Framework Directive has identified the importance of 'connectivity' in the natural functioning of rivers. Connectivity is one component of river hydromorphology, a composite discipline that deals with the physical habitat factors that underpin ecology – the quantity of water, the condition of the instream and riparian habitat and the connectivity of the channels both laterally and longitudinally. The themes that emerge in hydromorphology studies are consistent with inland Fisheries Ireland's overall aims to conserve species and their habitats, as well as with the aims of the Habitats Directive with regard to the various life stages of migratory fish, species travelling between the sea and fresh water as listed in Annex II of the Directive.

The following significant hydromorphology projects, all with shared strands, were continued or commenced during 2018:

- The Environmental Riverine Enhancement Programme (EREP)
- The AMBER (Adaptive Management of Barriers in European Rivers) project
- The National Barriers Programme
- The INTERREG cross-border Catchment CARE project.

Environmental Riverine Enhancement Programme (EREP) study

The EREP study is a long-term multi-faceted project between Inland Fisheries Ireland and the Office of Public Works Drainage Division. It applies the Water Framework Directive criteria to drained rivers in order to examine the status of the fish community and hydromorphology (physical habitat and connectivity) and to implement appropriate management strategies to retain and improve physical habitat in drained channels.

During 2018 the project examined the fish community, physical habitat and barrier issues in the upper part of the Inny catchment.

The EREP also revisits channels where studies were undertaken previously with a view to building up a database on fish and habitat over longer periods (in excess of 20 years). Repeat surveys were conducted on the Camoge (Maigue) and Attymass (Moy) rivers in 2018.

The levels of tree cover and occurrence of large wood in channels are factors that may help to create improved quality of habitat for fish species, particularly brown trout, and may also mitigate some of the adverse impacts of global warming on watercourses. Data collection on canopy cover has been part of EREP over many years and assessment of levels of large wood was included in 2018, with data collection in both drained and undrained channels of different sizes.

AMBER Project

Inland Fisheries Ireland is one of 20 partners in an EU Horizon 2020 project on Adaptive Management of Barriers in European Rivers (AMBER), which focuses on identifying and mitigating barriers to fish passage in rivers. As part of its work with AMBER, Inland Fisheries Ireland is contributing to the development of a European Barriers Atlas, and completed a detailed survey of the Barrow catchment in 2017. In collaboration with University of Southampton, the Inland Fisheries Ireland team has published a comparative study of two barrier passability protocols on over 50 large structures in Irish rivers (Barry et al., 2018). Other activities that the team has worked on in 2018 include:

- Contributing to an AMBER work package that involves looking at locations where barrier removal or mitigation is planned.
- Completing a detailed fish community survey - covering species, numbers, age and so on.
- Developing an initial population study on eel in an impounded section of river - this has now developed into an exciting ongoing study where eel have been PIT-tagged and annual fyke netting is now providing information on eel residency and growth rate.
- Completion of a telemetry-based study examining dace and trout interactions in the same impounded channel reach.

Surveying a weir on the Barrow

National Barriers Programme

During 2017 the Department of Housing, Planning and Local Government allocated funding to IFI to undertake a series of tasks that collectively make up a National Barriers Programme; these include:

- The development a national GIS-based map layer of barriers in rivers
- The identification of barriers to be prioritised for management in the third Water Framework Directive cycle
- The development of mitigation strategies for connectivity at barriers.

The programme will build on data that has already been generated by RBD colleagues, and from work carried out on AMBER and EREP. During 2018 the programme team began to develop and populate a barrier database from various publicly available sources (including Inland Fisheries Ireland's own sources), and to rationalise the material into a consistent platform so that it can be more easily examined. A programme of training was undertaken by a number of our RBD teams to enable them to become involved in barrier surveys.

The programme team also began to examine use of new technologies to capture and transmit field data on a paperless platform, and this will be brought forward during 2019.

Catchment CARE

Catchment CARE is an EU INTERREG-funded project involving local authorities and agencies on both sides of the border. It commenced operation in 2017, and its focus is on improving the water quality in three cross-border catchments – those of the Finn, the Arney and the Blackwater.

The project has a series of catchment actions designed to examine and improve water quality, as defined by the Water Framework Directive. These include hydromorphology measures and dealing with point source enrichment, diffuse source enrichment, (instream and riparian) and groundwater issues.

The project has a strong scientific component as well as a community engagement one. The Inland Fisheries Ireland team was recruited during 2018 and consists of a hydromorphology specialist and technician and a Catchment Project Officer for the Arney. The team is examining fish community and habitat indicators in the Arney and Blackwater with a view to developing instream and riparian measures to improve the ecological quality of waters in these systems.

For more information:

See http://www.catchmentcare.eu/

Other Research Programmes

LiceTrack Project

Sea lice model for the sustainable development of Atlantic salmon fisheries and aquaculture

Sea lice are a major threat to wild salmon and sea trout, and Inland Fisheries Ireland is part of a community of researchers looking at sea lice, their impact on wild salmonid populations and the potential role of climate change in these interactions.

The LiceTrack project, which was begun in Killary Harbour in 2017 aims to develop a standardised integrative model to account for biological, environmental, oceanographic and anthropogenic drivers of sea lice populations, and to provide data to support both the sustainable development of aquaculture and the conservation of wild salmon and sea trout stocks. The project is funded by the EU through the North Atlantic Salmon Conservation Organization (NASCO), and our partners are National University of Ireland

Galway, the Norwegian Institute for Nature Research, Marine Scotland Science and the Institute of Marine Research, Norway.

In 2018 we made considerable progress on the development of a standardised sea lice model that can be plugged into any hydrodynamic model of local currents to generate sea lice dispersal patterns, and a scientific paper describing this has been submitted for publication.

Sampling in Killary Harbour involved the collection of water samples for the presence of lice DNA. A new lice pump and increased sampling time was successful in detecting both *L. salmonis* and *C. elongatus* at locations in Killary in late 2018. The Aasleagh upstream trap was monitored between May and October 2018 and 104 sea trout were examined for sea lice, length, weight, condition and marine growth.

SMOLTRACK

The SMOLTRACK project aims to help determine the survival rates of young salmon as they move from rivers into the marine environment. Work commenced in 2017 and early results show that survival during movement from rivers to the sea is lower than expected. While it was already accepted that salmon are impacted by a number of factors when they migrate at sea including the effects of climate change, limited feeding opportunities and sea lice induced by fish farms, the low survival rate in river systems presenting in this research is a new development.

The low survival of smolts in some river systems could be attributed to changes in temperature and flow while predators have also been shown to impact on the numbers entering the sea. The survival of smolts varies by catchment and in a 'bad year', survival of smolts can be three times lower than in a 'good year'.

Tagging salmon smolts

Scientists from each participating country tag salmon smolts with miniaturised acoustic and radio transmitter tags in rivers in their own country, and track their migration journey through the lower parts of rivers, estuaries and coastal areas. This study includes populations in Southern Europe that are most vulnerable to climate change. In Ireland, this work is being carried out in the river Erriff, Inland Fisheries Ireland's National Salmonid Index Catchment (NSIC).

In addition to the activity in Ireland, tagging is being carried out on the river Bush in Northern Ireland, the Tamar in England, the Ulla and Minho in Spain, the Göta and Högvadsån in Sweden, and the Skjern and Storaa in Denmark. The information collected will help scientists to understand the survival rates of salmon smolts during their migrations under varying conditions, ranging from cooler climates in Sweden to the warmer climate of Spain. Already SMOLTRACK is providing new data on the initial migration of salmon smolts, which will inform future management and conservation measures for this iconic species. The results of our research will be published in peer reviewed international scientific journals on completion.

Additionally, the project provides an opportunity for sharing salmonid telemetry knowledge and good practice across the EU, and one of our goals is to establish an EU strategic salmon telemetry advisory group.

A salmon smolt ready for tagging

CHASES

Consequences of land-use change and human activity on anadromous salmonids and the ecosystem services that they provide

Inland Fisheries Ireland is collaborating with researchers from the Norwegian University of Science and Technology (and other international partners) as part of the externally funded CHASES project. The overall aim of the project is to examine the consequences of land-use change and human activity on movement, growth and populations of sea trout.

Our work involves comparing the growth and marine residency period of sea trout in areas that have finfish aquaculture with those in control areas (in selected bays in Ireland and Norway) - this comparison is based on the detection of subtle changes in the elemental composition of trout scales. We are undertaking a joint analysis of historical and current sea trout scale samples from systems in both Ireland and Norway, combined with an investigation of the potential of laser ablation - inductively coupled plasma - mass spectrometry (LA-ICPMS) to analyse the elemental chemistry of their scales. Complex life histories (arising from natural population variation, and environmental or anthropogenic effects) are a feature of many sea trout populations and this makes it difficult to interpret scales.

LA-ICPMS-based scale analysis is designed to discriminate between the freshwater and marine phases of individual fish, and this supports life history interpretation and, potentially, a quantitative assessment of marine growth. In 2017 and 2018 scale samples from several sea trout systems in Norway and Ireland were analysed and arising from this work an LA-ICPMS-based methodology to estimate marine growth has been established (Ryan et al., 2019).

Knowledge development for fish conservation

Inland Fisheries Ireland supported a two-year post-doctoral study (2016-18) carried out at UCD and under the Irish Research Council Enterprise Partnership Scheme by a former staff member, Fiona Bracken. Dr Bracken's study examined two strategies for knowledge development with regard to fish conservation: the use of environmental DNA (eDNA) and the use of citizen science strategies.

The eDNA study focused on tracking the migration and spawning of adult sea lamprey in the Mulkear and Munster Blackwater rivers. It did so by taking water samples from the rivers and testing them for genetic evidence of the presence of the target species. The results were published during 2018 in a peer-review scientific journal.

IFI Research Publications 2018

Atkinson, S., Bruen, M., Turner, J.N., Ball, B., Bullock, C., O' Sullivan, J.J., Casserly, C., King, J.J., Cullagh, A,. Kelly-Quinn, M. (2018) The value of a desk study for building a national river obstacle inventory. *River Res Applic*. 2018, 1–10. **https://doi.org/10.1002/rra.3338**

Barry, J., Coghlan, B., Cullagh, A., Kerr, J.R., King, J.J. (2018) Comparison of coarse-resolution rapid methods for assessing fish passage at riverine barriers: ICE and SNIFFER protocols. *River Res Applic*. 2018, 1–11. **https://doi.org/10.1002/rra.3358**

Bracken, F.S.A., Rooney, S.M., Kelly-Quinn M., King, J.J., and Carlsson, J. 2018. Identifying spawning sites and other critical habitat in lotic systems using eDNA 'snapshots': A case study using the sea lamprey *Petromyzon marinus* L. *Ecology and Evolution.* 1–15. DOI: **https://doi.org/10.1002/ece3.4777**

Cameron, L.W.J., Roche, W., Green, P., Houghton, J.D.R., Mensink, P.J. (2018) Transatlantic movement in porbeagle sharks, *Lamna nasus*. *Fisheries Research*, Volume 207, November 2018, 25-27

Coelho R, Mejuto J, Domingo A, et al. (2018) Distribution patterns and population structure of the blue shark (*Prionace glauca*) in the Atlantic and Indian Oceans. *Fish Fish*. 2018;19:90–106. **https://doi.org/10.1111/faf.12238**

Connor, L., Shephard, S., Rocks, K., and Kelly, F.L. 2019. Potential climate change impacts on Arctic char (*Salvelinus alpinus* L.) in Ireland. *Fisheries Management and Ecology.*

Fitzgerald, C.J., Delanty K., and Shephard, S. 2018. Inland fish stock assessment: applying data-poor methods from marine systems. *Fisheries Management and Ecology* 25: 240-252.

Hyder, K,, Weltersbach, M.S., Armstrong, M., et al. Recreational sea fishing in Europe in a global context—Participation rates, fishing effort, expenditure, and implications for monitoring and assessment. *Fish Fish*. (2018); 19:225–243. **https://doi.org/10.1111/faf.12251**

King, J.J. and O'Gorman, N. (2018) Initial observations on juvenile sea lamprey (*Petromyzon marinus*) in Irish lakes. *Biology and Environment : Proc. R. Ir. Acad.* 118, 113-120.

Matson, R., Delanty, K., Shephard, S., Coghlan, B., and Kelly, F. 2018. Moving from multiple pass depletion to single pass timed electrofishing for fish community assessment in wadeable streams. *Fisheries Research* 198: 99-108.

McLoone, P., Shephard, S., Delanty, K., Rocks, K., Feeney, R., and Kelly, F. L. 2018. Coexistence of pike *Esox lucius* and brown trout *Salmo trutta* in Irish lakes*. Journal of Fish Biology* 93.

Morrissey-McCaffrey, E., Rocks, K., Kelly, F.L., Kelly-Quinn, M. 2018. Effects of differing ground-truth data, transect design and statistical analysis on the repeatability of hydroacoustic assessments of pollan *Coregonus autumnalis pollan* **https://doi.org/10.1111/fme.12295**

Morrissey-McCaffrey, M., Shephard, S., Kelly, F.L., and Kelly-Quinn, M. 2018. Non-native species and lake warming negatively affect Arctic char *Salvelinus alpinus* abundance; deep thermal refugia facilitate co-existence. *Journal of Fish Biology*.

O'Briain, R., Shephard, S., and Coghlan, B. 2018. A River Vegetation Quality Metric in the eco-hydromorphology philosophy. *River Research and Applications* 34: 207-217.

O'Briain, R., Coghlan, B., Shephard, S., and Kelly, F.L. 2019. River modification reduces climate resilience of brown trout (*Salmo trutta*) populations in Ireland. *Fisheries Management and Ecology*.

Ryan, D., Shephard. S., and Roche, W. 2019. Estimating sea trout (*Salmo trutta L*.) growth using scale chemistry profiles: An objective approach using LA-ICPMS. *Fisheries Research* 211.

Shephard, S., Davidson, I.C., Walker, A.M., and Gargan, P.G. 2018. Length-based indicators and reference points for assessing data-poor stocks of diadromous trout *Salmo trutta*. *Fisheries Research* 199: 36-43.

Shephard, S., Delanty, K., O'Grady, M., and Kelly, F. L. 2019. Salmonid conservation in an invaded lake: changing outcomes of predator removal with introduction of non-native prey. *Transactions of the American Fisheries Society.*

Shephard. S., Gallagher, T., Rooney, S., O'Gorman, N., Coghlan, B., and King, J. 2019. Length-based assessment of larval lamprey population structure at differing spatial scales. In press. *Aquatic Conservation: Marine and Freshwater Ecosystems.*

Weekes, L., FitzPatrick, Ú., Kelly, F., Matson, R., & Kelly-Quinn, M. (2018, January). A review of the Irish River Vegetation Database: informing future river macrophyte surveying. In *Biology and Environment: Proceedings of the Royal Irish Academy* (Vol. 118, No. 2, pp. 81-112).

Weekes, L., Kącki, Z., FitzPatrick, Ú., Kelly, F., Matson, R., & Kelly-Quinn, M. (2018). An Irish national vegetation classification system for aquatic river macrophytes. *Applied Vegetation Science*, 21(2), 322-340.

3. Developing Our Angling Resource

The *National Strategy for Angling Development (NSAD)* is the comprehensive framework which guides all of Inland Fisheries Ireland's work in developing Ireland's fisheries and angling resource.

It was launched in November 2015 after significant research and consultation highlighted Ireland's unique status as an outstanding angling destination and the potential to leverage from it economically, if the right investment and sustainable development is put in place.

Angling development and angling participation had reduced to a level where investment and development were urgently needed to ensure that the existing socioeconomic contribution of angling (€836 million per year and over 11,000 jobs) was not compromised and to achieve greater economic benefits and to support job creation.

The *National Strategy for Angling Development* aims to ensure that Ireland's fish stocks, habitat and angling infrastructure are protected and enhanced in an environmentally sustainable manner, both for their economic value and for the recreational benefit they offer to communities and visitors across Ireland.

Strategic objectives and action measures

Within an overarching conservation ethos and focus, the *National Strategy for Angling Development* sets out three strategic objectives for angling:

- To make angling accessible and attractive through information, infrastructure and support.
- To develop tourism through the promotion of our angling resource.
- To recognise angling as a key leisure and recreation pursuit.

Action measures

The *National Strategy for Angling Development* sets out seven action measures to address its strategic objectives:

1. **Identify funding for the NSAD and future fisheries development and management.**
2. **Encourage stakeholder engagement and involvement in fisheries development and management.**
3. **Ensure sustainable development of the natural angling resource.**
4. **Ensure protection and conservation of the fisheries resource.**
5. **Set standards for fisheries and related services.**
6. **Market and promote angling domestically and abroad.**
7. **Achieve access to angling for all.**

These seven action measures provide Inland Fisheries Ireland with the policy context and framework for all of our business development work. Our work under each of the action measures is summarised below.

National Strategy for Angling Development:

the story so far

Funding

Nationwide **€2.9m** invested in **174** fisheries development and management projects, a total of **45%** of the projects have been completed.

Access

Angling access upgraded in **78** locations with an additional **22** locations due for works completion in 2019.

Promotion

Over 20 Information and Education initiatives supported, introducing approximately **1,000** people to angling and informing visiting anglers. These initiatives provided equipment to the value of **€60,000** to angling events, signage, marketing and promotion.

Engagement

Over **5,000** hours of engagement and communication from Inland Fisheries Irelands local staff and projects office to provide mutual support, information, assistance and advice.

Protection & Conservation

Riparian enhancement, conservation and regeneration work completed on over **3km** of river channel, anti-poaching equipment purchased and installed.

Sustainable Development

Encouraging positive social inclusion in communities, by funding **10** organised angling events. Supporting local businesses, services and contractors with total expenditure in excess of **€1,000,000**. Fostering an ethos of environmental responsibility through our Environmental Assessment Process (EAP).

About Inland Fisheries Ireland's Business Development team

Inland Fisheries Ireland's Business Development team delivers the organisation's development and promotional remit in relation to the inland fisheries and sea angling resource.

Team members have a wide range of skills and work across many areas including, marketing, communications, education and outreach, provision of angling information, fisheries development, publications and socioeconomic research.

The NSAD Projects Office is part of the Business Development team. Its people provide support to community groups and clubs applying for funding to improve the angling resource in different local areas. Where these applications are successful, the Business Development team helps them to get off the ground.

Members of the Business Development team are located in Inland Fisheries Ireland's offices across the country at Ballina, Clonmel, Dublin, Galway and Limerick.

Identifying Funding for Angling Development

Since its inception, the *National Strategy for Angling Development* has harnessed the passion of a wide range of stakeholders and has awarded over €2.9 million for fisheries development, protection and conservation projects. These projects have benefited from local participation and engagement and are benefiting communities by:

- Improving access to unique natural resources throughout the country.
- Enhancing the valuable habitat and waterscape to ensure the sustainability of fisheries and angling for future generations.
- Providing positive opportunities for improved multi-activity recreation in the Irish outdoors,
- Increasing the promotion and marketing of angling to visitors and tourists.
- Safeguarding fish habitat through ensuring appropriate governance processes.

NSAD Funding Scheme 2018

NSAD funding schemes are designed to run across multiple years, and as part of our Performance Delivery Agreement (PDA) 2017–2019 with the Department of Communications, Climate Action and Environment, we forecast how our spending under each of the annual NSAD funding schemes was to be disbursed in the years to which it applies. Table 3.1 shows our initial forecasts for the three funding schemes for 2016, 2017 and 2018.

Table 3.1: PDA forecasts of expenditure for each NSAD funding scheme (percentages for each year)

Funding Scheme year	Percentage of expenditure forecast for each year			
	2017	2018	2019	2020
2016	50%	25%	25%	–
2017	–	60%	40%	–
2018	–	20%	60%	20%

The Project Management Office also tracks actual expenditure against the targets set in the PDA; details of this up to 31 December 2018 are presented in table 3.2.

Table 3.2: Actual expenditure and project delivery against PDA targets, as at 31 December 2018

Funding Scheme year	20 PDA target at year end, 2018 (Cumulative)	Actual % paid / being paid	Projects in delivery	Net decommitted or awaiting governance documentation	Total forecasted spend if not redistributed by end 2019
2016 (€500k)	75%	50%	12%	27% / 11%	65%
2017 (€2.2m)	60%	15%	45%	3%/ 37%	70%
2018 (€256k)	20%	0%	73%	0%/ 27%	50%

As table 3.2 shows, at the end of 2018 the 2016 NSAD Funding Scheme was 62 per cent completed or in delivery, the 2017 scheme was at 60 per cent completed or in delivery and the 2018 scheme was at 73 per cent completed or in delivery – against their PDA targets.

The NSAD expenditure forecasts were ambitious, given the number of unknowns relating to the projects.

The staggering of expenditure over three years reflects the practice of making full disbursement for individual projects conditional upon satisfactory achievement of defined milestones. It also reflects the fact that the window of opportunity for many of the works may be restricted because of water levels, weather conditions or other variables, so leading works to be extended into the following years.

Two new schemes

In August 2018, two schemes under the NSAD were opened to the public, the Salmon Conservation Fund (SCF) and the Midlands Fisheries Fund (MFF). The purpose of these schemes was to seek applications for well-considered and developed projects primarily for fisheries conservation and enhancement and which had the potential of commencing in 2018 or early 2019.

Eleven applicants applied to the schemes and nine applications were successful. Funding of €256,853 approved for these projects in September 2018. The successful applications fall into the following categories:

- Three angling / river bank enhancement projects
- Two design projects to support future development works
- Four survey projects

For more information on the successful applicants, see: **https://www.fisheriesireland.ie/Angling-Information/funding-for-fisheries-projects.html**

Sponsorship Scheme 2018

Inland Fisheries Ireland's Sponsorship Scheme sponsors projects and events that support novice and junior anglers and help grow angling tourism. The scheme is also a funding mechanism of the *National Strategy for Angling Development.*

In 2018, the Sponsorship Scheme awarded €30,000 to 52 events.

However, because of the cancellations of angling events arising from the exceptionally hot summer weather, not all of the fund was disbursed. Awards were made to the following events:

- €9,500 was allocated to novice coaching events where 631 novice anglers participated and developed angling skills.
- €12,600 supported sponsored festivals and competitions which saw 1,866 participants in 2018 (up from 1,558 participants in festivals in 2017). Their average length of stay was 3.75 days, giving a total of 7,000 angler days supported in total.
- A total of 800 anglers from overseas participated in events we supported, (representing a substantial increase from approximately 750 in 2017).

A young angler at a junior angling event organised by Newport Sea Angling Club, supported by Inland Fisheries Ireland's Sponsorship Scheme. Dormant Accounts Fund

Dormant Accounts Fund

In 2018, Inland Fisheries Ireland was successful in securing €393,250 from the Dormant Accounts Fund. This is a fund set up to enable unclaimed deposits in credit institutions to be put to good use, particularly in the areas of social and educational development. This is a very good fit with our objective to support wider access to angling, as set out in the *National Strategy for Angling Development* (action measure 7).

Inland Fisheries Ireland secured this funding because we had a clear strategy in place for how we could use the money, which was also in line with the objectives of the Department of Rural and Community Development, which manages disbursements under the scheme. This money will be used to support two access to angling initiatives that will take place in 2019 – these are the development of a Novice Angling Strategy and a Novice Angling Initiative. See Reaching out to novice anglers on **page 72**.

Encouraging Stakeholder Engagement In Fisheries Development

The inland fisheries and sea angling sector have a wide and diverse range of stakeholders each with different perspectives and expectations. It is important to ensure that there are good communications with, and between stakeholders and that stakeholders are actively engaged and encouraged to participate in fisheries and angling development.

Inland Fisheries Ireland makes support from its Project Office freely available to successful applicants to the various funding schemes as well as to the wider angling community. In 2018 this support came in many different forms, each of which is described briefly below:

- Meetings with stakeholders around the country
- Various types of project assistance and guidance
- Seeking the views of the angling community through monthly surveys
- Sponsoring research into angler preferences.

Project support meetings

The Projects Office worked with local Inland Fisheries Ireland staff to facilitate over 300 project support meetings nationwide during 2018. These meetings took place in various locations across the country with community groups and angling clubs and associations, to ensure specific information regarding the projects were fully understood and that projects progressed as appropriate.

Project assistance and guidance

The Projects Office provided 2,000 hours of assistance and guidance during the year in face to face contacts, over the telephone and via email to those applying for and delivering NSAD projects on the ground, including both angling and habitat-related projects. Regional staff provided a further 7,754 hours of stakeholder engagement.

These engagement efforts facilitated the progress of over 86 projects through the procurement and governance process. Over 50 projects were brought to successful completion and qualified for an award of funding. The engagement has empowered communities and clubs and has fostered a positive experience that will support future partnerships on local angling development.

The engagement has also helped establish positive communications between Inland Fisheries Ireland and various local and national stakeholders.

Angling surveys

In order to understand the opinions of our stakeholders across the country and inform improvements going forward, Inland Fisheries Ireland carries out surveys to engage anglers and to find out their views on different issues.

As part of this outreach, a monthly survey of Irish anglers was carried out throughout 2018 with a view to capturing angling effort and expenditure patterns. Over 1,000 anglers were surveyed from a voluntary panel of Irish anglers. The Economic and Social Research Institute (ESRI) was funded to undertake this work on behalf of Inland Fisheries Ireland.

Following the successful survey of anglers over a three-year period, we are now reviewing the panel and may consider widening its membership in the coming years.

Socioeconomic research

Socio-economic research is carried out to examine angler preferences on a number of issues. We embarked on this new era of fisheries research in 2015 with a programme of socioeconomic research focusing on recreational fisheries in Ireland.

During 2018, five research papers were completed and/or published in economic research journals, all examining angler preferences in relation to a number of issues. The completed journal articles were as follows:

- Curtis, J., 2018. Pike *(Esox lucius)* stock management in designated brown trout (Salmo trutta) fisheries: anglers' preferences. *Fisheries Research* 207, 37–48.
- Grilli G., Landgraf, G.,Curtis, J., Hynes, S., 2018. A travel cost evaluation of the benefits of two destination salmon rivers in Ireland. *Journal of Outdoor Recreation and Tourism* 23, 1–7.
- Grilli G., Curtis, J., Hynes, S., 2018. Using angling logbook data to inform fishery management decisions. *ESRI Working Paper* 600.
- Grilli G., Curtis J., Hynes S., O'Reilly, P., 2018. Anglers' views on conservation of sea bass. *ESRI Research Bulletin.*
- Grilli G., Curtis K., Hynes S., O'Reilly, P., 2019. Anglers' views on stock conservation: sea bass angling in Ireland. *Marine Policy,* 99, 35-41.

Ensuring the Sustainable Development of Angling Resources

Sustainable development of our fisheries resource is the key pillar of the *National Strategy for Angling Development,* which seeks to ensure that economic development and resource conservation work hand in hand to deliver outcomes that benefit the whole community. Our response to the sustainable development action measure of the National Strategy covers the following three areas:

- Providing appropriate environmental governance and oversight on all the projects we support and the licences we issue
- Carrying out sustainable infrastructural developments to enhance the angling resource
- Carrying out instream and bankside works to conserve and protect fisheries habitats.

Database of programmes and projects

To support all of this development work, we have compiled a database of all Inland Fisheries Ireland internal programme and projects, as well as third-party projects that relate to the fisheries resource. This database covers 315 individual projects across 24 different programmes. These include the full range of our projects – the Stock Management Programme, the State Fisheries Management Programme, the Invasive Weed Control Programme, the renewal of our angling estate (stands and structures), and all the projects that come under the *National Strategy for Angling Development.*

Providing environmental governance and oversight

Inland Fisheries Ireland has obligations under national and EU legislation to ensure that the projects it oversees and the licences it grants have due regard for the environment and environmental legislation. Our principle way of doing this is through an Environmental Assessment Process (EAP), which forms a key part of the planning and execution of projects. While Inland Fisheries Ireland has an enforcement role in relation to the environment. from the outset our strong preference is to build risk reduction into the planning and implementation of projects.

Under the EAP, all projects (funded or not) are independently assessed for their environmental impact – to determine whether or not the proposed activity is likely to have an impact on the environment, or on a protected site, habitat, nature reserve or recorded monument. This is a service we provide free of charge to applicants through our non-pay budget.

Fisheries Consultants Panel

The independent specialists who carry out these assessments are drawn from our Fisheries Consultants Panel, which we set up under a multi-supplier agreement.

Panel members include environmental experts, environmental engineering specialists and construction contractors with instream and fisheries experience.

Infrastructural developments

One of the major infrastructural developments that we carried out in 2018 as part of our effort to ensure sustainable development of angling resources was the construction and refurbishment of angling stands and structures, both those in our own estate and those for which we provided support.

Case Study: Bunowen Weir Rock Ramp

This project on the Bunowen River, supported by the NSAD and the Salmon Conservation Fund, was completed in September, with the construction of a rock ramp to alleviate a major barrier on this important salmonid river.

This project took nearly four years to complete and demonstrated much of the complexity that is typical of fisheries development projects. It involved consultations with landowners, design and option analysis, contracting of a consultant engineer, as well as the completion of architectural, archaeological, hydrographical, environmental and geomorphological surveys.

The process went through planning and the preferred option of a rock ramp was approved. The vertical height of the barrier was decreased from 2m to less than 30cm. The project also involved riprapping of existing banks, laying an access roadway for 400m (and removing this on completion of the project), construction of and decommissioning of a bypass channel, fencing and reseeding of lands.

View of Bunowen Weir Rock Ramp

Inland Fisheries Ireland angling estate – stands and structures

Inland Fisheries Ireland has a stock of almost 5,000 angling stands and structures. These provide access to fisheries, and it is essential that these structures are safe and fit for purpose. The structures are the subject of an ongoing audit and a continuous maintenance programme. In all, we dedicated 10,000 man-hours to this programme in 2018:

- We repaired 442 structures
- We removed 352 structures (185 of which were replaced)
- We added 130 new stands.

Typical structure requiring repair, Cavetown Lake, Co. Roscommon

A new footbridge installed at Lough Gowna, Co. Cavan.

Angling infrastructure development – third parties

In 2016 and 2017, Inland Fisheries Ireland funded third-party infrastructure projects to provide safe access to angling for people of all abilities. Many of these were completed during 2018. The flagship project for accessible angling infrastructure is at Foxford, Co. Mayo, as set out in the panel overleaf.

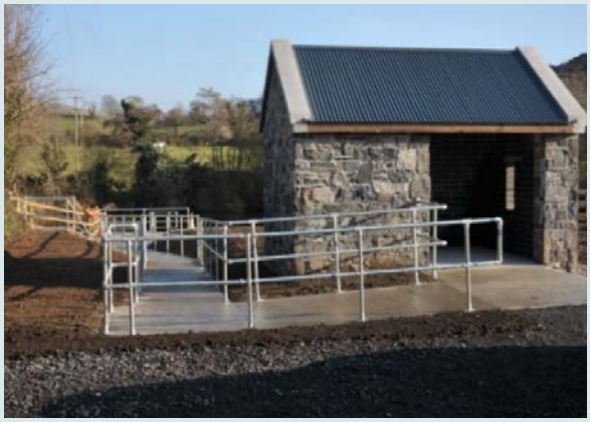
Accessible Angling at Foxford, Co. Mayo

The river Moy has long been famous as Ireland's premier salmon river. The river also offers a wide variety of quality angling to suit all tastes and budgets. The main Moy channel and some of its larger tributaries provide excellent spring salmon and grilse fishing with both fly and bait alongside abundant sea trout. The average annual salmon rod catch on the river Moy over the last ten years is 7,362 fish.

The river has many access points along pathways and remote fields but has limited accessibility to the less abled and junior anglers. It is important that this world class angling resource is available to all who wish to experience it. East Mayo Angling Association were awarded €160,829 in NSAD funding in December 2017 to construct a 75-metre boardwalk along the banks of the Moy at Foxford with access ramps and railings to give the less-abled including wheelchair users access to the river.

The project included a stone-built anglers' hut designed to give shelter from the elements, so that anglers could use the facility in unpredictable weather conditions. There were also upgrades to the existing car park to ensure good access to the facility.



Pictured are before (left) and after (right) photographs of improved accessible angling and Infrastructure at Foxford, Co. Mayo. Fisheries habitats development

Fisheries habitats development

The main objective of our fish habitats development work is to protect and enhance the environment and habitats that are necessary to support, protect and enhance fish populations. Our work in this area in 2018 was focused on instream work and bankside protection. In the course of the year, we delivered over 13 kilometres of instream works and almost 16 kilometres of lakeshore and bankside works, and we also assessed 441 river sites for development. A selection of some of the habitat development works carried out in 2018 are described below.

Bank protection works on the river Slaney

This project on the Slaney at Strahart, Co. Wexford included extensive bank protection works, the repair of a 200m stretch of bank on the main river channel, the construction of rock armour, and soft engineering works of willow weaving and biodegradable matting to secure the bank.

Before (above) and after (below) photographs of works carried on the river Slaney at Strahart. The photo on the right shows the rock armour and soft engineering in place.

In-stream conservation and enhancement at Altnabrocky River, Owenmore catchment

This project was designed primarily to restore and protect important spawning beds and river banks in the Altnabrocky River, one of the most important spawning areas in the Owenmore Catchment in Co. Mayo. The river is currently open for 'catch and release' angling as salmon stocks are below their conservation limit.

Extraordinary flooding events in the past three years have accelerated erosion along sections of the Altnabrocky riverbanks causing large sections of peat to collapse into the river. As a result, spawning areas needed to be improved in order to achieve maximum returns from spawning within the catchment. The project was located in a sensitive catchment and required the necessary permissions and consultation.

The contractor used local rock revetments to protect the eroding river bank and distributed excess gravel that had built up to further improve the important spawning areas. The high riverbanks were graded back to reduce the energy and impact of high flooding events. The distance involved in the enhancement was approximately 160m in total.

Before (above) and after (below) photographs of works carried on the Altnabrocky River, Owenmore Catchment, Co. Mayo.

Protecting and Conserving the Fisheries Resource

Inland Fisheries Ireland is committed to working with all stakeholders on a range of measures to ensure that we protect and conserve our fishing resource. This includes using modern technology to improve efficiency and effectiveness of how we respond to threats to the fisheries, a focus on the protection of species and their habitats and a constant review of policies for all key angling species. The Business Development Division has specific responsibility for:

- 24-hour Confidential Hotline
- Managing conservation of salmon and sea trout
- Dealing with invasive species (via regional staff and communications)
- Stock Management Programme (via regional staff)

We are responsible for ensuring the protection and conservation of Ireland's fisheries resource, the fish and their habitats in both inland waterways and out to a twelve-mile limit off the coast from baselines. More information on our protection work is detailed in chapter 1.

Inland Fisheries Ireland 24-hour Hotline

Inland Fisheries Ireland operates a 24-hour Hotline to enable members of the public to report any incidents of illegal fishing, water pollution, invasive species and other threats to the fisheries environment that they become aware of.

In 2018, the Hotline received 242 calls from people who were concerned about the fisheries resource, a decrease of 33 per cent from 2017. The most common topics of calls to the Hotline were in respect of illegal fishing and pollution complaints from the Eastern River Basin District (64 calls), South Western River Basin District (41) calls and Shannon River Basin District (38) with low volume of calls from the Western River Basin District (17), North Western River Basin District (22) and South Eastern River Basin District (24).

Environmental issues dominated the reports, where the number of calls equalled that of 2017. Illegal fishing and other fisheries protection reports fell by 36.4% and general queries fell by 67% in the same period.

Inland Fisheries Ireland thanks all our callers for passing on valuable information that can help to protect and conserve our fisheries resources.

Salmon and sea trout management

Inland Fisheries Ireland recommended the opening of 78 rivers to angling of wild salmon and sea trout for 2019. Of these 42 were fully open with a harvest option and 36 were open on a 'catch and release' basis. This recommendation was approved by Minister of State Sean Canney TD, at the Department of Communications, Climate Action and Environment (DCCAE). The recommendation to open these rivers was taken following both:

- Consideration of advice from the Technical Expert Group on Salmon (TEGOS); and
- A 30-day public consultation process, in which over 130 submissions were taken into account in relation to the 2018 Wild Salmon and Sea Trout Tagging Scheme Regulations.

Change in conservation limits

Inland Fisheries Ireland manages salmon and trout rivers on an individual basis, rather than on a national or district basis, and only those rivers with an identifiable surplus over a defined conservation limit are open for the harvest of salmon and sea trout. Following a review in 2018, fisheries that met at least one of the following criteria became eligible for 'catch and release' angling:

- Fisheries where the salmon and sea trout populations were at least 50 per cent of their conservation limit – previously the threshold was 65 per cent.
- Fisheries where the average catchment-wide electro-fishing (CWEF) resulted in 15 or more (previously 17) juvenile salmon per 5 minutes.

Nine rivers that had not previously been eligible met one of these criteria and so were opened for 'catch and release' angling for 2019.

Dealing with invasive species

The National Parks and Wildlife Service (NPWS) is responsible for the protection and conservation of Ireland's natural heritage and biodiversity. We work with the NPWS to put in place temporary measures to reduce the impact of outbreaks or encroachments of invasive aquatic species (both fauna and flora).

In 2018, the particular invasive species we dealt with included Asian clam, crayfish plague and curly-leaved water weed.

Asian clam

The Asian Clam *(Corbicula fluminea)* was first discovered in Ireland in the rivers Barrow and Nore in 2010 and more recently on the Shannon. During 2018, Inland Fisheries Ireland staff continued to advise and assist with biosecurity arrangements around affected fisheries.

White-clawed crayfish. Photo by D. Gerke

Crayfish plague

Crayfish plague is recognised as a very significant threat to the survival of the white-clawed crayfish in Ireland and globally. The disease is considered fatal to all infected native white-clawed crayfish and the experience in other countries is that where outbreaks occur there is complete extermination of white-clawed crayfish populations.

In November 2018, we issued an appeal to anglers to help stop the spread of the disease following an outbreak on the river Al, Athlone, Co. Westmeath. This was the seventh confirmed outbreak of the disease in the whole of Ireland since it was first found in 2015 in County Cavan, followed by four separate confirmed outbreaks in 2017 and one confirmed outbreak in Northern Ireland earlier in 2018. The closest known previous outbreak was in Lorrha in Co. Tipperary and it is not known how the disease could have spread to the river Al at this time.

Inland Fisheries Ireland supported the NPWS in creating awareness about the disease and our staff worked to control the outbreak in affected areas.

Curly-leaved water weed in Lough Corrib

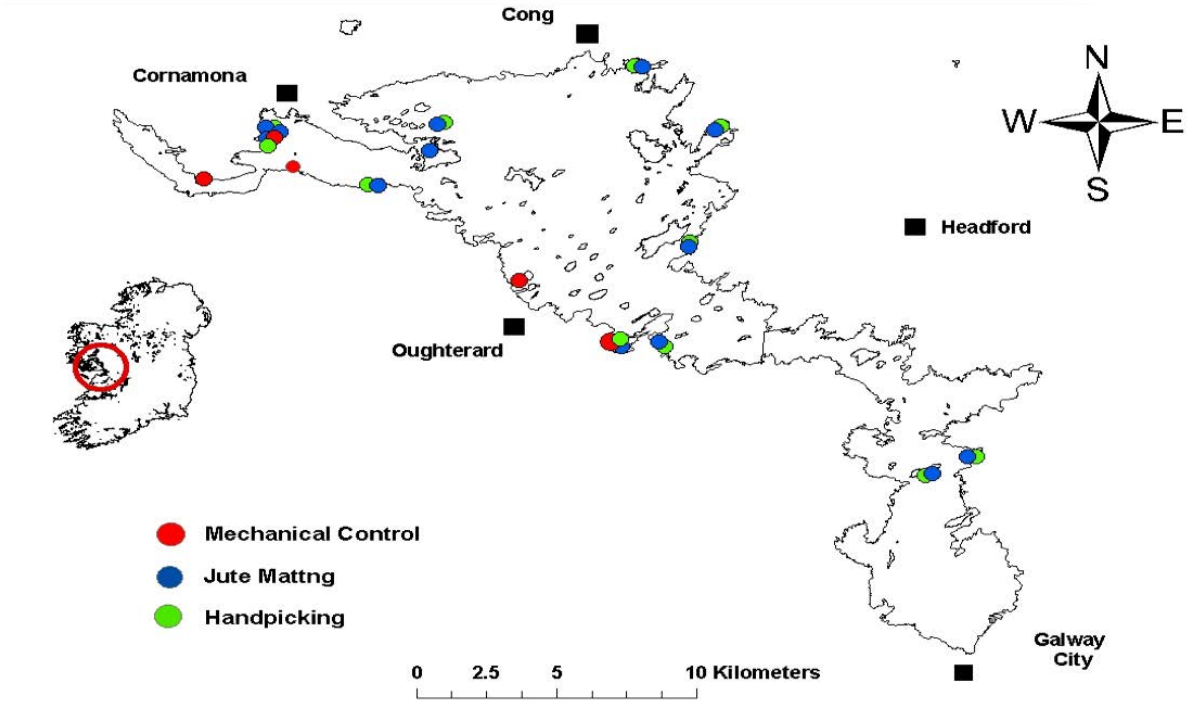
Curly-leaved water weed *(Lagarosiphon major)* is a submerged canopy-forming weed occurring in lakes, ponds and slow-moving watercourses. It has curly leaves which are arranged spirally along the stem, which is hollow and fragile. It was first identified in a natural aquatic habitat in Ireland in 2005 when its presence was confirmed in a large sheltered bay on upper Lough Corrib.

The principal methods applied to control L. major during 2018 included mechanical cutting, light exclusion using jute matting and handpicking in areas where singular strands surrounded the managed locations. The total area of lake treated during 2018 was 12.48 hectares and the area of lake which received each treatment type is detailed below in table 3.3. The locations treated with each method are also illustrated overleaf in figure 3.1:

Table 3.3: Control method, locations treated, and area treated for to control curly-leaved weed, 2018

Control method	Locations treated	Area treated (m^2)
Mechanical cutting	Barrusheen Bay, Corrib View Bay, Drumsnauv Bay, Farnaught Bay	78,000
Jute matting	Cornamona Bay, School House Bay, Farnaught, Corrib View Bay, Bob's Island, The Needles, Ballynalty Bay	45,560
Hand picking	Farnaught, Cornamona Bay, Corrib View Bay, Bob's Island and The Needles	1,220
Total		**124,780**

Figure 3.1: Locations on Lough Corrib treated for *L. major* and treatment type - 2018



Diver putting jute matting in place

Weed harvesting, 2018 Pike management

Pike management

Pike management operations involve removing pike from seven designated managed wild brown trout fisheries (Loughs Corrib, Mask, Carra, Conn, Cullin, Arrow and Sheelin). Before the operations began in 2018, a detailed pike management plan was prepared detailing the effort required and the projected returns from each of the fisheries. A separate and detailed pike management plan was prepared to deal with the collapse in the salmonid populations on the Owenriff system.

Both gill netting and electro-fishing operations were carried out in line with the appropriate standard operating procedure for each operation type. While every effort was made to deliver on the approved plan, weather, equipment and staff availability impacted on operations. Electro-fishing operations were not carried out on Lough Carra. A total of 4,145 pike weighing just over 5.85 tonnes were removed, with gill netting accounting for 5.61 tonnes and electro-fishing for 0.24 tonnes.

In addition to the numbers and weights reported above, an additional 360 pike under one year old were removed, mostly by electro-fishing from Lough Corrib.

In accordance with IFI's current policy, 294 pike greater than 85cm in length were returned to the water from where they were removed. Also, 350 pike electro-fished from Lough Corrib and Lough Mask were transferred to two recognised pike fisheries.

Promoting and Marketing Angling

Marketing and promotional activities are undertaken by Inland Fisheries Ireland to fulfil its promotional remit. Our objectives are to:

- Make angling accessible and attractive through information, infrastructure and support
- Develop tourism through the promotion of our angling resource
- Promote angling as a key leisure and recreation pursuit.

Our work to promote and market angling involves a number of different programmes, including the development of a marketing strategy, on-the-ground presence at key angling trade shows, producing promotional material (in multiple languages and markets), hosting visits from overseas journalists, and by maintaining a strong marketing and promotion emphasis in all of our corporate communications across all media platforms. Our work on these areas in 2018 is described below.

Marketing strategy

Inland Fisheries Ireland is finalising its new marketing strategy for fishing in Ireland.

The strategy was developed collaboratively with Fáilte Ireland; Tourism Ireland; Waterways Ireland; The Loughs Agency; the Department of Agriculture, Environment and Rural Affairs, Northern Ireland; Tourism Northern Ireland; and angling industry representatives.

The overarching objective of the strategy is to develop a responsive and focused marketing strategy for fishing in Ireland.

The strategy will ultimately build an understanding among key partners of the potential of collective efforts to deliver more visitors and revenue to Ireland, at the same time as keeping the protection and conservation of the fisheries resource in mind.

While the strategy is being developed, we are continuing with our annual shows programme, journalist visits and promotional items.

Our presence at angling trade shows

In 2018, members of Business Development team attended nineteen trade shows spread across Ireland, the US, Germany, France, the Netherlands, Belgium, Italy and the UK. Sixteen shows were selected for their proven track record in providing effective access to both customers and media.

There were two new trade fairs in France and England which were trialled and a second US fair (New Jersey) which was added to the shows calendar. Each trade show provided a slightly different mix in terms of angling products and target markets.

Most shows attended were general angling fairs covering all the main disciplines such as game pike/coarse and sea angling. However, while the more specialised fly shows focused mainly on game anglers, there is clear trend that fly anglers are also targeting species such as pike, sea bass and even shark. We provided relevant product and market knowledge as well as language skills in line with the needs of each show.

Table 3.4: Show attendance by country

Germany	21%
Benelux	21%
UK	16%
France	16%
Ireland	10%
USA	10%
Other	6%

Table 3.5: Show attendance by product

Game fishing	27%
Pike and course fishing	27%
Sea fishing	27%
Fly fishing	16%
General tourism	3%

In some cases, trade partners were invited, through open competition, to attend our stand to provide better and more effective marketing opportunities. In total, Inland Fisheries Ireland supported 23 members of the Irish angling industry at venues in Germany, France and the Netherlands. Overall, feedback from staff and members of the trade attending the shows was extremely positive and on the basis of increased booking by industry members attending the shows they were considered to be a success.

Inland Fisheries Ireland staff members gave a total of thirteen talks during shows in 2018, attracting an audience of approx. 600 people. A significant number of leads were generated resulting in a total of nine planned media visits.

Inland Fisheries Ireland attended all shows under the Angling Ireland brand. Nine shows were organised and attended in conjunction with our partners from the Department of Agriculture, Environment and Rural Affairs in Northern Ireland. The Loughs Agency participated at two joint trade fairs.

Fully decorated Angling Ireland stand at the Experience of Flyfishing show in Munich – just before kick-off

Trade exhibiting on the Angling Ireland Stand at the Pescare show in Italy

Multilingual promotional material

In 2018 Inland Fisheries Ireland's angling advisors began work on a new suite of angling brochures, primarily for use in promoting Irish angling tourism in the overseas markets. These brochures were needed to replace an existing suite of brochures that were out of date. Six new brochures were produced (Pike, Bass, Coarse, River Trout, Lough Trout, and Shore Angling). The majority of these brochures were translated into four languages (Dutch, French, German and Italian), 22 versions of the brochures have been printed with many available online.

The publications represent a significant improvement on the previous suite of brochures both in the angling information and their Google maps referencing. It is intended that the suite of brochures will be further extended in 2019.

Angling Ireland brochures in different languages for different markets

Articles about angling in Ireland were published in angling magazines

Angling tourism advertisement featured in On the Water (USA)

Hosting visits from angling journalists

Inland Fisheries Ireland works, in conjunction with Tourism Ireland and Fáilte Ireland, with angling media to organise hosted familiarisation trips ('fam trips') to various locations around the country. These trips are designed to showcase the best of Irish angling and guide the media in experiencing fishing in different locations.

The output from these trips in angling magazines, mainstream press, on TV and in new media (websites, blogs, social media) promotes Irish angling to people in many different markets, and is a major tool in our marketing strategy.

Inland Fisheries Ireland staff are involved in planning the logistical aspects of the 'fam trips' with staff also accompanying the visiting media during their visits, providing guiding services and ensuring that the objectives of each trip are met.

In 2018, 'fam trips' were arranged for eleven media outlets, coming from the UK, France, Netherlands, Germany, Denmark/Scandinavia, and the USA. Some of the locations visited included salmon fisheries in Kerry, Galway, Mayo and Donegal. Sea angling trips were facilitated in Cork, Kerry, Wexford and Mayo.

Many of the articles arising from these trips have yet to be published, and consequently collation of articles is usually a year behind – articles may appear in the current year, or in the subsequent year and occasionally two years later. This report reflects the output of articles in 2017 arising from trips in that year and in 2016. The final output from 2018 will be reflected in the 2019 report.

The estimated advertising value of editorial coverage secured in angling titles in 2017 was €355,056. This compares to an estimated value of €270,732 in 2016. This figure focuses on direct press coverage and does not include online coverage on blogs or video footage.

Corporate communications

As part of its corporate communications outreach, Inland Fisheries Ireland aims to:

- Proactively generate awareness and understanding of Inland Fisheries Ireland's role, functions and responsibilities
- Communicate in a clear, appropriate way to all stakeholder groups
- Elicit support from stakeholders for initiatives and objectives
- Provide a framework for assessing all communications activity and for measuring the success of each activity undertaken.

In order to deliver these objectives, we operate a 24/7 press office across 365 days of the year, providing a proactive and reactive service in a timely manner to members of the national and regional media.

During 2018, there were 61 media releases issued to national and regional media, averaging more than one story a week. As a result of this outreach, there were 994 print media clippings (hardcopy), 560 online clippings and 381 broadcast features. This coverage gave an audience reach of 11 million, with an estimated value of over £4 million.

A number of integrated cross-channel communications campaigns were rolled out on Inland Fisheries Ireland's platforms last year. During the hot weather conditions of summer 2018, we were an important part of the national conversation around the weather and we created awareness of the impact of the high water temperatures on the fisheries resource.

A strategic PR campaign resulted in editorial coverage in 12 national media articles, 32 regional print articles, 12 interviews on national and local media, as well as a feature and live broadcast on RTÉ's *News at One* and on RTÉ Radio 1's *Seascapes* programme.

In addition, an organic Facebook post reached almost 10,000 people and inclusion in an issue of the *Irish Angling Update* e-newsletter had an open rate of 61.7 per cent (against an industry average of 17.9 per cent) and a click-through rate of 36.2 per cent (against an industry average of 17.7 per cent).

Digital communications

Inland Fisheries Ireland's online channels were active with 139 new webpages created on **www.fisheriesireland.ie** and 1,021 blog posts generated on **www.fishinginireland.info.** There were **4,463,798** page views (an instance of a page being loaded or reloaded in a browser) by 591,432 visitors to Inland Fisheries Ireland's various websites in 2018.

On Inland Fisheries Ireland's corporate website, **www.fisheriesireland.ie** page views almost doubled from 510,756 in 2017 to 934,306 in 2018.

The organisation's social media channels grew in followers with Inland Fisheries Ireland's Facebook page receiving an increase to 13,670, up 5 per cent from 12,960. There were 1,090 posts published on this platform during the year and 3.2 million impressions (the number of times our content was displayed).

The Twitter account @IrishAnglingUpdate saw its followers increase to over 3,241 (up 16 per cent) and monthly tweet impressions (total number of times Inland Fisheries Ireland's tweets have been seen) were as high as 71,100. In 2018, there were 1,040 tweets sent from this channel.

The popular Irish Angling Update continued to be well received with subscribers. It was published 46 times during the year giving the latest angling news across all angling disciplines. It continued to have a really strong open rate of 33 per cent (compared to industry average of 17.9 per cent).

We also updated its communications contact lists and digital platforms to ensure they are compliant with the requirements of the General Data Protection Regulation.

Opening up Access to Angling

The NSAD is focused on taking measures that can help maximise the economic, tourism, health and recreational benefits of angling. This involves opening up access to angling for everyone, particularly for people who might not have thought that angling was for them. This includes removing barriers to angling – physical barriers, such as the difficulties of accessing fisheries, ownership issues, as well as social barriers such as financial difficulty in securing angling equipment.

Opening up access to angling involves Inland Fisheries Ireland in a range of activities, many of which are described above under other measures - for example, in the provision of angling stands and other infrastructure **(see Infrastructural Developments on page 57)** and in all of our promotional and marketing activities **(see Promoting and Marketing Angling on Page 66)**. Among the other activities/measures we have been involved in in 2018 included:

- Reaching out to novice anglers
- A wide range of education and outreach initiatives
- Making state fisheries assets available to anglers

Reaching out to novice anglers

Novice Angling Strategy

Inland Fisheries Ireland is currently developing a Novice Angling Strategy whose objective is to determine what are the best ways of encouraging people who have very limited or no previous experience of angling to take it up. The strategy will:

- Support events for disadvantaged groups and angling hubs
- Provide trained angling coaches
- Ensure a safe environment for youths and vulnerable adults getting involved in angling.

We will continue to support Angling for Youth Development Ireland and the Angling Council of Ireland who facilitate the formation of angling hubs and provide trained coaches to help ensure safe fishing.

This activity is being supported by funding of €70,000 from the Dormant Accounts Fund.

Go Fishing - Novice Angling Initiative

The Go Fishing project will see the appointment in 2019 of five regional outreach coordinators to work with Angling for Youth Development Ireland, the Angling Council of Ireland and other angling organisations to increase the numbers engaging in angling across the regions.

This activity is being supported by funding of €323,250 from the Dormant Accounts Fund as well as by NSAD direct funding for the appointment of an Education and Outreach Officer, for which the recruitment process began in 2018.

Education and outreach initiatives

Our education and outreach initiatives are all about reaching out to individuals and communities who might not otherwise get to know about the joys of angling and also about the environment, habitats and sustainable development. In 2018, these activities included a school-based educational programme (Something Fishy) and a hands-on angling initiative aimed at young people from the greater Dublin area (the Dublin Angling Initiative). We also attended the National Ploughing Championships at Screggan, Co. Offaly where our stand and our angling simulator proved very popular.

Something Fishy

Something Fishy is an educational outreach programme run by Inland Fisheries Ireland in partnership with Blackrock Education Centre. Its aim is to enable school students to learn about fish and the environment in a local context. As part of the programme, students enjoy classroom-based activities as well as practical fieldtrips with fisheries officers, and they can also compile and submit project portfolios on their learning for assessment by an independent judging panel.

During the 2017-2018 academic year, 99 national schools and 10 education centres took part in the Something Fishy programme reaching approximately 3,000 students.

Students from Letterkenny Education Together School with the Something Fishy trophy

Students from fifth class in Letterkenny Educate Together National School were named winners of the 2018 programme after being commended by the judging panel for their project called 'Save Our Schools (SOS). The project saw students build a website aimed at engaging other children and young people to learn about fish and the importance of protecting the fisheries resource. The webpage included digital games and video content, all devised and produced by the children themselves.

The class were presented with the Something Fishy perpetual trophy and a monetary prize by Joe McHugh TD, Minister for Education and Skills.

Dublin Angling Initiative

The Dublin Angling Initiative's aims are to promote, develop and improve angling in the Dublin and Greater Dublin area. During 2018, 487 children and young people from the area took part in the initiative, enjoying free angling tuition and workshops, fishing trips and family fishing days, as well as classes about the environment and conservation.

Young people learnt about the different angling disciplines, including game, coarse and sea angling, and they also developed practical angling skills. Because of the hot weather conditions and the high water temperatures on the inland fisheries, there was a greater emphasis on sea angling in 2018.

The Dublin Angling Initiative engaged with many communities in Dublin with young people from youth groups, scout troops and schools in areas such as Blanchardstown, Clondalkin, Coolock, Dalkey, Darndale, Huntstown, Jobstown, Mulhuddart, Priorswood, Summerhill, Swords, Tallaght, Tyrellstown and Whitechurch participating in the programme.

Highlights included a specialist angling workshop for staff and volunteers of Barretstown House, a non-profit organisation which provides free, specially designed camps and programmes for children and their families living with a serious illness. The Dublin Angling Initiative hosted a workshop at the small fishing lake at the facility and trained 30 seasonal staff and volunteers with a view to introducing the children attending Barretstown to angling.

Sphere 17 Youth group from Darndale at Lough Ramor for a Dublin Angling Initiative fishing trip. The popular online news site thejournal.ie filmed Darndale's Sphere 17 youth group when they visited Lough Ramor to practise their angling skills

Holly McCabe (17) from Darndale with a pike at Lough Ramor during a fishing trip with the Dublin Angling Initiative

National Ploughing Championships

Inland Fisheries Ireland attended the 2018 National Ploughing Championships in Co. Offaly with a view to engaging the farming and rural community around farm management and fisheries and to engage young people and novice anglers around the fisheries resource. There was also an increase in uptake by farmers of the *Fish Friendly Farming* leaflet.

The highlight of the fisheries stand was a new angling simulator, which was trialled at the event for the first time. The simulator allows children of all ages to try out angling from the safety of dry land and get the authentic feel of a fish on the line. The simulator was in high demand on Inland Fisheries Ireland's interactive stand and proved a huge draw giving staff opportunities to discuss fisheries issues (particularly those related to agriculture), display live fish and engage visitors with live invertebrates. The simulator is now being used by staff on school visits and other events to give a really fun introduction to angling.

Inland Fisheries Ireland's stand at the National Ploughing Championships

Assistant Inspector Karen Griffin shows a novice angler how to fish from dry land with the angling simulator

Angling access: NSAD case studies

Many different projects to help widen access to angling benefitted from NSAD funding. A selection of these are described below.

Information and education at Finglas Youth Resource Centre (FYRC), Dublin

The Finglas Youth Resource Centre (FYRC) works with young people aged 10-24 in the Finglas area, some of whom experience issues such as substance misuse, mental health challenges, low confidence, anti-social behaviour and isolation.

In Summer 2016, FYRC introduced a fishing programme which aroused much greater interest and required a larger input of resources than expected. Many of those who wanted to participate could not, because they could not afford suitable wet gear. Also, the Centre's supplies of tackle and other equipment were limited, and the Centre struggled to replace those that were lost or damaged.

An Inland Fisheries Ireland funding grant under the NSAD to the value of €4,800 was awarded to the FYRC angling programme to support the purchase of angling equipment and gear. This will expand and develop the initiative within the greater Finglas area by providing better fishing opportunities and experiences for participants.

Mick McCullagh and Teresa Gallagher of Finglas Youth Resource Centre with new angling equipment purchased with NSAD funding

Urban Community Angling Facility at Ballymount Lake, Kingswood, Dublin 24

Following three years of negotiation with South Dublin County Council, Inland Fisheries Ireland and the local anglers who make up the Killinarden Angling Initiative, reached an agreement on the development and management of Ballymount Lake in Dublin 24.

South Dublin County Council committed to clearing and creating fishing pegs and implementing a 'fish welfare plan' for the fishery. The lake was also stocked with 400 rudd and perch.

The lake was launched as a community fishery managed by the Killinarden Angling Initiative (KAI) in early October 2018. It will be a mixed coarse fishery and will operate on an annual permit system with up to 20 anglers fishing the lake at any given time.

Organised groups with up to 12 children can use the facility three times a week. There is great interest in fishing in Tallaght and broader area (the river Dodder runs through the heart of the community), and this fishery should greatly help to encourage and support young people interested in fishing.

Ballymount Lake preparation

State fisheries: access to angling

Inland Fisheries Ireland has over 180 State-owned fisheries under third party management. A standard and transparent process is in place for the tendering and licensing of these State fisheries. We have a policy of ensuring that all State-owned fishery assets are openly available to the public and for that reason angling clubs who are awarded a State fishery licence must make the fishery available through day/weekly/season tickets to all visiting anglers. This ensures that all State fisheries can be enjoyed by local and tourist fishers alike.

In 2018, Inland Fisheries Ireland licensed 84 State-owned fisheries to 50 angling clubs, generating an income of €51,625. A number of fisheries that had not been licensed for several years were re-introduced to the State fishery tender process in 2017 and 2018. In particular, the river Griese in Kilkea Demesne which is located nine miles south-east of Athy, Co. Kildare is now licensed to the River Griese Anglers Association until the end of 2020.

Inland Fisheries Ireland manages a number of iconic salmon fisheries. These fisheries remain popular despite concerns relating to the decline of salmon stock and attract domestic and visiting anglers throughout the season.

Galway Fishery

Good angling conditions were enjoyed at the Galway Fishery during June and July. Fluctuating water levels and low spring fish numbers in the system impacted the level of angling available early and late in the season. The increase in tariff charges during the peak season in June/July for 2018 did not impact participation.

Moy Fishery

Salmon angling on the river Moy in 2018 showed an improvement on recent years. Two key factors influenced the overall success of the 2018 season, the first of these was the low water conditions which prevailed from early in the angling season right through to September. However, unlike other parts of the country, which endured a prolonged drought, intermittent precipitation from late July onward ensured that reasonable water levels were maintained on the river Moy. The second factor which was key to producing a successful angling season on the Moy was a relatively good run of salmon in the June/July and early August periods.

The spring run, which was moderate at best, was followed by a reasonably strong run of grilse.

The experience on the Moy last season was indicative of trends throughout the State, in that it reflects a general downward trend in salmon numbers in the long term but was a productive season relative to those of recent years.

Erriff Fishery

The 2018 season was a memorable one with extremely low water levels during July resulting in the closure of the fishery for a little over 3 weeks to protect vulnerable wild salmon. When water levels had returned to normal, good angling conditions were enjoyed in May and June. Angling on the river was closed in July due to low water levels and concern for fish welfare. Fish unable to run the river were accumulating below the falls and the loss of the entire Erriff grilse stock was a possibility. Emergency works on the fish pass coupled with the pumping of water through the night saved the fish and enabled them to move upriver.

Having regard to the total allowable catch for the Killary common embayment of just 321 salmon for 2018, which is shared with the Delphi Fishery and commercial draft net fishermen, it was decided to encourage anglers to return all wild fish and these were replaced with ranched fish taken from the trap. This worked well and during July all viable wild fish were returned.

Fishery development continued on the Erriff throughout 2018 with the upgrading of stiles and footbridges from old wooden structures to new aluminium and recycled plastic ones together with bank restoration and general maintenance of the fishery. Work was carried out on 29 structures and included 10 new structures, repairs to 4 structures and replacement of 15 structures. New signage was also put in place along the fishery drawing attention to possible hazards to anglers and the general public.

4 Supporting Efficiency and Effectiveness

Inland Fisheries Ireland's Corporate Services provides all of the human resources and financial management services that enable the organisation to run smoothly and to deliver on our mission to protect and conserve Ireland's fisheries resource in an efficient and effective manner.

These services also cover responsibility for procurement, facility management, health & safety, and data governance.

In 2018 our Corporate Services continued its implementation of several significant projects in line with our strategic plan. These included embedding a new digital fleet management information system and an upgrade of the HR Information system incorporating a time and attendance system.

Human Resources

The Human Resources division is responsible for all aspects of managing our most important asset - our people. It manages all of the administrative functions around recruitment, payroll and benefits, health and safety, training, and freedom of information.

Almost 80 per cent of our staff work in the field most of the year in protecting, developing, conserving and researching fish and their habitats.

Financial Management

Inland Fisheries Ireland's Finance Division provides a comprehensive set of financial and governance systems that ensure effective financial management. These systems are flexible enough to adapt to our evolving needs as an organisation and also meet the highest standards of corporate governance.

The Finance division is also responsible for providing the senior leadership team and the Board with the financial advice they need for strategic decision making. Management accounts are presented to each meeting of the Board, together with a commentary on performance against budget. On a quarterly basis, the division provides the Board with a Statement of Financial Position, a Statement of Income and Expenditure and a Capital Account Statement.

Funding for 2018

In 2018, Inland Fisheries Ireland received an Exchequer grant of €30.132 million which includes 'ring-fenced' non-pay funding of €1.2 million for the Eel Support Scheme and €300k for the Lagarosiphon weed control programme. Additional funding of €225k was provided in late 2018 for the recruitment of coordinators of the National Strategy for Angling Development. A further €117k additional funding for the purchase of rigid inflatable boats (RIBs) was also received. This brought the total Exchequer funding for the year to € 30.474 million. The €1.2 million eel support scheme funds were deferred to 2019 giving an Exchequer Income figure of €29.699 million in the financial statements.

In an attempt to bridge the difference between pay costs and Exchequer funding, an additional €750k pay grant was received in 2018. The organisation also generated €3.254 million other income sources in 2018 (compared to €3.1 million in 2017).

Almost €0.5 million was generated from the Salmon Conservation Fund portion of receipts from the sale of salmon and sea trout rod licences in 2018. This fund is due to be disbursed in future years for reinvestment in the conservation and rehabilitation of salmon and sea trout fisheries and habitats. Part of these funds will be made available to angling clubs, federations and similar organisations.

Value for money ethos

An overarching value for money ethos is supported throughout Inland Fisheries Ireland, particularly in our tendering processes. We follow the guidelines set out by the Department of Public Expenditure and Reform's *Public Spending Code.*

Financial and treasury management

In conjunction with our sponsoring department, the Department of Communications, Climate Action and Environment, Inland Fisheries Ireland met both its strategic and operational funding requirements during 2018.

Internal audit

In its review of Inland Fisheries Ireland's systems of internal financial control, our outsourced internal auditor, ASM Chartered Accountants, confirmed that systems are in place to provide substantial assurance that objectives relating to key financial systems can be achieved. Details of other internal audits can be found in the Annual Report of Inland Fisheries Ireland's Audit and Risk Committee.

Financial statements for 2017

Inland Fisheries Ireland submitted its financial statements in respect of 2017 to the Minister for Communications, Climate Action and Environment (DCCAE) and to the Comptroller and Auditor General (C&AG) in full compliance with our statutory obligations - before 28 February 2018 to the Minister and before 31 March 2018 to the C&AG.

Information and Transparency

Freedom of Information (FOI)

As a public body, we adhere to the Freedom of Information Act 2014. We received 93 Freedom of Information requests in 2018, with no outstanding requests at the end of the year.

Access to Information on the Environment (AIE)

Under the European Communities (Access to Information on the Environment) (AIE) Regulations 2007 (S.I. 133 of 2007) we provide information on fisheries related environmental matters. Eight such requests were received in 2018.

Parliamentary questions (PQs) and Oireachtas queries

As part of our commitment to Dáil information flow, we supplied material for 55 parliamentary questions (PQs) answered by the Minister. Four queries were received from members of the Oireachtas in 2018.

Protected disclosures

Section 22 of the Protected Disclosures Act 2014 requires the publication of a report each year relating to the number of protected disclosures made in the preceding year and any actions taken in response to such disclosures. We received no protected disclosures in 2018.

Complaints

We received seven formal complaints from members of the public in 2018. These related to fisheries, pollution and service matters.

General Data Protection Regulation (GDPR)

Prior to the enforcement date for the GDPR in May 2018, Inland Fisheries Ireland appointed a Data Protection Officer to oversee compliance and awareness of data protection within the organisation. A GDPR Project Plan for the organisation was developed outlining the various actions that needed to be taken to ensure GDPR-compliance. We have completed a full suite of data protection policies and procedures, including data mapping, security assessments and a review of third party processors.

GDPR compliance is an ongoing activity that requires regular assessment of risks and awareness of data protection requirements.

Health & Safety

The Health and Safety Executive of IFI plays a critical role in supporting our safety culture and our commitment to continuous improvement. We foster a zero incident approach regarding the safety, health and welfare of employees and stakeholders. There were 19 incidents resulting in injury reported in 2018, down 17 per cent from the 23 incidents reported in 2017.

Fisheries protection patrol safety management

In line with health and safety legislation our fisheries inspectors and assistant inspectors completed training in fisheries protection patrol risk assessment. These assessments form part of our safety culture at a local level. This key activity ensures continuous evaluation of risk particularly where there are changes in environmental conditions or when incidents of conflict arise. We have developed conflict management training in line with the requirements of the National Framework of Qualifications.

Safety training

We continue to train our field staff on the necessary skills and qualifications to conduct sea and inland water operations. Field staff also completed driver training in 2018, including defensive driving and advanced trailer towing.

Property and Fleet Management

Our Logistics team is responsible for property, fleet (vehicles and boats) management, and the provision of workwear. In 2018 our vehicle fleet operations passed an audit by the Road Safety Authority, and from the Freight Transport Association we received a 'Van Safe' accreditation, which distinguishes those operating a van fleet at the highest level of industry best practice, compliance and safety. We're also proud to say that the Road Safety Authority has recognised our Logistics Manager, Michael Burke, with a 'Leading Light Award' for road safety in the public sector.

In 2018, our Logistics team also gave assistance on all areas of procurement and in the issuing of Personal Protective equipment (PPE), and it also had a significant involvement in the acquisition and licensing of the new rigid inflatable boats (RIBs).

Glossary

Acoustic Accelerometer tags
tags that can measure levels of fish activity via changes in acceleration. This data is then transmitted by sound-waves to listening stations that are within range

Acoustic telemetry
– tagging fish with sound-emitting devices that are detected by listening stations

Boom boats
refers to high voltage electrofishing boats used to sample fish in large rivers and lakes

Citizen science
the collection of data relating to the natural world by members of the general public, typically as part of a collaborative project with professional scientists

Digital terrain model
three dimensional representation of the earth's surface stored in digital format

Elasmobranchs
a group of marine fish that have cartilage based skeletons e.g. sharks, rays, and skates

Finfish aquaculture
farming of fish with fins (fish farming)

Finnock
sea trout that migrates to sea between April and June and returns to freshwater to spawn after the summer migration

Floy tagging
tagging fish with an external tag that has a unique code printed on it

Freshwater aquaculture
fish farming in freshwater

Grilse
a salmon that has returned to fresh water after a single winter at sea

External data loggers
(High resolution) miniaturised units designed to capture different movement types (e.g. fast/slow) – used to measure fish activity types.

Hydroacoustics
is the study and use of sound in water. Hydroacoustics also describes the use of sound (sonar) to monitor fish and other underwater features. An array of hydroacoustic receivers is a series of listening stations, listening for fish tagged with an acoustic (sound transmitting) tag

Hydrodynamics
the scientific study of fluids in motion

Kelt
a salmon that has recently spawned and is usually in poor condition

LA-ICPMS
an acronym for Laser Ablation Inductively Coupled Plasma Mass Spectrometry – a technique used to explore life the history of individual fish by analysing the elemental makeup of otoliths and scales

Method intercalibration
comparison study of two different sampling methods

NOSACQ-50
Nordic Safety Climate Questionnaire - A tool for diagnosing occupational safety climate

Norwegian bag net
a surface trap net designed to catch live fish for scientific sampling

Otolith elemental profiles
a chemical chronology of the life history of a fish

Otolith microchemistry
the minor and trace elemental constituents of an otolith (ear-bone).

Pelagic zone
mid-water zone

Progression of pigmentation
fish can change their colouration during migration to better adapt to the local conditions, for example eel larvae are transparent while migrating to coastal waters but become pigmented when entering freshwater

QR code
a Quick Response Code is the trademark for a type of matrix barcode (or two-dimensional barcode) first designed in 1994 for the automotive industry. [A barcode is a machine-readable optical label containing information about the item to which it is attached].

River hydromorphology
the physical characteristics of a river e.g. flow regime, sediment transport. Examples of alterations to natural hydromorphology are channalisation and man-made weirs

Salinity
a measure of the level of salt in water

Sea lice integrative model
a statistical model that considers the effects of water movements, temperature, salinity and other environmental variables on sea lice distribution and sea lice prevalence on salmonids

Sentinel cage
experimental fish enclosures used to hold fish in open waterbodies

SharePoint
SharePoint is a web-based, collaborative platform that integrates with Microsoft Office software products, which is used to create intranets (internal websites) for team collaboration, blogs, wikis and company news

Silvering of eels
mature eels that are undergoing physical and physiological changes before migrating to the eel spawning grounds in the Sargasso Sea

Single Sign-On (SSO)
an authentication process which allows a user to access multiple applications with one set of login credentials, SSO is a common procedure in organisations where a member of IFI staff accesses multiple resources connected to a local area network (LAN)

Smolt
a young salmon (or trout) after the parr stage, when it becomes silvery and migrates to the sea for the first time

Spring Salmon River
a river that receives salmon between January and May. These Salmon are generally larger as they spend more than one winter at sea

Temporal changes
changes which occur over time

Time management systems
often include a time clock or web-based application used to track an IFI staff work hours, automating processes helping to reduce manual records

TRaC
an acronym for transitional and coastal waters

Transitional waters
waters that are influenced by both tidal and freshwater flows e.g. estuaries, fjords and lagoons

Appendices

Audit And Risk Committee

Annual Report 2018

For the year ending 31 December 2018

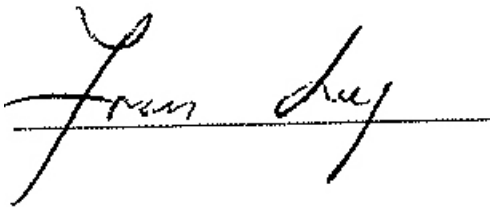
Contents

Foreword

The 2018 Audit and Risk Committee (IFI) annual report presents the committee's outputs of its programme of work for the period 2018.

This work focused on oversight of the organisation's systems of risk management, compliance and value for money audits, and review of the management accounts, budgets and financial statements in advance of these being presented to the Board.

I confirm that Inland Fisheries Ireland continues to implement the Code of Practice for the Governance of State Bodies 2016 and has taken steps to ensure compliance with the Code during the reporting period.



Professor Frances Lucy
Chair of the Audit & Risk Committee
(Re-appointed September 2018)

Membership and Meetings of the Audit and Risk Committee

Members of the Committee during 2018

Professor Frances Lucy (Chair)
Re-appointed, 27 September 2018

Mr Patrick Gibbons
Appointed, 30 June 2016

Ms Bernadette Orbinski-Burke
Appointed, 29 September 2016

All members of the Audit and Risk Committee are non-executive members. Each member serves for a period of three years on the Committee; membership may be renewed (but is limited to) a further three years. At the end of the reporting period, there continues to be a vacancy on the Committee.

Committee meetings during 2018

The Audit and Risk Committee met six times in 2018: on 16 January, 6 March, 17 May, 28 June, 26 September and 29 November.

The Chief Executive Officer, Dr Ciaran Byrne, the Head of Finance and Logistics, Pat Doherty and individual members of the senior leadership team were invited to present on specific matters at each meeting. During the period the Committee met on three occasions without the executive present: on 6 March, 17 May and 26 September.

Inland Fisheries Ireland's internal auditor, ASM Ltd attended four meetings of the committee: on 6 March, 17 May, 26 September (by phone) and 29 November (by phone).

Audit and Risk Committee Programme of Work 2018

The Committee engaged in the following activities and made recommendations on its findings to the Board.

Workshop in January 2018

The Committee arranged a meeting on 16 January with governance expert, Noreen Fahy of the Institute of Public Administration (IPA), during which the following topics were considered and discussed:

- Review of the draft Statement of Internal Control (SIC)
- Assurance mapping (a review of the sources of assurance)
- Optimum Audit and Risk Committee work planning
- Effective audit committees.

Appointment of new internal auditor

Following a tender process carried out in conjunction with the Office of Government Procurement, and which also involved a full review of our tendering practices, Inland Fisheries Ireland appointed ASM Chartered Accountants as our internal auditor for a three-year term (from February 2018 to January 2021).

Internal Audit Programme 2018

The Audit and Risk Committee agreed the scope and terms of reference of the Internal Audit Plan for 2018, which was approved by the Board. The following risk-based audit reports/reviews of operational areas within Inland Fisheries Ireland were delivered:

- Review of the National Strategy for Angling Development (NSAD)
  - Controls in place in relation to the promotion, application process, assessment, award and monitoring of grants under the NSAD
  - Governance arrangements in place, including those that ensure appropriate oversight and the management of any conflicts of interest that might arise
- Review of how any conflicts of interest that arise are managed
  - Compliance with the *Code of Practice for the Governance of State Bodies*
  - Awareness of and compliance with Inland Fisheries Ireland's *Codes of Business Conduct (Directors and Employees)*
  - Systems in place to manage conflicts of interest
- Review of internal financial control
  - Payments process
  - Procurement process
  - Capital assets
  - Financial reporting system
  - Payroll
  - Tax compliance
  - Follow-up on previously accepted recommendations.
- Review of health and safety on the adequacy and effectiveness of management control over a set number of areas, to ensure that:
  - Policies developed and made available to staff in relation to health and safety are in line with legislation and best practice, and are implemented in a consistent manner
  - Health and safety training has been provided to staff and appropriate records are maintained by the organisation
  - Health and safety risk assessments are undertaken on an annual basis or as necessary, and the relevant follow-up action is taken

An amendment to the 2018 internal audit plan was agreed, in which the fleet review was postponed to allow time for new systems and processes to be bedded in and to permit more meaningful information to be made available for review. In its place the health and safety audit planned for 2019 was brought forward to quarter 4 of 2018. The fleet audit is planned for quarter 3 of 2019.

Draft financial statements

The Committee conducted a review of the following documents in advance of presenting them to the Board:

- The draft Financial Statements for 2017
- The draft Statement of Internal Control for 2017 (first year of adoption of the *Code of Practice for the Governance of State Bodies 2016)*
- The Governance Statement and Board Members' Report 2017 (first year of adoption of the *Code of Practice for the Governance of State Bodies 2016)*

In its review of the financial statements the following was considered:

- Accounting policies, completeness of financial statements, anti-fraud policy and losses are properly recorded and accounted for
- Suitable processes are in place to ensure that regularity, probity and propriety are achieved
- Issues raised by the external auditor have been comprehensively and appropriately dealt with
- The Financial Statements present the financial position of Inland Fisheries Ireland fairly
- The comprehensiveness and meaningfulness of the Inland Fisheries Ireland's *Statement on Internal Control and Letter of Representation* (to the External Auditor (C&AG)) before issue.

Risk management

The Audit and Risk Committee continued its risk management review work with members of the Senior Leadership Team by inviting River Basin District (RBD) directors to its meetings. These RBD directors reported on and responded to queries in relation to risk management within their operational remit.

Key aspects of the risk framework were considered during the course of Committee meetings:

- Review and update of the organisation's Risk Management Policy and the effectiveness of the risk management process (Q4)
- Review of the IFI's Risk Appetite Statement (Q4)
- Review of IFI's Corporate Risk Register and its Field Risk Register (each meeting).

Review of IFI's suite of General Data Protection Regulation (GDPR) policies and procedures

Following the appointment of a Data Protection Officer (DPO) early in quarter 2, briefings were provided to the Committee on Inland Fisheries Ireland's data protection strategy. The Committee reviewed the organisation's 19 data protection policies in advance of recommending them to the Board for approval. An internal audit of GDPR systems and compliance will be conducted in 2019.

Review of effectiveness of the Audit and Risk Committee

In quarter 4 of 2018 the Audit and Risk Committee completed a combined assessment of its effectiveness. The members completed a self-assessment questionnaire and appraisal of the effectiveness of the Chair. The Committee will review the outputs at its first meeting in 2019 and will undertake to address and implement recommendations.

Other areas of consideration

- The Audit and Risk Committee reviewed and revised the Committee's Terms of Reference (Charter) in quarter 3 of 2018
- The Committee closely monitored the implementation of the Fleet Management Plan including the use of data collection fobs to provide information to support decision making
- The Committee reviewed and provided feedback on the Management Accounts throughout the year.

Comptroller & Auditor General

The Audit and Risk Committee have a professional working relationship with the Office of the Comptroller and Auditor General (C&AG), with all significant audit findings communicated to the C&AG.

Upon the request of the Audit and Risk Committee, our internal auditor, ASM Ltd introduced themselves and committed to sharing the output from Inland Fisheries Ireland's internal audit programme with our external auditor, the C&AG.

The Audit and Risk Committee reviewed the content of the Management Letter from the C&AG regarding matters relating to its audit and considered the responses of the Executive in relation to same.

Priorities for 2019

The Audit and Risk Committee's priorities for 2019 include:

- Review of the Statement of Internal Control (SIC) and the Annual Financial Statements for 2018
- Comprehensive review of the IFI Risk Management Framework
- Approval of a risk-based Internal Audit Plan for 2020
- A review of the effectiveness of the Audit and Risk Committee
- Ongoing monitoring and review of cost saving, accountability and compliance measures
- Oversight of Inland Fisheries Ireland's compliance with the *Code of Practice for the Governance of State Bodies 2016*
- Adoption of an appropriate policy on the management of conflicts of interest within Inland Fisheries Ireland
- Oversight of the progression of Inland Fisheries Ireland's GDPR strategy
- The fleet audit is planned for quarter 3 2019

Conclusion

Progress has been made in relation to value for money initiatives, cost saving measures and accountability for taxpayers' money. The Audit and Risk Committee is satisfied that, in general, there are adequate systems of control across the organisation.

The members of the Committee would like to thank the staff of Inland Fisheries Ireland for their professionalism and consistent commitment to improvement and progressing the governance of the organisation throughout the year.

Appendix: Roles and Responsibilities of the Audit and Risk Committee

Inland Fisheries Ireland's Audit and Risk Committee's *Terms of Reference* sets out the Committee's roles and responsibilities as follows:

1. To review the Annual Financial Statements before submission to the Board, focusing particularly on:
   - Any changes in accounting policies and practices
   - Major judgmental areas
   - Significant adjustments resulting from the audit
   - Compliance with accounting standards.
2. To discuss the nature and scope of the audit with the external auditor before the audit commences.
3. To discuss problems and reservations arising from the interim and final audits and any matters the auditor may wish to discuss (in the absence of management where necessary).
4. To review the Board's statement on internal control systems with particular reference to EU funds.
5. To review the internal audit programme; to ensure coordination between the internal and external auditors; to ensure issues raised by the external auditor have been comprehensively and appropriately dealt with; and to ensure that the internal audit function is adequately resourced and has appropriate standing within the Board.
6. To commission internal investigations; and to consider the major findings of internal investigations and management's response.
7. To consider other topics, as defined by the Board including but not limited to:
   - Internal control procedures and documentation
   - External audit
   - Review budgeting control
   - Code of practice and ethics

- Cost saving initiatives
- Value for money
- Performance management/reporting
- Management of risk
- Reviewing its own effectiveness (at least every three years)

8. Any internal audit/audit items that relate to the Board's areas of responsibilities should be communicated to the Board as soon as they are identified.

9. The Committee may consider the following:

   - The effectiveness and adequacy of the body's anti-fraud, anti-corruption and protected disclosure policies and staff awareness of them
   - Whether or not the organisation's financial control, including its delegation structure, enables it to achieve its objectives in a manner that delivers value for money
   - Whether or not the procedures for investment appraisal are fit for purpose and comply with accepted best practice, including the principles and relevant requirements of the Public Spending Code.

Financial Statements

Year End to 31st December 2018

Contents

1. General Information

Address

3044 Lake Drive,
Citywest Business Campus,
Dublin 24, D24 Y265.

Bank

Bank of Ireland,
College Green,
Dublin 2, D02 VR66.

Auditor

The Comptroller and Auditor General,
3A Mayor Street Upper,
Spencer Dock,
Dublin 1 D01 PF72.

Solicitors

George Maloney & Co,
Solicitors,
6 Farnham Street,
Cavan,
Co. Cavan, H12 V658.

Arthur Cox,
Earlsfort Terrace,
Dublin 2, D02 T380.

Liam Keane & Partners, Solicitors,
The Old Toll House,
Dunshaughlin,
Co. Meath, A85 DR68.

Solicitors continued

Patrick J Durcan & Co,
Solicitors,
James Street,
Westport,
Co. Mayo, F28 KC52.

Kelly & Ryan Solicitors,
Teeling Street,
Sligo F91 YH66.

MacHale Solicitors,
Pearse Street,
Ballina,
Co Mayo F26 K7C7.

D.G. O'Donovan & Co,
5th Floor, Riverpoint,
Lower Mallow Street,
Limerick V94WC6A.

Boland & Quirke,
72 South Mall,
Cork T12 VX9A.

John M Forde & Son,
2, Montpellier Terrace,
Sea Road,
Galway H91 A6P3.

Tracey Solicitors,
34 Westmoreland Street,
Dublin 2 D02 YW59.

VP McMullin & Son Solicitors,
Donegal Street,
Ballybofey,
Co. Donegal F93 DE63.

Mason Hayes & Curran,
South Bank House,
Barrow Street,
Dublin 4 D04 TR29.

James Reilly & Sons,
4, Brighton Place,
Clonmel,
Co Tipperary E91 X9V2.

Coakley Moriarty,
Solicitors,
New Road,
Kenmare,
Co Kerry V93 N880.

2. Governance Statement and Board Members' Report - 2018

The Board of Inland Fisheries Ireland (IFI) was established under **Section 6** of the Inland Fisheries Act 2010. The functions of the Board are set out in **Section 7** of this Act. The Board is accountable to the Minister for Communications, Climate Action and Environment and is responsible for ensuring good governance and that the principle functions of the agency as set out under **Section 7** are performed. The Board performs this task by setting strategic objectives and targets and taking strategic decisions on all key business issues. The regular day-to-day management, control and direction of Inland Fisheries Ireland are the responsibility of the Chief Executive Officer (CEO) and the senior management team. The CEO and the senior management team must follow the broad strategic direction set out by the Board, and must ensure that all Board members have a clear understanding of the key activities and decisions related to the entity, and of any significant risks likely to arise. The CEO acts as a direct liaison between the Board and management of Inland Fisheries Ireland.

2.1 Governance

The work and responsibilities of the Board are set out in IFI's Governance *Policy 07 – 'Statement of Board Responsibilities'.* Matters specifically reserved for Board decision are outlined in IFI's Governance Policy 02 – *'Schedule of Decisions Reserved to the IFI Board of Directors'.*

Standing items considered by the Board include;

- Declaration of interests
- Setting Board Strategy, in agreement with the Minister
- Reports from committees
- Financial reports/ management accounts
- Performance reports, and
- Reserved matters

Section 46 of the Inland Fisheries Act 2010 requires the Board of Inland Fisheries Ireland to keep, in such form as may be approved by the Minister of Communications, Climate Action and Environment with consent of the Minister of Public Expenditure and Reform, all proper and usual accounts of money received and expended by it.

In preparing these financial statements, the Board of Inland Fisheries Ireland is required to;

- Select suitable accounting policies and apply them consistently,
- Make judgements and estimates that are reasonable and prudent,
- Prepare the financial statements on a going concern basis unless it is inappropriate to presume that it will continue in operation, and

- State whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in the financial statements.

The Board is responsible for keeping adequate accounting records which discloses, with reasonable accuracy at any time, its financial position and enables it to ensure that the financial statements comply with **Section 46** of the Inland Fisheries Act 2010. The maintenance and integrity of the corporate and financial information on Inland Fisheries Ireland's website is the responsibility of the Board.

The Board is responsible for approving the annual plan and budget, which was done at the January 2018 Board meeting. An evaluation of the performance of Inland Fisheries Ireland by reference to the annual business plan was carried out at each meeting of the Board and the budget was reviewed quarterly in 2018. The Board is also responsible for safeguarding its assets and for taking reasonable steps for the prevention and detection of fraud and other irregularities.

The Board considers that the financial statements of Inland Fisheries Ireland give a true and fair view of the financial performance and the financial position of Inland Fisheries Ireland at 31 December 2018.

2.2 Board Structure

The Board consists of a Chairperson and nine ordinary members, seven of which are non-executive members, a staff representative and the CEO of Inland Fisheries Ireland. The Chairman, non-executive members of the Board and the staff representative are appointed for a period of five years. The Board meets no less than six times a year. The table below outlines the appointment details for members during 2018.

Board member Listing

Position	Name	Date Appointed	Nomination
Chairman	Fintan Gorman*	10/09/2018	Ministerial
Ordinary Member	Martin McEnroe	26/02/2014	Joint Oireachtas
Ordinary Member	Niall Greene	01/07/2014	Ministerial
Ordinary Member	Frances Lucy	24/03/2015	Joint Oireachtas
Staff Nominee	Sean Coady	17/11/2015	Staff
Ordinary Member	Patrick Gibbons	13/01/2016	Joint Oireachtas
Ordinary Member	Bernadette Orbinski Burke	01/07/2016	Ministerial
Ordinary Member	Fidelma McGuirk**	04/10/2016	Ministerial
Executive	Ciaran Byrne	01/07/2010	CEO

* Fintan Gorman was re-appointed as Chairman of the Board on September 10th for a period of five years

* Fidelma McGuirk tendered her resignation from the Board on January 31st 2018

The Board has established four committees, as follows;

Audit and Risk Committee:

comprises three Board members. The role of the Audit and Risk Committee (ARC) is to support the Board in relation to its responsibilities for issues of risk, control and governance and associated assurance. The ARC is independent from the financial management of the organisation. In particular the ARC ensures that the internal control systems including audit activities are monitored actively and independently. The ARC reports to the Board after each meeting, and formally in writing annually.

The members of the Audit and Risk Committee are; Professor Frances Lucy (Chairperson), Patrick Gibbons and Bernadette Orbinski Burke. There were six meetings of the ARC in 2018; the CEO and Head of Finance were invited to each of these meetings.

Protection Committee:

comprises three Board members.
The members of this committee are; Sean Coady (Chairperson), Martin McEnroe and Patrick Gibbons. There were two meetings in 2018.

Salmon Committee:

comprises four Board members.
The members of this committee are; Niall Greene (Chairperson), Sean Coady and Martin McEnroe. There were five meetings in 2018.

Fish Farm Working Group:

comprises two Board members, four angling stakeholder representatives and two members of the IFI senior management team.
The Board members on this committee are; Fintan Gorman (Chairman) and Professor Frances Lucy. There were three meetings in 2018.

2.3 Schedule of Attendance, Fees and Expenses

A schedule of attendance at the Board and committee meetings for 2018 is set out in **Note 7** of the Financial Statements for 2018. This includes the fees and expenses received by each member: One Board member, Professor Frances Lucy, did not receive a Board fee under the One Person One Salary (OPOS) principle.

2.4 Key Personnel Changes in 2018

There are two vacancies on the Board as at 31st December 2018.

2.5 Disclosures Required by the Code of Practice for the Governance of State Bodies (2016)

The Board is responsible for ensuring that IFI has complied with the requirements of the Code of Practice for the Governance of State Bodies ('the Code'), as published by the Department of Public Expenditure and Reform in August 2016. The following disclosures are required by the Code.

Employee Short-term Benefits

There were 38 employee short-term benefits in excess of €60,000.

See **Note 6** of the Financial Statements.

Consultancy Costs

Consultancy costs include the cost of external advice to management and exclude outsourced 'business-as-usual' functions.

See **Note 5a** of the Financial Statements.

Travel and Subsistence Expenditure

Travel and subsistence expenditure is categorised as follows:

Remuneration and Other Pay Costs

	2018	2017
	€	€
Travel & subsistence - National *	948,959	956,843
Travel & subsistence - International	63,161	66,964
	1,012,120	1,023,806

*includes travel and subsistence of € 33,417 paid directly to Board members in 2018. This figure was €28,544 in 2017. No international travel and subsistence payments were made for travel under taken by Board members.

Legal Costs and Settlements

Legal Fees are for prosecution cases under fisheries legislation and corporate legal advice.

€7,000 was paid for counterparty legal costs. Total legal costs in 2018 for prosecution cases were €150,472.

Hospitality Expenditure

	2018	2017
	€	€
Staff hospitality	3,436	3,274
Client hospitality	-	-
	3,436	3,274

Statement of Compliance

The Board has adopted the Code of Practice for the Governance of State Bodies and has put procedures in place to ensure compliance with the Code. Inland Fisheries Ireland was in full compliance with the Code of Practice for the Governance of State Bodies for 2018.

On Behalf of the Board of IFI

Fintan Gorman — 18/12/2019

Mr. Fintan Gorman - Chairperson — Date

Ard Reachtaire Cuntas agus Ciste
Comptroller and Auditor General

Report for presentation to the Houses of the Oireachtas

Inland Fisheries Ireland

Opinion on the financial statements

I have audited the financial statements of Inland Fisheries Ireland for the year ended 31 December 2018 as required under the provisions of section 46 of the Inland Fisheries Act 2010. The financial statements comprise

- the statement of income and expenditure and retained revenue reserves
- the statement of comprehensive income
- the statement of financial position
- the statement of cash flows and
- the related notes, including a summary of significant accounting policies.

In my opinion, the financial statements give a true and fair view of the assets, liabilities and financial position of Inland Fisheries Ireland at 31 December 2018 and of its income and expenditure for 2018 in accordance with Financial Reporting Standard (FRS) 102 — *The Financial Reporting Standard applicable in the UK and the Republic of Ireland*.

Basis of opinion

I conducted my audit of the financial statements in accordance with the International Standards on Auditing (ISAs) as promulgated by the International Organisation of Supreme Audit Institutions. My responsibilities under those standards are described in the appendix to this report. I am independent of Inland Fisheries Ireland and have fulfilled my other ethical responsibilities in accordance with the standards.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

Report on information other than the financial statements, and on other matters

Inland Fisheries Ireland has presented certain other information together with the financial statements. This comprises the annual report, the governance statement and Board members' report and the statement on internal control. My responsibilities to report in relation to such information, and on certain other matters upon which I report by exception, are described in the appendix to this report.

I have nothing to report in that regard.

Andrew Harkness
For and on behalf of the
Comptroller and Auditor General
19 December 2019

Appendix to the report

Responsibilities of Board members

As detailed in the governance statement and Board members' report, the Board members are responsible for

- the preparation of financial statements in the form prescribed under section 10 of the Inland Fisheries Act 2010
- ensuring that the financial statements give a true and fair view in accordance with FRS102
- ensuring the regularity of transactions
- assessing whether the use of the going concern basis of accounting is appropriate, and
- such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Responsibilities of the Comptroller and Auditor General

I am required under section 10 of the Inland Fisheries Act 2010 to audit the financial statements of Inland Fisheries Ireland and to report thereon to the Houses of the Oireachtas.

My objective in carrying out the audit is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement due to fraud or error. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the ISAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with the ISAs, I exercise professional judgment and maintain professional scepticism throughout the audit. In doing so,

- I identify and assess the risks of material misstatement of the financial statements whether due to fraud or error; design and perform audit procedures responsive to those risks; and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- I obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal controls.
- I evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures.
- I conclude on the appropriateness of the use of the going concern basis of accounting and, based on the audit evidence obtained, on whether a material uncertainty exists related to events or conditions that may cast significant doubt on Inland Fisheries Ireland's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my report. However, future events or conditions may cause Inland Fisheries Ireland to cease to continue as a going concern.
- I evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

Information other than the financial statements

My opinion on the financial statements does not cover the other information presented with those statements, and I do not express any form of assurance conclusion thereon.

In connection with my audit of the financial statements, I am required under the ISAs to read the other information presented and, in doing so, consider whether the other information is materially inconsistent with the financial statements or with knowledge obtained during the audit, or if it otherwise appears to be materially misstated. If, based on the work I have performed, I conclude that there is a material misstatement of this other information, I am required to report that fact.

Reporting on other matters

My audit is conducted by reference to the special considerations which attach to State bodies in relation to their management and operation. I report if I identify material matters relating to the manner in which public business has been conducted.

I seek to obtain evidence about the regularity of financial transactions in the course of audit. I report if I identify any material instance where public money has not been applied for the purposes intended or where transactions did not conform to the authorities governing them.

I also report by exception if, in my opinion,

- I have not received all the information and explanations I required for my audit, or
- the accounting records were not sufficient to permit the financial statements to be readily and properly audited, or
- the financial statements are not in agreement with the accounting records.

4. Statement of Internal Control

4.1 Scope of Responsibility

On behalf of IFI, I acknowledge the Board's responsibility for ensuring that an effective system of internal control is maintained and operated. This responsibility takes account of the requirements of the Code of Practice for the Governance of State Bodies.

4.2 Purpose of the System of Internal Control

The system of internal control is designed to manage risk to a tolerable level rather than to eliminate it. The system can therefore only provide reasonable and not absolute assurance that assets are safeguarded, transactions authorised and properly recorded and that material errors or irregularities are either prevented or detected in a timely way.

The system of internal control, which accords with guidance issued by the Department of Public Expenditure and Reform (DPER), has been in place in IFI for the year ended 31 December 2018 and up to the date of approval of the financial statements.

4.3 Capacity to Handle Risk

IFI has an Audit & Risk Committee (ARC) comprising of four Board members [with one vacancy at the time or reporting], members skills sets incorporate; governance, legal, financial and audit expertise. The ARC met 6 times in 2018. IFI has outsourced its internal audit function, and the Internal Auditor conducts a programme of work agreed with the ARC and approved by the Board.

The ARC has developed a Risk Management Policy which sets out the risk management processes in place and details the roles and responsibilities of staff in relation to risk IFI also has a Statement of Risk Appetite. The policy has been issued to all senior staff who with their teams are expected to work within this policy, to ensure that emerging risks and control weaknesses are notified and addressed accordingly, and to assume responsibility for risks and controls within their own area of work.

4.4 Risk and Control Framework

Inland Fisheries Ireland has implemented a risk management system which identifies and reports key risks and the management actions being taken to address and, to the extent possible, to mitigate those risks.

A risk register is in place which identifies the key risks facing Inland Fisheries Ireland and these have been identified, evaluated and graded according to their significance. The register is reviewed and updated by the ARC on a quarterly basis. The outcome of these assessments is used to plan and allocate resources to ensure risks are managed to an acceptable level.

The risk register details the controls and actions needed to mitigate risks and responsibility for operation of controls assigned to specific staff, I confirm that a control environment containing the following elements is in place;

- Procedures for all key business processes have been documented
- Financial responsibilities have been assigned at management level
- There is an appropriate budgeting system with an annual budget which is kept under review by senior management
- There are systems aimed at ensuring the security of the information and communication technology systems
- There are systems in place to safeguard the assets, and
- Control procedures over grant funding to applicants have been implemented, these ensure adequate approval of grants and monitoring and review of grantees to ensure grant funding has been applied for the purpose intended.

4.5 Ongoing Monitoring and Review

Formal procedures have been established for monitoring control processes and control deficiencies are communicated to those responsible for taking corrective action and to management and the Board. I confirm that the following ongoing monitoring systems are in place;

- Key risks and related controls have been identified and processes have been put in place to monitor the operation of those key controls and report any identified,
- Reporting arrangements have been established at all levels where responsibility for financial management has been assigned, and
- There are regular reviews by senior management of periodic and annual performance and financial reports which indicate performance against budgets/ forecasts.

4.6 Procurement

I confirm that IFI has procedures in place to ensure compliance with current procurement rules and guidelines and that during 2018 Inland Fisheries Ireland complied with those procedures with the exception of Engineering Services from Promara € 32,356 and Dry Suits from Scuba Flagship € 20,038. IFI have taken the necessary steps to ensure the non-compliant procurement expenditure during 2018 has been addressed and rectified during 2019.

4.7 Review of Effectiveness

I confirm that Inland Fisheries Ireland has procedures to monitor the effectiveness of its risk management and control procedures. Inland Fisheries Ireland's monitoring and review of the effectiveness of the system of internal financial control is informed by the work of the internal and external auditors, the Audit and Risk Committee which oversees their work, and the senior management within IFI responsible for the development and maintenance of the internal financial control framework.

I confirm that the Board concluded an annual review of the effectiveness of the internal controls for 2018.

4.8 Internal Control Issues

No weaknesses in internal control were identified in relation to 2018 that require disclosure in the financial statements.

On Behalf of the Board of IFI

Fintan Gorman — 18/12/2019

Mr. Fintan Gorman - Chairperson — Date

Statement of Income and Expenditure and Retained Revenue Reserves for the 12 months 31 December 2018

	Notes	2018		2017	
		€	€	€	€
Income					
State and EU Funding					
Oireachtas Grants	**2**	29,699,199		25,491,135	
Less Single Pension Scheme contributions remitted	**14a**	(95,681)			
Net deferred funding for pensions	**14c**	3,176,660	32,780,178	3,217,624	28,708,759
Other Income Department of Social Protection			151,000		203,305
Other	**3**		3,102,827		2,887,657
Total Other Income			**3,253,827**		**3,090,962**
Total Income			**36,034,005**		**31,799,721**
Expenditure					
Administration	**4**		5,856,141		5,322,496
Operations	**5**		27,560,637		26,476,929
			33,416,778		31,799,425
Surplus / (Deficit) for the Year before Appropriations			2,617,227		296
Transfer from / (to) Capital Account	**12**		(1,369,910)		(7,466)
Surplus / (Deficit) for the Year after Appropriations			**1,247,317**		**(7,170)**

Statement of Income and Expenditure and Retained Revenue Reserves for the 12 months 31 December 2018 (Continued)

Balance Brought Forward at 01 January	6,875,734	6,882,904
Balance Carried Forward at 31 December	**8,123,051**	**6,875,734**

The Statement of Cash Flows and notes 1 to 17 form part of these financial statements.
On Behalf of the Board of Inland Fisheries Ireland

Fintan Gorman — 18/12/2019

Mr. Fintan Gorman - Chairperson — 18th December 2019

Seán P. Coady — 18/12/2019

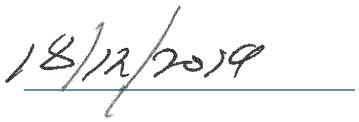
Mr. Sean Coady — 18th December 2019

Statement of Comprehensive Income for the 12 Months to 31 December 2018

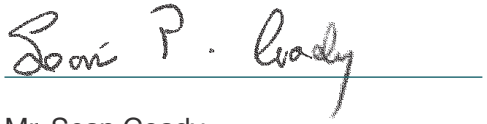
		2018	2017
		€	€
Surplus / (Deficit) for the Year before Appropriations		2,617,227	296
Experience gains on retirement benefit obligations		2,005,000	(917,000)
Change in assumptions underlying the present value of retirement benefit obligations		(949,000)	(2,088,000)
Total actuarial gain/(loss) in the year	**14b**	1,056,000	(3,005,000)
Adjustment to deferred retirement benefits funding		(1,056,000)	3,005,000
Other Comprehensive Income for the year		2,617,227	296

The Statement of Cash Flows and notes 1 to 17 form part of these financial statements.
On Behalf of the Board of Inland Fisheries Ireland

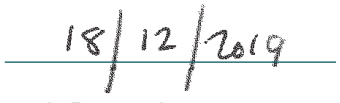
Mr. Fintan Gorman - Chairperson



18th December 2019



Mr. Sean Coady



18th December 2019

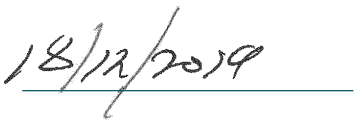
Statement of Financial Position as at 31 December 2018

	Notes	2018	2017
		€	€
Fixed Assets			
Property, plant and equipments	**9**	19,892,996	18,523,086
Current Assets			
Inventory		383,591	339,943
Cash and cash equivalents	**16**	16,312,857	13,026,739
Receivables	**10**	438,550	1,332,516
		17,134,998	14,699,198
Current liabilities (amounts falling due within one year)			
Payables	**11**	9,011,947	7,823,464
		9,011,947	7,823,464
NET CURRENT ASSETS/(LIABILITIES)		8,123,051	6,875,734
TOTAL ASSETS LESS CURRENT LIABILITIES BEFORE PENSIONS		28,016,047	25,398,820
Deferred retirement benefit funding asset	**14c**	121,734,963	119,614,303
Retirement benefit obligations	**14b**	(121,734,963)	(119,614,303)
TOTAL ASSETS LESS CURRENT LIABILITIES		28,016,047	25,398,820
NET ASSETS/(LIABILITIES)		28,016,047	25,398,820
Reserves - representing Net Assets Transferred to Inland Fisheries Ireland			
Capital account	**12**	19,892,996	18,523,086
Surplus on Income and Expenditure and retained Revenue Reserves		8,123,051	6,875,734
		28,016,047	25,398,820

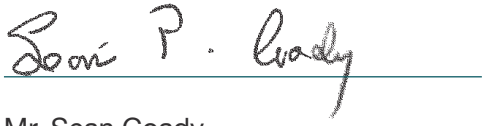
Statement of Financial Position as at 31 December 2018 (Continued)

The Statement of Cash Flows and notes 1 to 17 form part of these financial statements.
On Behalf of the Board of Inland Fisheries Ireland

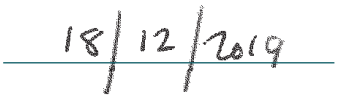
Mr. Fintan Gorman - Chairperson



18th December 2019



Mr. Sean Coady



18th December 2019

Statement of Cashflows for the 12 Months to 31 December 2018

	2018	2017
	€	€
Net Cash Flows from Operating Activities		
Excess Income over Expenditure	2,617,227	296
Depreciation and Impairment of Fixed Assets	1,669,400	1,477,395
(Increase)/Decrease in Receivables	893,966	(601,394)
Increase/(Decrease) in Payables	1,188,483	1,495,349
(Profit) / Loss on sale of fixed assets	(86,297)	(234,069)
Net interest	19,054	14,894
(Increase)/Decrease in Inventory	(43,648)	(100,185)
Net Cash Inflow/(Outflow) from Operating Activities	**6,258,185**	**2,052,286**
Cash Flows from Investing Activities		
Payments to acquire Property, Plant & Equipment	(3,040,630)	(1,496,297)
Proceeds from the disposals of Property Plant & Equipment	87,617	245,506
Net Cash Inflow/(Outflow) from Investing Activities	**(2,953,013)**	**(1,250,791)**
Cash Flows from Financing Activities		
Net interest	(19,054)	(14,894)
Net Cash Inflow/(Outflow) from Financing Activities	**(19,054)**	**(14,894)**
Net Increase / (Decrease) in cash and cash equivalents	**3,286,118**	**786,601**

Statement of Cashflows for the 12 Months to 31 December 2018 (Continued)

	2018	2017
	€	€
Reconciliation of net Cash Inflow/(Outflow) to movement in net funds		
Increase / (Decrease) in cash	3,286,118	786,601
Cash and cash equivalents at the beginning of the year	13,026,739	12,240,138
Cash and cash equivalents at the end of the year	**16,312,857**	**13,026,739**

The Statement of Cash Flows and notes 1 to 17 form part of these financial statements.

On Behalf of the Board of Inland Fisheries Ireland

Fintan Gorman — 18/12/2019

Mr. Fintan Gorman - Chairperson — 18th December 2019

Sean P. Coady — 18/12/2019

Mr. Sean Coady — 18th December 2019

10. Notes to the Financial Statements for the year ended 31 December 2018

1. Accounting Policies

The basis of accounting and significant accounting policies adopted by Inland Fisheries Ireland are set out below. They have all been applied consistently throughout the year and for the preceding year.

a) General Information

Inland Fisheries Ireland was set up under the Fisheries Act 2010 with a head office at 3044 Lake Drive, Citywest Business Campus, Dublin 24, D24 Y265.

Inland Fisheries Ireland primary objectives are to protect, manage and conserve Ireland's inland fisheries resource.

Inland Fisheries Ireland is a Public Benefit Entity (PBE).

b) Statement of Compliance

The financial statements of Inland Fisheries Ireland for the year ended 31 December 2018 have been prepared in accordance with FRS 102, the financial reporting standard applicable in the UK and Ireland issued by the Financial Reporting Council (FRC), as promulgated by Chartered Accountants Ireland.

c) Basis of Preparation

The financial statements have been prepared under the historical cost convention, except for certain assets and liabilities that are measured at fair values as explained in the accounting policies below. The financial statements are in the form approved by the Minister for Communications, Climate Action and Environment with the concurrence of the Minister for Public Expenditure and Reform under the Inland Fisheries Act 2010. The following accounting policies have been applied consistently in dealing with items which are considered material in relation to Inland Fisheries Ireland's financial statements.

d) Revenue

Oireachtas Grants

Income from Oireachtas Grants is accounted for on a cash receipts basis.

Income from the Department of Culture, Heritage, and the Gaeltacht under its Rural Recreation scheme is accounted for on an accruals basis.

Income from the Department of Communications, Climate Action and Environment in respect of National Strategy for Angling development and the Eel Fisherperson Support Scheme are accounted for on an accruals basis.

All other income received is accounted for on an accruals basis.

Refunds of grants paid

Grants paid become refundable in certain circumstances, such as liquidation/dissolution of the recipient company, or if the conditions of the grant are not met. Grant refunds are recognised when it is probable that the money will be received by Inland Fisheries Ireland and the amount can be estimated reliably; therefore they are accounted for on an accruals basis.

Interest income

Interest income is recognised on an accruals basis using the effective interest rate method.

Other Revenue

Other revenue is recognised on an accruals basis except for Conservation fund, fines & forfeitures, sale of publications and Freedom of Information request fees which are reported on a cash received basis.

e) Capital Account

The Capital Account represents the unamortised amount of income used to purchase fixed assets.

e) Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated depreciation, adjusted for any provision for impairment. Depreciation is provided on all property, plant and equipment, other than freehold land and artwork, at rates estimated to write off the cost less the estimated residual value of each asset on a straight line basis over their estimated useful lives, as follows:

(i)	Buildings and Hatcheries	2%
(ii)	Motor Vehicles	20%
(iii)	Field Equipment	25%
(iv)	Laboratory Equipment	33⅓%
(v)	Boats	10%
(vi)	Trailers	10%
(vii)	Engines	20%
(viii)	Furniture and Office Equipment	20%
(ix)	Computers	33⅓%

Residual value represents the estimated amount which would currently be obtained from disposal of an asset, after deducting estimated costs of disposal, if the asset were already of an age and in the condition expected at the end of its useful life.

If there is objective evidence of impairment of the value of an asset, an impairment loss is recognised in the Statement of Income and Expenditure and Retained Revenue Reserves in the year.

f) Inventory

Inventory consists of goods for resale, and is recognised in the financial statements at the lower of Cost and Net Realisable Value (NRV). Cost is calculated on a first-in-first-out (FIFO) basis and includes all purchase costs. NRV is the selling price (actual or estimated) less all necessary completion costs. Stock in the fish farm is calculated with an assumed mortality rate of 60%.

g) Receivables

Receivables are recognised at fair value, less a provision for doubtful debts. The provision for doubtful debts is a specific provision, and is established when there is objective evidence that Inland Fisheries Ireland will not be able to collect all amounts owed to it. All movements in the provision for doubtful debts are recognised in the Statement of Income and Expenditure and Retained Revenue Reserves.

h) Operating Leases

Rental expenditure under operating leases is recognised in the Statement of Income and Expenditure and Retained Revenue Reserves over the life of the lease. Expenditure is recognised on a straight-line basis over the lease period, except where there are rental increases linked to the expected rate of inflation, in which case these increases are recognised when incurred. Any lease incentives received are recognised over the life of the lease.

i) Employee Benefits

Short-term Benefits

Short term benefits such as holiday pay are recognised as an expense in the year, and benefits that are accrued at year-end are included in the Payables figure in the Statement of Financial Position.

Retirement Benefits

Inland Fisheries Ireland previously established its own defined benefit pension scheme, funded annually on a pay-as-you-go basis from monies provided by the Department of Communications, Climate Action and Environment and from contributions deducted from staff members' salaries which are retained.

Inland Fisheries Ireland also operates the Single Public Services Pension Scheme ("Single Scheme"), which is a defined benefit scheme for pensionable public servants appointed on or after 1 January 2013. Single Scheme members' contributions are paid over to the Department of Public Expenditure and Reform (DPER).

Pension costs reflect pension benefits earned by employees, and are shown net of staff pension contributions. An amount corresponding to the pension charge is recognised as income to the extent that it is recoverable, and offset by grants received in the year to discharge pension payments.

Actuarial gains or losses arising on scheme liabilities are reflected in the Statement of Comprehensive Income, and a corresponding adjustment is recognised in the amount recoverable from the Department of Communications, Climate Action and Environment.

The financial statements reflect, at fair value, the assets and liabilities arising from Inland Fisheries Ireland's pension obligations and any related funding, and recognises the costs of providing pension benefits in the accounting periods in which they are earned by employees. Retirement benefit scheme liabilities are measured on an actuarial basis using the projected unit credit method.

j) Critical Accounting Judgements and Estimates

The preparation of the financial statements requires management to make judgements, estimates and assumptions that affect the amounts reported for assets and liabilities as at the balance sheet date and the amounts reported for revenues and expenses during the year. However, the nature of estimation means that actual outcomes could differ from those estimates.

The following judgements have had the most significant effect on amounts recognised in the financial statements.

Impairment of Property, Plant and Equipment

Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less cost to sell and value in use. For the purpose of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash generating units). Non-financial assets that suffered impairment are reviewed for possible reversal of the impairment at each reporting date.

j) Critical Accounting Judgements and Estimates (continued)

Depreciation and Residual Values

The Directors have reviewed the asset lives and associated residual values of all fixed asset classes, and in particular, the useful economic life and residual values of fixtures and fittings, and have concluded that asset lives and residual values are appropriate.

Provisions

Inland Fisheries Ireland makes provisions for legal and constructive obligations, which it knows to be outstanding at the period end date. These provisions are generally made based on historical or other pertinent information, adjusted for recent trends where relevant.

However, they are estimates of the financial costs of events that may not occur for some years. As a result of this and the level of uncertainty attaching to the final outcomes, the actual out-turn may differ significantly from that estimated.

Retirement Benefit Obligation

The assumptions underlying the actuarial valuations for which the amounts recognised in the financial statements are determined (including discount rates, rates of increase in future compensation levels, mortality rates and healthcare cost trend rates) are updated annually based on current economic conditions, and for any relevant changes to the terms and conditions of the pension and post-retirement plans.

The assumptions can be affected by:

(i) the discount rate, changes in the rate of return on high-quality corporate bonds

(ii) future compensation levels, future labour market conditions

Notes to the Financial Statements for the 12 months to 31 December 2018

2 Oireachtas Grants

The Oireachtas Grants voted to IFI from Vote 29 Communications, Climate Action and Environment, Sub Head E3 Inland Fisheries as shown in the financial statements consist of:

	2018	2017
Inland Fisheries Ireland	**€**	**€**
Current Expenditure Grant	25,246,000	24,121,029
Current Expenditure Grant - NSAD	650,146	-
Capital Expenditure Grant	3,803,053	1,370,106
	29,699,199	**25,491,135**

			2018	2017
3	**Other Income**		**€**	**€**
	Contract work		700,573	552,020
	Fish Farm income		303,359	300,055
	Permit Income		558,791	546,768
	Licence Income			
	Rod	451,502		
	Commercial Fishing	37,878		
	Part X Dealers	36,467		
	State Fisheries	68,785	594,632	625,765
	Salmon Conservation Funding		202,516	187,550
	Fines & Forfeitures (a)		63,283	67,336

Notes to the Financial Statements for the 12 months to 31 December 2018

3 **Other Income** (Continued)		
Fishery Rates	229,832	235,186
Department of Social Protection - Community Employment	151,000	203,305
Profit (Loss) on Sale of Fixed Assets	86,297	234,069
Department of Culture, Heritage and Gaeltacht - Rural Recreation Fund	345,131	98,450
Miscellaneous	18,413	40,458
	3,253,827	**3,090,962**

(a) During 2018 amounts, totalling €11,667 were paid from the Communications, Climate Action and Environment Vote under Section 315(3) of the Fisheries (Consolidation) Act 1959. These are included in Fines and Forfeitures (2017: € 10,335).

Notes to the Financial Statements for the 12 months to 31 December 2018

		Notes	2018	2017
4	**Administration**		€	€
	Staff costs and Board Members' fees	6	4,085,854	3,507,738
	Office expenses	8e	302,495	417,282
	Bank interest		20,126	15,373
	Advertising & public information		79,995	29,704
	Publicity & promotion		178,850	151,276
	Professional fees		229,810	108,267
	Audit fee		30,000	26,000
	Board expenses		33,978	29,413
	Legal Fees		51,734	5,369
	Insurance		42,891	29,145
	Depreciation	9	448,633	579,828
	Computer Expenditure	8d	156,690	261,659
	Miscellaneous	8b	107,286	138,274
	Bad debt provision	8b	87,799	23,168
			5,856,141	**5,322,496**

Notes to the Financial Statements for the 12 months to 31 December 2018

		Notes	2018	2017
5	**Operations**		€	€
	Staff costs	6	20,603,140	20,528,511
	Office expenses	8e	613,122	650,774
	Safety		375,861	171,169
	Training		216,941	134,050
	Legal Fees		179,483	249,399
	Professional fees		615,534	521,765
	Repairs & maintenance	8e	87,207	36,198
	Field supplies		243,782	260,981
	Development Works	8c	467,373	352,531
	Development Supplies	8c	652,345	689,005
	Running & upkeep of vehicles & boats	8a	1,281,735	1,189,530
	Laboratory expenses		57,397	51,843
	Purchase of fish & fish food		140,968	200,945
	Insurance		239,645	186,471
	Depreciation	9	1,220,767	897,567
	Dilapidations	8b	125,000	-
	Miscellaneous	8b	262,004	203,713
	Computer Expenditure	8d	123,856	97,327
	Licence and permit commission		54,477	55,150
			27,560,637	**26,476,929**
	Total expenditure		**33,416,778**	**31,799,425**

Notes to the Financial Statements for the 12 months to 31 December 2018

5a

	2018	2017
Consultancy Costs - Detail	**€**	**€**
Business Improvement		
Accounting Software Consultant	588	559
Corporate Governance	200	7,650
GDPR Consultant	11,808	6,135
Fish Farm Development	16,974	-
Print Audit	9,225	-
SharePoint Development	1,256	-
Fleet Services	66,684	11,414
Internal Auditors	-	5,390
Organisational Review Consultant	6,250	50,400
Website / Promotional / Software	-	3,285
	112,985	**84,833**
Financial		
Actuarial Services	4,613	4,613
Tax Consultancy	5,689	-
Internal Auditors	30,723	11,105
Payroll Services	33,404	-
	74,429	**15,718**

Notes to the Financial Statements for the 12 months to 31 December 2018

5a		
	2018	**2017**
Consultancy Costs - Detail (Continued)	**€**	**€**
HR/Pension		
Pension Advisor	2,866	2,721
Recruitment Consultant	55,078	5,074
HR Consultancy	26,077	-
Fishery Officers Handbook	18,681	-
Print Audit	**102,702**	**7,795**
Legal		
Legal Fees	230,867	254,565
	230,867	**254,565**
Other		
App Development	-	1,476
Archaeology	2,251	-
Architect	-	18,450
Audio Visual	-	1,840
Consultant Engineer	31,269	55,589
Corporate Gifts	-	2,310
Creeslough Fisheries Consultant	-	4,424
Eel Survey	71,660	92,800
Energy Consultants	-	4,299

Notes to the Financial Statements for the 12 months to 31 December 2018

5a

	2018	2017
Consultancy Costs - Detail (Continued)	€	€
Other (Continued)		
Environmental Consultant	34,373	11,221
Freshwater Salmonid Consultant	65,710	65,000
Legal Fees	-	1,845
Medical Services	20,714	23,427
National Outdoor Recreational Plan	-	2,800
Natura Impact Statement	984	6,212
Research Funding	20,145	15,467
Scale Sampling	-	9,840
Scuba Diving Services	1,046	14,034
Veterinary Services	14,553	16,076
Capital	-	2,550
Property/Planning	9,613	1,817
Website / Promotional / Public Admin	1,360	1,819
Riverine Consultants	14,678	29,401
Lice Tracking	104,738	-
Database	12,177	-
	405,271	**382,697**
Other Capital		
RIB Inspection	23,647	31,376
Architect	-	28,958
	23,647	**60,334**

Notes to the Financial Statements for the 12 months to 31 December 2018

5a		
	2018	**2017**
Consultancy Costs - Detail (Continued)	**€**	**€**
PR / Marketing		
Call Answering	5,904	5,904
Media	9,604	3,242
News Monitoring	4,593	7,769
PR Consultancy	7,440	13,760
Sea Lice Consultant		1,661
Socio-Economic Survey	30,000	70,000
Translation Service	10,024	6,211
Website / Promotional	13,606	1,304
Marketing Services	47,171	-
	128,342	**109,851**
Total	**1,078,243**	**915,793**

Notes to the Financial Statements for the 12 months to 31 December 2018

6 Remuneration and Other Pay Costs

			2018	2017
			€	€
6a	Salaries & wages *		18,064,168	17,487,542
	Board Members fees	7	51,852	63,335
	Travel & subsistence - National		915,542	928,298
	Travel & subsistence - International		63,161	66,964
	Pension costs	14a	5,594,271	5,490,110
			24,688,994	24,036,249

Included in salaries and wages are:

- amounts totalling €1.244m paid to 256 staff (2017: €1.273m paid to 252 staff) in relation to unsocial hours payments
- No termination benefits were paid in 2018

	2018	2017
Number of employees	**Number**	**Number**
Managerial & clerical	65	60
Research / technical	243	249
Other	1	1
Total Staff	309	310

Notes to the Financial Statements for the 12 months to 31 December 2018

6b	Range of salary short term employee benefits			
	From	**To**	**2018**	**2017**
	€60,000	€69,999	22	26
	€70,000	€79,999	1	5
	€80,000	€89,999	10	6
	€90,000	€99,999	-	4
	€100,000	€109,999	4	-
	€110,000	€119,999	-	-
	€120,000	€129,999	-	-
	€130,000	€139,999	-	1
	€140,000	€149,999	1	-

Note: for the purposes of this disclosure, short term employee benefits in relation to services rendered during the reporting period include salary, overtime, allowances and other payments made on behalf of the employee, but exclude employer's prsi

6c	Aggregate Employee Benefits	2018	2017
		€	€
	Staff salary and short-term benefits Permanent Staff	14,846,437	14,709,798
	Staff salary and short-term benefits Contract Staff	856,873	625,770
	Termination benefits	-	-
	Retirement benefit costs	5,594,271	5,490,110
	Employer contribution to social welfare	1,581,087	1,565,658
		22,878,668	**22,391,336**

Notes to the Financial Statements for the 12 months to 31 December 2018

6d	Staff Short-Term Benefits	2018	2017
		€	€
	Basic Pay	14,211,872	14,012,372
	Overtime	14,994	16,708
	Allowances	1,292,387	1,306,488
		15,519,253	**15,335,568**

***Salaries and wages**

Benefit in kind

IFI sought advice from Revenue on the treatment of BIK in situations unique to field operations in December 2018. After discussions and a number of on-site meetings Revenue concluded that as IFI's call outs, the main rationale behind staff taking vehicles home, were not scheduled, rostered and verifiable in line with the legislation, a BIK liability arises. A number of reasons as to why IFI staff (officers of the state) took vehicles home including enhanced value for money for the taxpayer and improved effectiveness were not accepted by Revenue. Following legal tax advice, IFI agreed a liability for 2018 of €192,151 plus interest of €14,110 Total €206,261. A liability of €71,397 including interest (€3,998) was established for 2019, up to 31.10.19. Vehicles are now parked at a base or designated lock-up and IFI have taken steps to ensure compliance with Revenue going forward. Two areas are awaiting Revenue approval, however the full potential liability has been included in the agreement.

Notes to the Financial Statements for the 12 months to 31 December 2018

6e Key Management Personnel

Key management personnel in Inland Fisheries Ireland consists of the members of the Board, the Chief Executive Officer, Head of Finance & Logistics, Head of Operations, Head of Business Development, Head of Research & ICT and Head of Human Resources. The total value of employee benefits for key management personnel is set out below:

	2018	2017
	€	€
Salary	680,590	681,341
Allowances	-	-
Termination Benefits	-	-
Health Insurance	-	-
	680,590	**681,341**

This does not include the value of retirement benefits earned in the period. The key management personnel with the exception of the Board Members are members of Inland Fisheries Ireland pension scheme and their entitlements in that regard do not extend beyond the terms of the model public service pension scheme.

6f Chief Executive Officer's Remuneration

The Chief Executive's remuneration comprised of:

	2018	2017
	€	€
Basic Annual Salary	141,184	138,155
Employer PRSI	14,055	13,634
Total	**155,239**	**151,789**

The CEO's is a member of Inland Fisheries Ireland pension scheme and his entitlements do not extend beyond the standard entitlement in the model public sector defined benefit superannuation scheme. The value of retirement benefits earned in the period is not included here. The CEO received recoupment of travel and subsistence of €9,191 in 2018 (2017: €11,196). There were no payments made to Dr. Ciaran Byrne, Chief Executive Officer, under performance related pay schemes in the period.

Notes to the Financial Statements for the 12 months to 31 December 2018

7 The following amounts were paid to Board members for the 12 months ended 31 December 2018

	Board	Audit & Risk Committee	Protection Committee	Salmon Committee	Fish Farm Working Group	National Inland Fisheries Forum (NIFF)	Mileage & Subsistence	Fees & Remuneration
	2018	2018	2018	2018	2018	2018	2018	2018
Number of Meetings								
Fintan Gorman (Chairperson) **E**	9				3		10,616	11,970
Prof Frances Lucy **A,E**	9	6			1		3,723	-
Martin McEnroe **B,C,D**	9		2	5		2	4,603	7,695
Niall Greene **D**	8			4			816	7,695
Sean Coady **B,C,D,F**	8		2	5		2	5,633	8,449
Patrick Gibbons **A,C**	8	6	2				360	7,695
Bernadette Orbinski Burke **A**	9	5					1,117	7,695
Fidelma McGuirk **D,G**	0						6,549	653
							33,417	**51,852**

Notes to the Financial Statements for the 12 months to 31 December 2018

The following amounts were paid to Board members for the 12 months ended 31 December 2017

Board	Mileage & Subsistence	Fees & Remuneration	Meetings Attended
	2017	2017	2017
Fintan Gorman (Chairperson) A,E	8,947	11,970	16
Prof Frances Lucy A,E	4,051	-	19
Peter John Nally A	478	4,732	2
Martin McEnroe C,D	6,870	7,695	26
Niall Greene D	710	7,695	20
Sean Coady C,D,F	5,323	8,158	25
Patrick Gibbons A,I,C	843	7,695	21
Bernadette Orbinski Burke A,J	1,322	7,695	16
Fidelma McGuirk D,G	-	7,695	19
	28,544	**63,335**	

The total number of meetings held in 2018 was 27 (2017: 32 meetings)

Prof Frances Lucy did not receive a Board fee under the One Person One Salary principle (OPOS)

Some members also serve on Board Subcommittees:

A denotes Audit & Risk Sub Committee
B denotes National Inland Fisheries Forum (NIFF)
C denotes Protection Sub Committee
D denotes Salmon Sub Committee
E denotes Fish Farm Working Group
F Sean Coady is the staff representative on the Board and his fee shown above includes Employer PRSI.
G Resigned from the Board 31st January 2018

Notes to the Financial Statements for the 12 months to 31 December 2018

		2018	2017
		€	€
8a	**Running & upkeep of vehicles & boats**		
	Vehicle Insurance	120,851	109,214
	Vehicle repairs & maintenance	324,806	281,174
	Vehicle fuel	492,602	489,768
	Boat Insurance	30,509	39,635
	Boat repairs & maintenance	177,568	135,362
	Boat fuel	32,980	33,113
	Covert Car Hire	6,591	8,891
	Storage of Boats & Vehicles	1,727	6,841
	Other running costs	94,101	85,532
		1,281,735	**1,189,530**

Notes to the Financial Statements for the 12 months to 31 December 2018

		2018	2017
		€	€
8b	**Miscellaneous**		
	Magazines / periodicals	1,826	2,969
	Meeting Expenses	26,130	18,577
	Courier	7,227	4,244
	Facilities Expenditure	73,812	82,119
	Fish Vaccines	4,808	1,780
	Hatchery Costs	41,482	24,350
	Domestic supplies	23,561	19,771
	Cleaning	54,527	68,488
	Security	29,997	29,578
	Equipment repairs & maintenance	65,573	64,432
	Bad Debts Provision	87,799	23,168
	Bad Debts Write Off	-	-
	Equipment under €500	36,911	21,103
	Dilapidations *	125,000	-
	Sundry	3,436	4,576
		582,089	**365,155**

* Lease on Swords warehouse was terminated at break clause in 2018. Dilapidations were a condition of the lease.

Notes to the Financial Statements for the 12 months to 31 December 2018

		2018	2017
		€	€
8c	**Development Expenditure**		
	Sub-contract / plant hire	396,248	291,701
	Development supplies	652,345	689,006
	Rehabilitation Works	47,742	60,829
	Angling Works	23,383	-
		1,119,718	**1,041,536**
8d	**Computer Expenditure**		
	Computer consumables	6,766	19,375
	Computer software	66,654	127,477
	Computer Maintenance & Licencing	207,126	212,134
		280,546	**358,986**
8e	**Office expenses**		
	Printing & stationery	72,318	65,854
	Postage & telephone	90,842	101,718
	Mobile phones & Broadband & Antennae Masts & Off-Site Communication	267,154	210,647
	Rent & rates	119,734	272,721
	Heat & light	278,109	283,310
	Repairs & maintenance	174,667	170,004
		1,002,824	**1,104,254**

Notes to the Financial Statements for the 12 months to 31 December 2018

9 Property, Plant & Equipment

	Land, buildings, fisheries & hatcheries	Motor vehicles	Boats & engines	Field & lab equip. incl Trailers	Furniture, office equip. & computers	Total
	€	€	€	€	€	€
Cost or valuation						
At 1 Jan 2018	20,887,617	5,807,544	3,180,103	5,521,834	2,698,109	38,095,207
Reclass 1 Jan 2018	-	-	(37,958)	37,958	-	(0)
Additions for year	57,602	-	2,450,623	405,435	126,970	3,040,630
Disposals for year	-	(599,323)	(28,945)	(83,105)	(43,120)	(754,493)
At 31 December 18	**20,945,219**	**5,208,221**	**5,563,823**	**5,882,122**	**2,781,959**	**40,381,344**
Depreciation						
At 1 Jan 2018	4,260,422	5,121,786	2,856,825	4,990,419	2,342,669	19,572,121
Reclass 1 Jan 2018	-	-	(3,267)	3,264	-	(3)
Additions for year	411,081	380,470	312,436	293,001	272,412	1,669,400
Disposals for year	-	(599,322)	(28,940)	(81,796)	(43,112)	(753,170)
At 31 December 18	**4,671,503**	**4,902,934**	**3,137,054**	**5,204,888**	**2,571,969**	**20,488,348**
Net Book Value						
At 1 January	16,627,195	685,758	323,278	531,415	355,440	18,523,086
Net Movement for the year	(353,479)	(380,471)	2,103,491	145,819	(145,450)	1,369,910
At 31 December	**16,273,716**	**305,287**	**2,426,769**	**677,234**	**209,990**	**19,892,996**

Notes to the Financial Statements for the 12 months to 31 December 2018

9 Property, Plant & Equipment (continued)

In Respect of Prior Year

	Land, buildings, fisheries & hatcheries	Motor vehicles	Boats & engines	Field & lab equip. incl Trailers	Furniture, office equip. & computers	Total
	€	€	€	€	€	€
Cost or valuation						
At 1 Jan 2017	20,158,507	6,025,561	4,727,883	5,208,632	2,758,879	38,879,462
Reclass 1 Jan 2017	-	-	2,050	142,543	(144,596)	(3)
Additions for year	729,633	-	135,584	466,716	164,364	1,496,297
Disposals for year	(523)	(218,017)	(1,685,414)	(296,057)	(80,538)	(2,280,549)
At 31 December 17	**20,887,617**	**5,807,544**	**3,180,103**	**5,521,834**	**2,698,109**	**38,095,207**
Depreciation						
At 1 Jan 2017	3,850,581	4,904,791	4,440,635	4,887,890	2,279,945	20,363,842
Reclass 1 Jan 2017	-	-	1,844	142,746	(144,593)	(3)
Charge for year	409,877	435,012	98,741	250,474	283,291	1,477,395
Disposals for year	(36)	(218,017)	(1,684,395)	(290,691)	(75,974)	(2,269,113)
At 31 December 17	**4,260,422**	**5,121,786**	**2,856,825**	**4,990,419**	**2,342,669**	**19,572,121**
Net Book Value						
31 December 2016	**16,307,926**	**1,120,770**	**287,248**	**320,742**	**478,934**	**18,515,620**
Net Book Value						
31 December 2017	**16,627,195**	**685,758**	**323,278**	**531,415**	**355,440**	**18,523,086**

Notes to the Financial Statements for the 12 months to 31 December 2018

10 Analysis of receivables

	2018	2017
	€	€
Trade debtors etc.	783,622	561,188
Accrued Income	16,984	66,026
Bad debt provision	(439,996)	(352,197)
VAT on Long Term Lease prepayments	-	154,613
Other prepayments	77,940	902,886
	438,550	**1,332,516**

Notes to the Financial Statements for the 12 months to 31 December 2018

11 Analysis of payables

	2018	2017
	€	€
Deferred Income		
Deferred Contract income	119,870	119,911
Department Culture, Heritage and the Gaeltacht - Rural Recreation Fund	171,885	517,016
National Strategy for Angling Development	1,521,480	1,946,560
Eel Hardship Scheme	1,200,000	-
Total Deferred Income	**3,013,235**	**2,583,487**
Funds held in trust		
Salmon Conservation Fund	3,374,955	3,155,750
Trade creditors and accruals	2,623,757	2,084,227
	9,011,947	**7,823,464**

Salmon Conservation Funds are generated from the sale of salmon angling and commercial fishing licences. The revenue generated from the Salmon Conservation Fund is reinvested to promote the recovery of our salmon stocks and habitats taking into account project feasibility, funding availability and value for money considerations.

The Fund is being managed by Inland Fisheries Ireland and is accounted for as a Creditor on the statement of financial position. Where Inland Fisheries Ireland incurs direct expenditure on projects related to Fund activities it is reimbursed from the Fund. IFI's direct expenditure is charged to the Income and Expenditure and retained revenue reserves. Reimbursement from the Fund is accounted for by Inland Fisheries Ireland as Other Income (Note 3) on a cash receipts basis. All other transactions in relation to the Fund, including payments to third parties, are accounted for as movements in the Creditors figure.

Notes to the Financial Statements for the 12 months to 31 December 2018

11 Analysis of payables (Continued)

Transactions in relation to the Salmon Conservation Fund in 2018 are disclosed below.

	2018	2017
	€	€
Opening Balance	3,155,750	2,909,807
Receipts	468,939	495,161
Interest earned	1,033	1,180
Expenditure		
Insurance SCF Employer and Public Liability	(7,599)	(14,176)
To third parties	(40,652)	(48,672)
To IFI*	(202,516)	(187,550)
Closing Balance	**3,374,955**	**3,155,750**

* Accounted for by IFI as Other Income.

Notes to the Financial Statements for the 12 months to 31 December 2018

	Deferred Contract Income	Rural Recreation Fund	NSAD	Eel Fisherpersons Support Scheme	Total
	A	B	C	D	
Opening Balance	119,911	517,016	1,946,560	-	2,583,487
Receipts in year	45,002			1,200,000	1,245,002
Released to Income and Expenditure	(45,043)	(345,131)	(425,080)	-	(815,254)
Closing Balance	**119,870**	**171,885**	**1,521,480**	**1,200,000**	**3,013,235**

A Licence Income, AMBER (EU Project) and Department of Employment Affairs and Social Protection in the case of contract income

B The Department of Culture, Heritage and the Gaeltacht provides funding fom the Rural Recreation Fund to develop key angling projects in rural areas

C The Department of Communication, Climate Action and the Environment provides funding for any individual, angling club etc. with an interest in the development and improvement in Irish angling and/or fisheries under the National Strategy for Angling Development (NSAD).

D The Department of Communication, Climate Action and the Environment offers a restitution payment via the Eel Fisherpersons Support Scheme to former eel fisherpersons who were licenced/permitted to engage with the commercial eel fishery in 2007.

Notes to the Financial Statements for the 12 months to 31 December 2018

12 Capital account

	2018	2017
	€	€
Balance at 1 Jan	18,523,086	18,515,620
Transfer (to) / from Income and Expenditure and retained revenue reserves		
To fund fixed asset purchases	3,040,630	1,496,297
Amount Released on Disposal of Fixed Assets	(1,323)	(11,436)
Amortisation in line with asset depreciation	(1,669,397)	(1,477,395)
	1,369,910	7,466
Balance	**19,892,996**	**18,523,086**

13 Related Party Disclosures

Inland Fisheries Ireland adopts procedures in accordance with the guidelines issued by the Department of Public Expenditure and Reform covering the personal interests of Board members. In the normal course of business, Inland Fisheries Ireland may approve grants or enter into other contractual arrangements with entities in which Inland Fisheries Ireland Board members are employed or are otherwise interested.

In cases of potential conflict of interest, Board members do not receive Board documentation or otherwise participate in or attend discussions regarding these transactions. A register is maintained and available on request of all such instances.

There were no 3rd party disclosures in 2018.

Notes to the Financial Statements for the 12 months to 31 December 2018

14 Retirement Benefit Costs

	2018	2017
	€	€
a Analysis of total Retirement benefit costs charged to the Statement of Income and Expenditure and Retained Revenue Reserves		
Current service costs	4,048,000	3,863,000
Interest on retirement benefit scheme liabilities	2,162,000	2,164,000
Employee contributions - Non Single Pension Scheme	(520,048)	(536,890)
Employee contributions - Single Pension Scheme	(95,681)	
	5,594,271	5,490,110
b Movement in Net retirement benefit obligations during the financial year		
Net retirement benefit obligation at 1 January	(119,614,303)	(113,391,679)
Current Service Cost	(4,048,000)	(3,863,000)
Interest Costs	(2,162,000)	(2,164,000)
Experience gains on retirement benefit obligations	2,005,000	(917,000)
Change in assumptions underlying the present value of retirement benefit obligations	(949,000)	(2,088,000)
Total actuarial gain/(loss) in the year	1,056,000	(3,005,000)
Pensions paid in the period	3,033,340	2,809,376
Net retirement benefit obligation at 31 December	(121,734,963)	(119,614,303)

Notes to the Financial Statements for the 12 months to 31 December 2018

14 Retirement Benefit Costs (Continued)

	2018	2017
	€	€
c Deferred Funding for Pensions		

Inland Fisheries Ireland recognises these amounts as an asset corresponding to the unfunded deferred liability for retirement benefits on the basis of the set of assumptions described above and a number of past events. These events include the statutory basis for the establishment of the pension scheme, and the policy and practice currently in place in relation to funding public service pensions including contributions by employees and the annual estimates process. Inland Fisheries Ireland has no evidence that this funding policy will not continue to meet such sums in accordance with current practice.

The Net Deferred Funding for retirement benefits recognised in the statement of Income and Expenditure and retained revenue reserves was as follows:

	2018	2017
	€	€
Funding Recoverable in respect of current year Retirement benefit costs	(6,210,000)	(6,027,000)
State Grant applied to pay retirement benefits	3,033,340	2,809,376
	(3,176,660)	(3,217,624)

The deferred funding asset for retirement benefits as at 31 December 2018 amounted to €121,734,963 (31 December 2017: €119,614,303)

Notes to the Financial Statements for the 12 months to 31 December 2018

		2018	2017	2016	2015	2014
		€	€	€	€	€
d	History of defined benefit obligations					
	Defined benefit obligations	(121,734,963)	(119,614,303)	(113,391,679)	(99,923,467)	(110,676,806)
	Experience gains / (losses) on defined benefit scheme liabilities	2,005,000	(917,000)	1,114,000	6,499,000	(828,000)
	Percentage of Scheme Liabilities	2%	-1%	1%	6.5%	-1%

Notes to the Financial Statements for the 12 months to 31 December 2018

14. Retirement Benefit Costs (Continued)

e The total amount recognised in the Statement of Comprehensive Income amounts to €1,056,000 (Experience gain/loss €2,005,000 and changes in assumptions -€,949,000)

f General Description of the Scheme

The pension scheme is a defined benefit final salary pension arrangement with benefits and contributions defined by reference to current "model" public sector scheme regulations. The scheme provides a pension (eightieths per year of service), a gratuity or lump sum (three eightieths per year of service) and spouse's and children's pensions. Normal Retirement Age is a member's 65th birthday and pre 2004 members have an entitlement to retire without actuarial reduction from age 60. Pensions in payment (and deferment) normally increase in line with general public sector salary inflation.

Section 50 of the Inland Fisheries Act states - "The pension payments and other superannuation liabilities of Inland Fisheries Ireland in respect of their former employees become on the establishment day the liabilities former employees become on the establishment day the liabilities"

The valuation used for FRS102 disclosures has been based on a full actuarial valuation 31 December 2018 by a qualified independent actuary taking account of the requirements of the FRS in order to assess the scheme liabilities at 31 December 2018 of IFI.

The principal actuarial assumptions were as follows:	**31.12.18**	**31.12.17**
Rate of increase in salaries	3.00%	2.75%
Rate of increase in pensions in payment	1.50%	1.75%
Rate of pensions increases - Superannuation Scheme	2.00%	1.75%
Rate of pensions increases - SPSPS	1.50%	1.75%
Discount Rate	2.05%	1.80%
Inflation Rate	1.50%	1.75%

The mortality basis adopted allows for improvements in life expectancy over time, so that life expectancy at retirement will depend on the year in which a member attains retirement age (age 65.) The table below shows the life expectancy for members attaining age 65 in 2019, 2039.

Notes to the Financial Statements for the 12 months to 31 December 2018

14. Retirement Benefit Costs (Continued)

Year of attaining age 65	2019	2039
Life expectancy - male	21.3	22.9
Life expectancy - female	23.8	25.3

15. Lease Commitments

a Lease commitment payable after five years relates to a warehouse on Ballysimon Road, Limerick.

At 31 December 2018 Inland Fisheries Ireland had the following future minimum lease payments under non-cancellable operating leases for each of the following periods:

	€000'0s
Payable within one year	36
Payable within one year	146
Payable within one year	36
	218

Operating lease payments recognised as an expense were € 77,161 (2017: € 213,323)

b **Capital Commitments**
Capital Commitments of € 2,457,618 for both RIBS and Vehicles delivered early 2019

16. Cash and cash equivalents

Included in IFI's year end bank balances of € 16.31 million are amounts of € 6.381 million being monies received but deferred at year end in respect of the Salmon Conservation Fund, the Rural Recreation Fund, TRAM, the National Strategy for Angling Development and the Eel Fisherpersons Support Scheme. These monies are restricted for use on these projects.

The following funds are held by IFI and will be distributed when projects are complete - Salmon Conservation Fund €3.37 million, National Strategy for Angling Development € 1.52 million, Rural Recreation Fund € 172K and Eel Fisherpersons Support Scheme €1.2 million.

17. Approval of Financial Statements

The financial Statements were approved by the IFI Board on the 18th December 2019.