



Energy for
generations

THE 2024 SHANNON FISHERIES PARTNERSHIP REPORT

(YEAR ENDING DECEMBER 2024)

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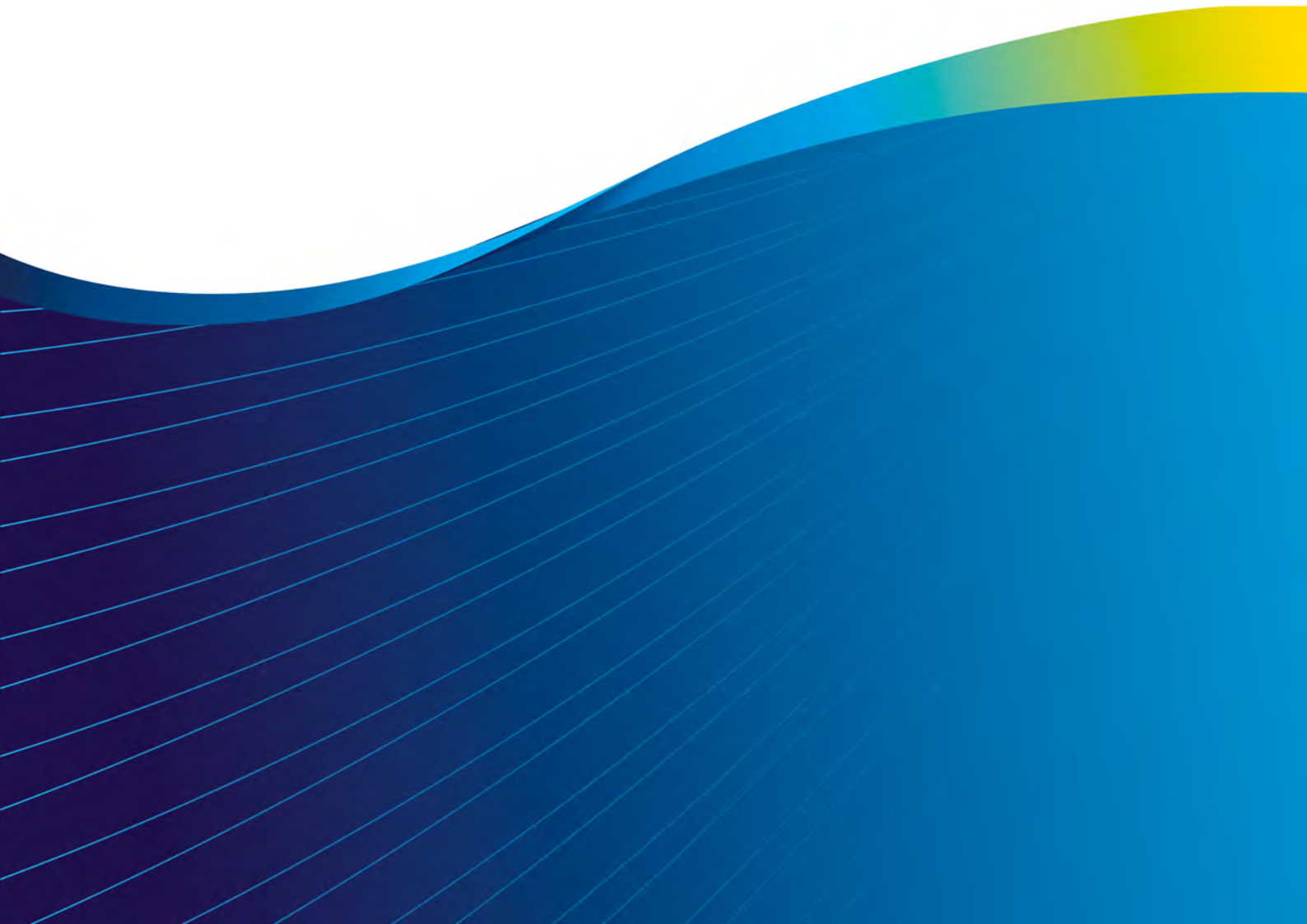


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Introduction



Following the successful implementation of the Partnerships previous work plans this report details the plans for 2025 and also reports on the work completed in 2024. The Partnership has built on the lessons learned in previous work programmes and have developed an extensive programme of instream and bank side works which will focus on the improvement of fish stocks and fish habitat. The 2025 Work Plan also outlines works to be carried out by ESB, Inland Fisheries Ireland and the Angling Clubs.

The Partnership wishes to thank all those in Local Communities and State Bodies for their help in making the implementation of the various work plans possible. We would also wish to thank all the individuals who gave of their time and assistance during the past year to support the work of the Partnership. In particular the representation given by the volunteer members of the SFP committee are acknowledged.

The staff of ESB, IFI and the members of angling groups who worked to deliver our work plan are to be commended for their hard work. This unique coming together of the three groups has enabled the scarce resources of all three to be harnessed to deliver a greater level fishery restoration work than by one group alone.

The River Shannon fishery is owned and managed by ESB, which has the primary function of hydroelectric generation. Subject to that, it performs the duty of managing, conducting and preserving the Shannon fisheries under the Shannon Fisheries Act (1935).

In the summer of 2010, following ongoing discussions between ESB and the Shannon Fisheries Preservation and Development Co Ltd, agreement was reached to establish the Shannon Fishery Partnership. The Partnership Group comprises of representatives from the following stakeholders: ESB, Shannon Fisheries Preservation and Development Co. Ltd (SFPDC), Inland Fisheries Ireland (IFI) and an independent Chairperson.

The waters involved in the Partnership are those areas of the Shannon catchment above Parteen Weir/Ardnacrusa station over which ESB have fishing rights but excluding fisheries leased to Inland Fisheries Ireland.

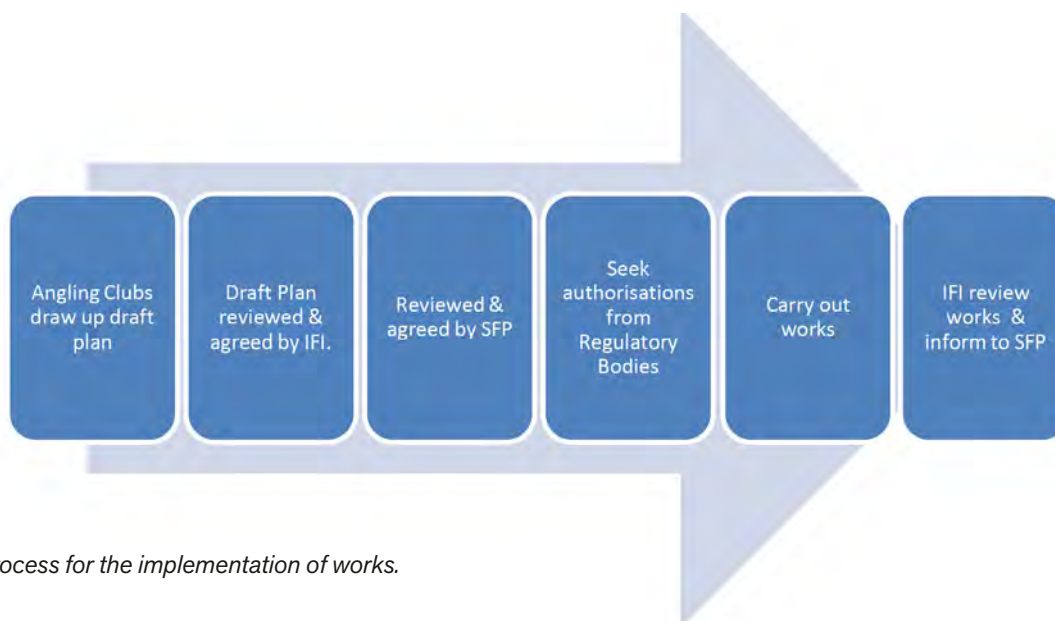
The Annual Work Plan is developed in line with a rolling five-year Strategic Plan which is reviewed on an ongoing basis. It also seeks to work in partnership with others to utilise available resources to best assist in the rebuilding and protection of our fisheries.

The River Shannon catchment area including that of the estuary covers approximately 17% of the area of Ireland. It is the longest river in the British Isles and has a total main channel length of almost 400km, of which 25% is estuarine. The lakes of the catchment are naturally productive and can be generally classified as either semi-enriched (mesotrophic) or enriched (eutrophic). Much of the main river channel is lake-like in character reflecting its size, regulated flow and low gradient (falling just 20m over a distance of 200km south of Lough Allen). The largest of the Shannon lakes are Loughs Allen (35km²), Ree (105km²) and Derg (117km²), with the most important tributaries of the Shannon being the Boyle and Suck to the west and the Inny, Brosna, Little Brosna, Nenagh and Mulkear to the east.



IFI drone footage showing the Lower Shannon below the Ardnacrusha tailrace.

Parteen Regulating Weir diverts water into a headrace canal supplying the 85MW Ardnacrusha generating station and also allows a statutory compensation flow (10m³sec⁻¹), equal to the low summer flow before the Shannon scheme, to flow down the Old Shannon River channel.



The process for the implementation of works.

Objectives

1. To develop a sustainable, operational, collaborative structure, operating through partnerships and consensus.
2. To identify the needs of the Fishery, ensuring the conservation and sustainable yield of fish in line with prevailing scientific advice.
3. To develop and implement a rolling five-year strategic plan to incorporate fishery maintenance and enhancement.
4. To enhance recreational angling and eel fisherpersons' ability to input into the operation plans of the Shannon Fishery Partnership.
5. Ensure "buy in" from all stakeholders in the catchment in association with the Strategic Plan.

The 2024 Shannon Fisheries Partnership Report

ESB led initiatives



A view of the four Ardnacrusha penstocks which take water from the headrace canal to the turbine units.



A view of Ardnacrusha station and the tailrace behind.

The River Shannon catchment area including that of the estuary covers approximately 17% of the area of Ireland. It is the longest river in the British Isles and has a total main channel length of almost 400km, of which 25% is estuarine. The lakes of the catchment are naturally productive and can be generally classified as either semi-enriched (mesotrophic) or enriched (eutrophic). Much of the main river channel is lake like in character reflecting its size, regulated flow and low gradient (falling just 20m over 200km, south of Lough Allen). The largest of the Shannon lakes are Loughs Allen (35km²), Ree (105km²) and Derg (117km²), with the most important tributaries of the Shannon being the Boyle and Suck to the west and the Inny, Brosna, Little Brosna, Nenagh and Mulkear to the east.

Discharge on the River Shannon is regulated at Parteen Regulating Weir. Parteen Regulating Weir diverts water into a headrace canal supplying the 85MW Ardnacrusha generating station and allows a statutory compensation flow (10m³sec⁻¹), equal to the low summer flow before the Shannon scheme, to flow down the Old Shannon River channel.

Ardnacrusha generating station, constructed between 1925 and 1929, harnesses the 10,400km² of the catchment area upstream. During the 1930's, Ardnacrusha supplied almost 90% of the electricity needs but today it accounts for less than 3% of the Republic of Ireland's requirement. However, the ability to generate electricity at short notice when electricity demand suddenly increases makes it very important generation asset.



A view of one of the Ardnacrusha penstock pipes and the Ardnacrusha Borland Fish lock behind.

ESB controls the fishing rights of the entire River Shannon and the role of the maintenance and preservation of the entire fishery resources is undertaken by ESB Sustainable Rivers. The River Shannon fisheries are managed in co-operation with:

- Inland Fisheries Ireland (IFI)
- The Department of Communications, Climate Action and Environment
- The Marine Institute

In addition to the above agencies, both angling and community groups are becoming increasingly involved.

An outline of the various programmes of work that ESB Sustainable Rivers Team are involved with, and the time periods involved are shown in Table 1.

Table 1. The annual work programmes completed by ESB staff during the year.

Task	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Salmon Conservation												
Adult broodstock trapping												
Stripping broodstock												
Hatchery egg to fry stage												
Restocking juvenile salmon (unfed, fry, parr)												
Smolt release												
Eel Conservation												
Silver Eel Trap and Transport												
Juvenile Eel Trap and Transport												
Conservation Management												
Electrical fishing surveys												
Fish Counters (Operation and Management)												
Smolt & elver generation protocols												
River Enhancement & Conservation												
Tree/Shrub clearance (with NPWS)												
Instream habitat works												
Construction of fishing stands, stiles & footbridges												

ESB habitat works

The specific areas of the Shannon catchment which have been selected for habitat restoration works, are those catchments which have been previously drained, and which presently suffer from having a homogenous canalised type of habitat, with a capacity of supporting a limited number of fish species and life stages. The list of sites to be worked upon is also reviewed by the Shannon Fisheries Partnership Group which is a partnership arrangement made up of ESB Fisheries Conservation, Inland Fisheries Ireland (IFI) and the Shannon Fisheries Development Company. The catchments worked upon in 2024 included:

1. The Mulkear (Lower Shannon).
2. Castleconnell (Lower Shannon).
3. The Little Brosna (Camcor tributary)
4. The Ballyfinboy River

Appropriate Assessments (AA) are carried out, the need for which originates from Article 6(3) of the EU Habitats Directive (Directive 92/43/ EEC). This considers whether a plan or project, alone or together with other plans and projects, is likely to have significant effects on any European Sites. This is in view of best scientific knowledge and the conservation objectives of the respective sites. European Sites are those identified as sites of European Community importance designated as Special Areas of Conservation (SAC) under the Habitats Directive or as Special Protection Areas (SPA) under the Birds Directive.

Each specific site work plan is drafted by IFI staff working in a partnership approach with ESB Fisheries Conservation staff. Where appropriate, the Office of Public Works (OPW) and the National Parks and Wildlife Service (NPWS) are notified of these works and a screening report for an Appropriate Assessment document is completed. Permission for access to the individual work sites are also requested from the local landowners and with the co-operation of the local angling clubs and other recreational riverine users.

Due to some of the selected areas having undergone arterial drainage during the past few decades, the individual plans aim to change the physical habitat from a drained homogeneous area towards re-creating a naturally heterogeneous habitat. Therefore, many stages of fish will be able to inhabit the newly formed areas, and many species of fish will be able to populate a given stretch of river. All the areas being worked upon have a favourable water quality status to ensure the survival of the various fish population both during and after the habitat works.

The habitat work programme may be categorised into two different areas:

(1) Instream work: This work involves the recreation of the riffle-glide-pool sequence that would normally be representative of a healthy un-drained river. However, in many drained rivers this riffle-glide-pool sequence has been removed as part of the drainage process and the bed of the river has been altered and/or lowered. Thus, a homogeneous or 'canalised' river is what remains after the drainage work, which is unsuitable for a naturally balanced fish population. In general, the number of fish species occupying an area, and the number of individual fish is greatly increased if a variety of habitats are present. Instream works includes building stone vortex weirs and alternating deflector

placement of random boulders, spawning gravels and rock armor bank protection. The timing of the works is especially important as spawning fish may be present during the late autumn to late spring months. Therefore, all instream works are scheduled for the period May to mid- September. The flood conveyancing capacity of each the rivers remains unaffected, as all in-river structures are designed and built to be submerged in high flow conditions without any damage to the structure or riverbank.

(2) Riparian/bank side work: This work is carried out during the winter months as tree pruning is prohibited under law during the bird nesting season. Works include the removal of excess overhanging vegetation, where it causes excessive shade or 'tunnelling' of the river. Excessive tunnelling by riverbank vegetation prevents light entering the river and thereby reduces the instream productivity. An example of this would be that aquatic plants would be absent where excess riverbank shade exists. Their absence would decrease the source of food for aquatic insects and there would also be a reduction in the amount instream cover available for resident fish to hide and develop individual territories when necessary.

The final task would be to fence the riverbank areas with post and wire, although provision is occasionally made for cattle drinking areas (depending upon land use and the landowner's view). Cattle drinking areas aim to provide restricted access to the river (within a discrete area), whilst preventing cattle trampling an entire river bank area, which thereby may cause later erosion. Provision is made for access to the river by footpaths, gates, footbridges, stiles etc., but only after the prior permission of the landowner. Fencing is to the farming 'Acres' scheme standard where required.

ESB habitat works were completed at several locations during 2024. The following sections shows a selection of photographs which along with some text helps to explain the wide variety, scale and quality of the work completed by ESB fisheries staff. Where works were either uncompleted or partially completed in 2024 (due to unplanned changes such as the weather (rainfall/river discharges) or prioritisation of other ESB work, or where the progress of these works be slower than planned, these sites will be completed in 2025.

Mulkear

During 2024, routine maintenance of existing structures was carried out on the Mulkear. This included clearing footpaths and fish access section of riverbank and completing some extensive repairs to previously constructed angling access points.



Ballyclough Weir on the Mulkear River, prior to work commencing.



Ballyclough Weir on the Mulkear River, being cleared to allow access onto the weir wall.



Clearing footpaths and swing gates at access points on the banks of the Mulkear fishery.



A recently cleared access point on the Mulkear fishery.



A bankside footpath prior to clearing, on the Mulkear fishery.



A bankside footpath after clearance, on the Mulkear fishery.

Castleconnell

Angling access works and general maintenance of the area were completed throughout Castleconnell during 2024. Work was carried out along the riverbanks where some selective clearance was undertaken. The spraying of emerging Giant Hogweed with glyphosate was undertaken by the Castleconnell Fishery Association (CFA). Giant hogweed is one of the first plants to emerge in Spring and in 2024 the CFA had persons (courtesy of the Castleconnell CE scheme), committed to the program for the months of April and May. The best return from this selective spraying is during the early months before other growth catches up. Volunteers from the CFA also 'adopted' a stretch of river to identify straggler plants and spray them in later months. Around June/July the CFA sprayed the other highly invasive non-native plant, the Himalayan Balsam, which was present but not as pervasive. This was mainly done at the bottom of the fishery (Beats 5 and 6).

The Little Brosna (Camcor River)

During 2024, the Riverstown section of the Little Brosna River was worked upon. Site access points were replaced, and stock proof-fencing was erected.



A wooden stile which will be replaced with a pedestrian gate.



A pedestrian gate recently erected at Riverstown section of the Little Brosna in 2024.

The Ballyfinboy River

A section of the Ballyfinboy River Co. Tipperary was worked upon in 2024. The works included rock armour for badly eroded riverbanks, removal of largescale blockages of deadwood and within river trees, the provision of cattle drinking areas (rather than full access for livestock to the entire river). Random boulders were placed in the previously homogeneous channel to provide cover for fish and help with the creation of territories. The final task was the provision of livestock fencing to the ACRES standard.



An area of the Ballyfinboy River where bank slippage has occurred. The large limestone boulders have been delivered to the site and aligned along the riverbank. A tracked machine will selectively place these along the riverbank to prevent further slippage.



A length of riverbank where rock armoring of the bankside has been completed.

The River Shannon Salmon



A section of the Ardnacrusha tailrace.



Angling along the 'Longshore' stretch of the Lower River Shannon.



The 'Longshore' area of the River Shannon where the Ardnacrusha tailrace enters the Old River Shannon.

Since initiation of the River Shannon Salmon Management Programme in 1990, ESB has been proactive in the conservation of the salmon population of the River Shannon. Prior to the Shannon Scheme, the river was renowned as a producer of large multi-sea winter salmon and grilse. With the advent of the hydroelectric scheme, there was a significant reduction of the spawning and nursery habitat in the Old River Shannon channel. In 1959, a Borland–MacDonald fish-lock was constructed at Ardnacrusha and a salmon hatchery unit was constructed at Parteen Regulating Weir. Mitigation measures involved the restocking of the Shannon catchment with annual releases of juvenile salmon produced at this hatchery. However, although the Shannon scheme caused major changes for salmon in the river, the impact of extensive drainage schemes, water regulation and canalisation, intensive farming, afforestation and water pollution have also impacted negatively. Increased marine and coastal exploitation levels since the 1960's followed by the incidence of Ulcerated Dermal Necrosis (UDN), and more recently decreasing marine survival have also added to the reduction in numbers of self-sustaining stocks of salmon (Figure 1).

The overall purpose of the River Shannon Salmon Management Programme is to assist the recovery of wild salmon populations in the cascade catchment area, provide reared smolt to support the recreational fisheries in the Lower Shannon and to protect the biodiversity and ecological productivity of wild salmon populations in the Shannon catchment.

The more specific objectives of the programme were:

- To ensure that the maximum possible number of salmon enter the cascade catchment annually to spawn.
- To investigate fish passage issues for adult and juvenile migrating salmon. Specific areas to be investigated were:
 1. The efficiency rate of the Borland MacDonald fish lift located in Ardnacrusha.



Anaesthetised hatchery reared salmon smolt being adipose fin clipped in readiness for their April release from Parteen hatchery.

2. Smolt passage through a Kaplan turbine located at Ardnacrusha was independently assessed based upon the results of a Heisey Tag test in 2004. The survival rate of salmon smolt migrating during the annual Ardnacrusha salmon smolt and juvenile eel generation protocol has been calculated at 89.4%.
3. To increase understanding of salmon populations using micro tagged batch releases of salmon parr, an extensive electrofishing programme and continued restocking of both unfed fry and parr.
 - To involve as many statutory and community groups as possible in the execution of the programme.
 - An instream and bank side habitat enhancement programme to be applied to selected catchments.

Since 1991, all hatchery reared smolt have been adipose fin-clipped and selected breeding lines have been micro tagged, thus allowing the separation of reared, wild, grilse and multi-sea winter adult salmon. The restocking programme since 1991 has moved to large scale unfed fry planting with the retention of unfed fry for smolt production the following year. These unfed fry plantings are evaluated using electric fishing equipment. The performance of these unfed fry has generally been good compared to the first baseline survey (1990-1992).

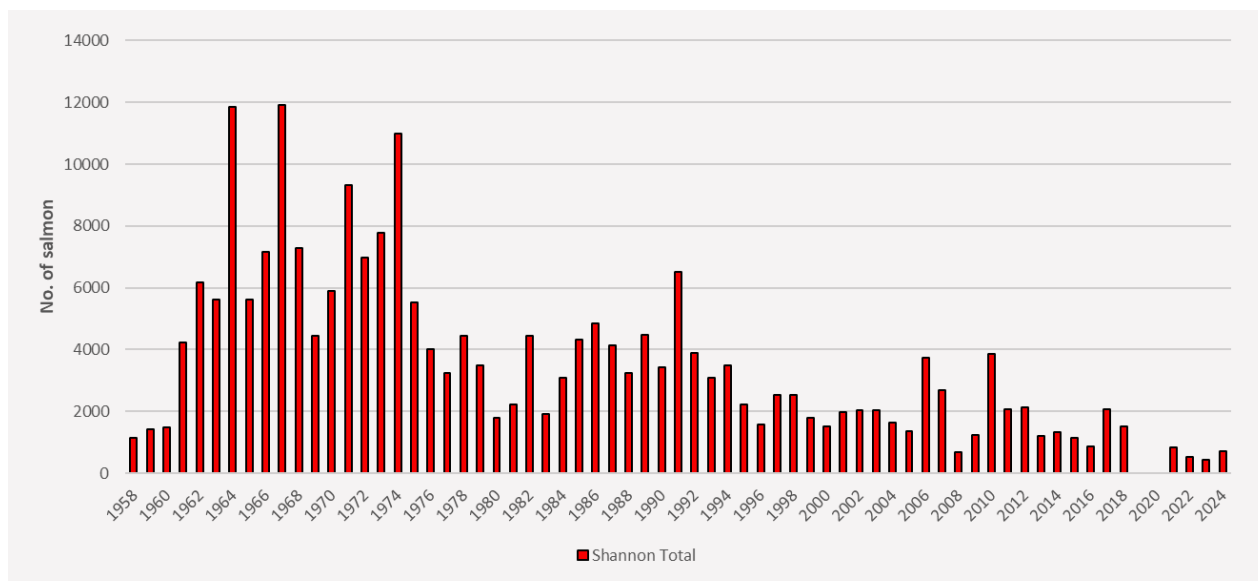


Figure 1. The number of ascending adult salmon through Ardnacrusha and Parteen Regulating Weir on the Lower Shannon catchment for the period 1959 to 2024.

River Shannon Salmon Breeding and Genetics Programme

The Parteen Salmon Breeding Programme was initiated in 1990, and it forms an integral part of the overall Shannon Salmon Management Plan. The mass selection-breeding programme involves two main breeding lines (grilse or one-sea winter fish, and Multi-Sea Winter (MSW) fish), that have been held separately since the start of the Programme. These two fish types are bred and reared separately at the hatchery prior to release to the sea as smolts. The two main objectives of the programme were to:

- Use selective breeding to significantly increase the percentage of fish returning as MSW salmon.
- To increase the weight of both MSW and grilse salmon.

In summary, the River Shannon salmon breeding programme at Parteen since 1990 has:

- Established pedigreed grilse and two-sea winter lines of salmon returning to the River Shannon.
- Increased significantly the proportion of two- sea-winter salmon in the return to the River Shannon and to the hatchery.
- Proved that selective breeding can increase significantly the size and weight of returning grilse.
- Provided hypotheses to explain the inheritance of maturation phenotypes in salmon.
- Shown that males grow faster than females at sea.
- Given an indication that females return to the coast earlier than males.
- Provided pedigreed salmon for breeding experiments and stimulated further genetic research on salmon.

The present breeding protocol has the aim of increasing the genetic variability within the selected two-sea - winter lines by crossing between year classes.

The genetic sampling of all returning hatchery bred fish and the hatchery fish used in the brood stock programme continued in 2024. The sub-sampling of the fish classified as wild also continued but was restricted when compared with previous years. In respect to the former, a collection of samples, from which DNA can be retrieved, exists now for every fish returning to the hatchery between 2010 and 2024. The combination of this material, in addition to information on each individual's size, sex and age, including potentially information on individual parentage, make this a very valuable resource for research and ultimately for the management of the hatchery programme.



The River Suck tributary on the River Shannon.



A bridge over the River Suck at Abbeyshrule.

Parteen Hatchery

Parteen hatchery was constructed at Parteen Regulating Weir in 1959 and was extended in 1970. A phased refurbishment project was initiated in 1997, and the hatchery now has a capacity to incubate up to 4 million salmon ova with an upper limit of 400 pairs of salmon. The hatchery infrastructure has been improved further with the provision of a new water intake line and filtration system. In addition, a new food control sequence for feeding fish was added. Approximately 90,000 adipose fin-clipped smolt are released each year as part of the ranching programme. The main goal of the conservation hatchery is to assist the recovery of wild salmon populations upstream of Parteen and Ardnacrusha and secondly to increase knowledge of salmon, using an educational centre. An educational centre located at the hatchery provides a resource for visiting school tours and other interested parties. Present management of the ESB hatchery has continued to be of a high standard (ISO 14001).

Over the past 30 years, surplus ova and juvenile salmon have been used at both national and international levels to help restore salmon stocks of the Rivers Erne, Lee, Deel and the Rhine, Meuse and Thames. The use of Shannon ova in these European salmon restoration schemes promotes international fisheries co-operation and Ireland's unique freshwater fisheries resource. However, in more recent times the Shannon hatchery stock has been used exclusively for the restoration of Shannon salmon stocks.

Due to past hatchery salmon mortality events there has been a significant upgrade to the infrastructure and running of the site. This investment and operational changes includes:

- The installation of oxygen monitoring equipment.
- The inlet valves have been changed with larger valves added.
- The existing filtered water supply for the hatchery unit has also been extended for the 'first-feeding' tanks. It is planned that the filtered water supply for the entire farm be upgraded in 2025
- The frequency of water sampling has been increased for the critical 'first-feeding' period. The water sampling now also includes planktonic sampling.
- There has been an increase of veterinarian visits and sampling of fish at the site.
- Staffing has been increased for both weekends and holiday periods. Automatic alarm systems have been added for water levels and oxygen levels.
- A new water filtration system and an associated pipework has also been added.
- The same operational and infrastructural changes will also be applied to the other two salmon rearing sites on the Erne and Lee.
- All of the three ESB salmon hatcheries are ISO 14001 accredited and are often used as an education facility with frequent use by local school, college tour groups and other interested groups.



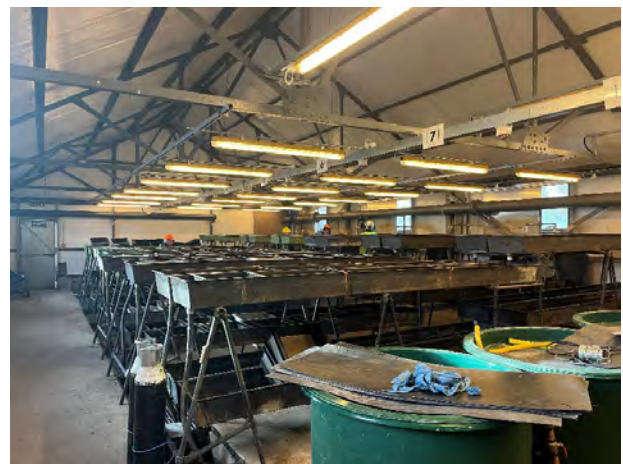
A view of the downstream section of the Ardnacrusha spillway.



The Ardnacrusha juvenile eel trap with the green coloured climbing substrate and the cooling water being discharged beside the juvenile eel trap ramp. Cooling water from the station is also discharged at the entrance to the Ardnacrusha fish lift as a fish attraction flow.



The egg boxes and troughs in the Parteen hatchery unit.



Production of Juvenile Hatchery Reared Salmon

The juvenile salmon restocking of the Upper Shannon catchment in 2024 is shown in Table 2. In 2024, there was a release of 276,295 juvenile salmon into the upper catchment.

Table 2. The number of juvenile salmon released from Parteen hatchery in 2024.

Date of Release	Number Released	Release Site
Unfed fry		
April 7 - 8th	276,295	Big Brosna (Clodiagh River)
Smolts		
April 4th	62,272	Fin clipped Grilse (Parteen hatchery)
April 4th	25,350	Fin clipped and micro-tagged MSW (Parteen hatchery)
Total	87,622	

A total of 87,622 fin-clipped salmon smolts were released from Parteen hatchery in April 2024 using a fish pump. These comprised both multi-sea winter (MSW) smolt and grilse (one-sea winter fish) (Table 2).

Hatchery broodstock collected at Parteen

Identical Grilse and MSW (Multi-Sea Winter) designation characteristics are used for Parteen, Carrigadrohid and Ballyshannon hatcheries. These characteristics are that females up to 71cm and males up to 84cm are One- Sea Winter (1SW) or grilse, whereas salmon larger than these are considered to be MSW salmon. Using these designation characteristics, of the 2024 hatchery returns, just 7 female and 2 male were MSW fish. A total of 93 salmon (62 wild and 31 hatchery salmon) entered the salmon trapping facility located at the Parteen regulating Weir fish pass (Table 4). This trap, which is used for collecting broodstock (hatchery salmon are retained for breeding purposes and wild fish are released above the trap), was used from the 5/10/24 and was removed on the 26/11/24.

Table 3. The monthly number of adult salmon either removed from the fish pass trap (hatchery salmon) or else released above the trap (wild salmon) located at Parteen Weir in 2024.

	Wild	Hatchery	Total
October	49	20	69
November	13	11	24
Total	62	31	93

Adult Salmon Census

The number of salmon are assessed entering the Upper Shannon catchment using two automatic infra-red Vaki 'Riverwatcher' units. These are located at the upper exit point of the Borland fish lift in Ardnacrusha generating station and on the Parteen Regulating Weir fish pass. An upstream adult salmon trap is also situated on one of the pools of the Parteen Regulating Weir fish pass which is used to collect ranched hatchery salmon for the period late September to December. A service level agreement was entered into with Inland Fisheries Ireland for the ESB fish counter maintenance, service and the production of census data reports.

The 2024 census data is shown in Figure 2 and Table 5.

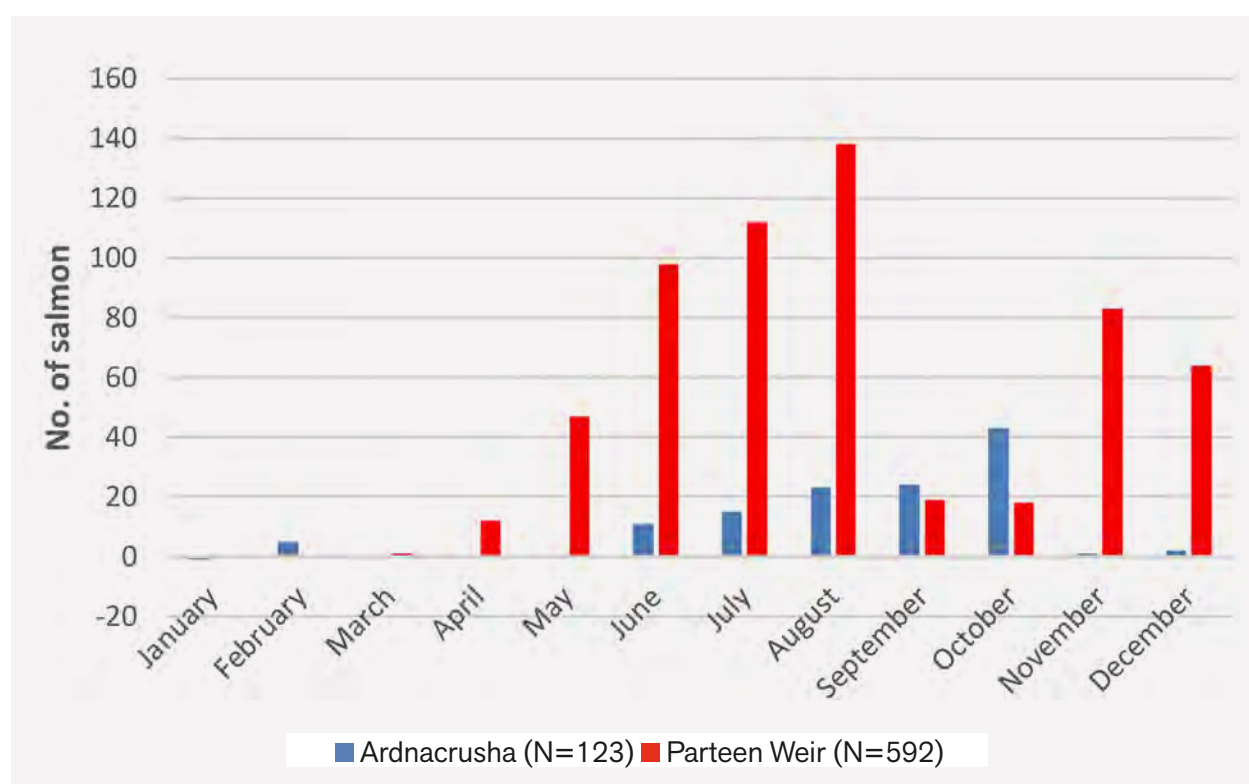
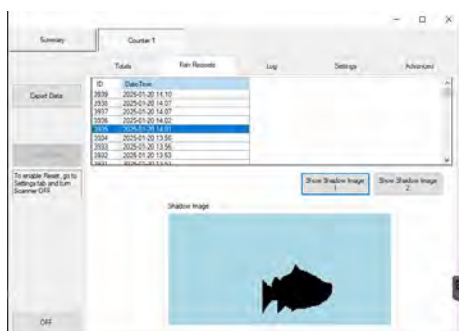


Figure 2. The Parteen Weir census and Ardnacrusha fish census data for 2024.

Both fish passes operated fully during the year. It should be noted that at present, it appears nationally and internationally as if very low marine smolt survival rates are having a serious negative effect upon Irish salmon populations. A comparison with more recent years is shown in Table 4.

Table 4. The number of wild salmon ascending the R. Shannon from 2000-2024. # The Ardnacrusha census data for 2009, 2014 and 2017 were partial counts or were not counted during 2020 and 2021.

Year	Ardnacrusha Station	Parteen Weir	Total
2000	190	320	510
2001	286	343	629
2002	157	670	827
2003	433	422	855
2004	25	563	588
2005	216	583	799
2006	102	224	326
2007	150	589	739
2008	105	203	308
2009#	62	112	174#
2010	-	706	706
2011	848	1101	1859
2012	523	371	894
2013	328	689	1017
2014#	10	457	467#
2015	385	455	840
2016	493	660	1153
2017	665	210	875#
2018	1161	920	2081
2019	638	883	1521
2020	-	-	-
2021	-	-	-
2022	379	655	1034
2023	82	455	537
2024	123	592	715



A Vaki Riverwatcher image of a salmon ascending the fish pass at Parteen Weir.

Recreational salmon fisheries of the Shannon

The main salmon recreational fisheries are located on the Old River, between Parteen Weir and Limerick City. The most famous of these is the Castleconnell fishery. Up to 2016, the Lower River Shannon operated on a catch and release system for all wild salmon, whereas a bag- limit operated for hatchery salmon. For 2024, the River Shannon was open for the 'catch and release' only of salmon. It was 'Open' for trout and coarse fishing.

Fisheries Protection and Regulation

For the 2024 season, Inland Fisheries Ireland (IFI) staff were engaged by ESB Sustainable Rivers to provide fishery protection services on the Lower Shannon and Mulkear Rivers. IFI are also responsible for the Shannon's 'Managed Fisheries' (which includes the Suck, Brosna, Little Brosna, Camlin and Inny Catchments). Some on-the-spot fines were issued for minor offences in the fisheries, and several nets were seized. IFI staff responded to several calls about illegal fishing and successful prosecutions were taken.

The Annual Shannon Smolt and Elver Generation Protocol

The Shannon smolt generation protocol involves dusk and dawn generation to near maximum efficiency during the months of April and May and early June. Generation tracks the seasonal cycle of dusk and dawn and begins one hour before and ceases one hour after dusk/dawn. Due to the upward movement of elvers within the Lower Shannon, there is no generation in the interim night-time period. ESB is committed to working with all Government Agencies including An Garda Síochána, Local Authorities, Environmental Protection Agency and the National Parks and Wildlife Service and Angling Groups in seeking to educate and identify those at risk of damaging the fishery environment.

The salmon stocks ascending our fish passes have reduced significantly over the years. This is aligned to international salmon stocks. International studies reflect that this reduction is because of a combination of factors including, freshwater habitat loss and degradation. The changes in natural marine cycles are also causing both fewer and smaller fish returning. ESB, under our Sustainable Rivers Strategy are investing in the fish passage infrastructure to increase connectivity and passage for all fish species.



A IFI kayak patrol on the Mulkear River.



An IFI fisheries protection patrol on the Lower Shannon.

Figure 4. Map of River Shannon catchment with conservation fishing sites, release point and Ardnacrusha Hydro Power Station (HPS) indicated.

During the 2024/25 season, eel fishing for the Trap and Transport programme took place at three sites: two in Athlone and one in Killaloe (Figure 4). Fishing started in the last week of August 2024 at Athlone and in the first week of October 2024 at Killaloe. While fishing ended in January 2025, it continued at Killaloe until the beginning of March 2025. A total of 30,240 kg of eels were captured at Athlone (28,107 kg at the Jolly Mariner site and 2,133 kg at the Yacht Club site), with an additional 2,078 kg caught at Killaloe. Of the Killaloe catch, a total of 70kg was used for scientific sampling. The total trap and transport catch for the season amounted to 32,248 kg (Figure 5).

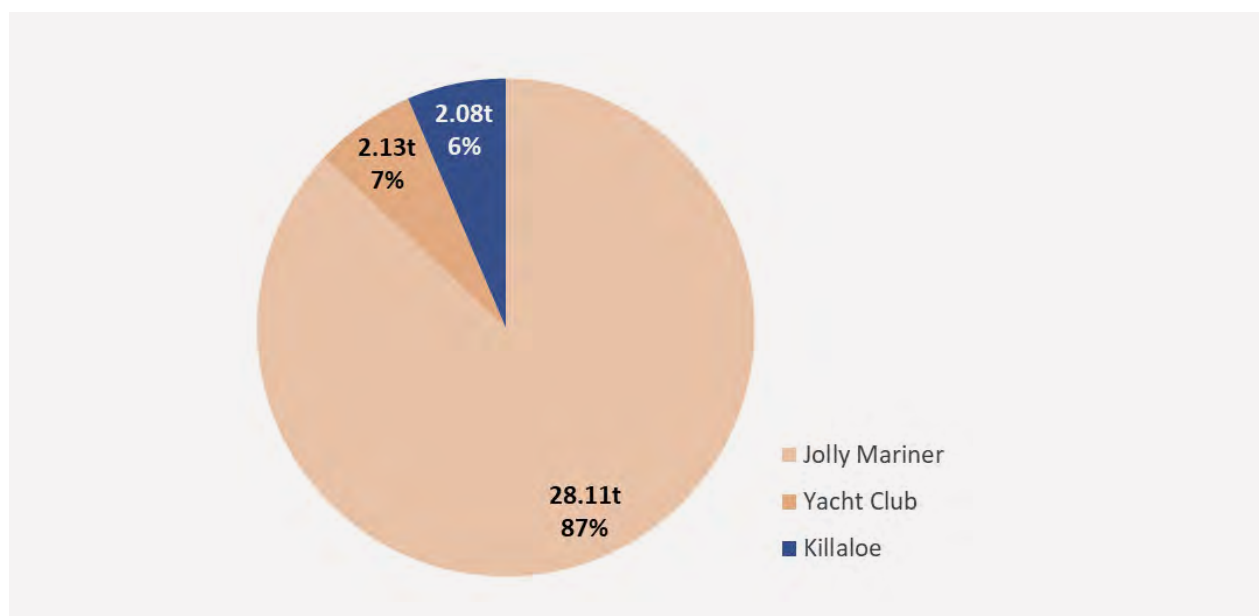


Figure 5. The proportions of the total capture of silver eel during the 2024/2025 season.



An aerial photograph of Ardnacrusha station.



An aerial photograph of Parteen Regulating weir on the Old River Shannon and the Ardnacrusha intake gates on the headrace canal.

The total Trap and Transport catch in 2024/25 was 8.4 tons higher than the previous season and represents the highest T&T capture since the 2018/19 season (Figure 6). The Jolly Mariner fishing site for most of the catch, with 28.1 tons, making up 87% of the total eel capture for the season. Notably, there was a 59.1% increase in the catch at this site compared to the 2023/24 silver eel fishing season.

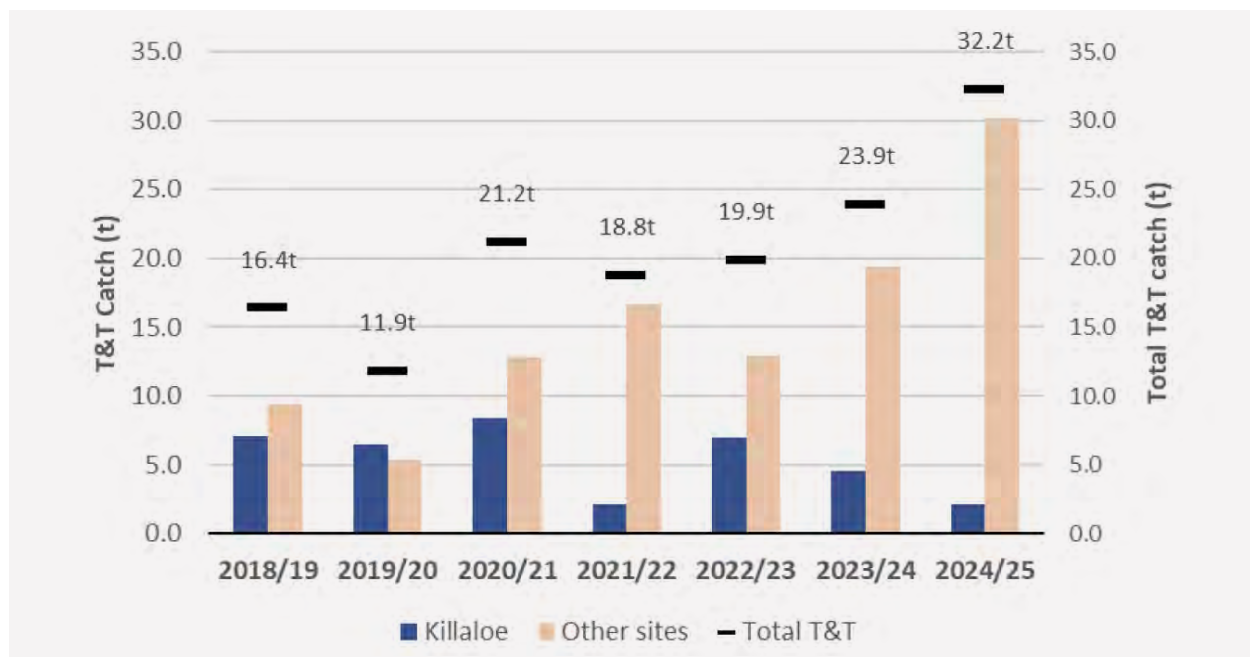


Figure 6. The Shannon trap and transported silver eel catches, released over the past seven years, showing the proportion of Killaloe and other site catch contributions.

The average discharge during the 2024/25 season was $189.9 \text{ m}^3\text{sec}^{-1}$, which is 49% lower than the previous season's average of $373.7 \text{ m}^3\text{sec}^{-1}$. Water spillage accounted for 5.5% of the total seasonal River Shannon discharge (Fig. 7). The spillage consisted only of the statutory $10 \text{ m}^3/\text{s}$ released through the old river channel and the Ardnacusha station fish pass. Daily catch rates at the Killaloe eel weir are displayed in Figure 8, along with variations in discharge and spillage. The highest catches were recorded during the first moon quarter phase in November and the last moon quarter phase in January.

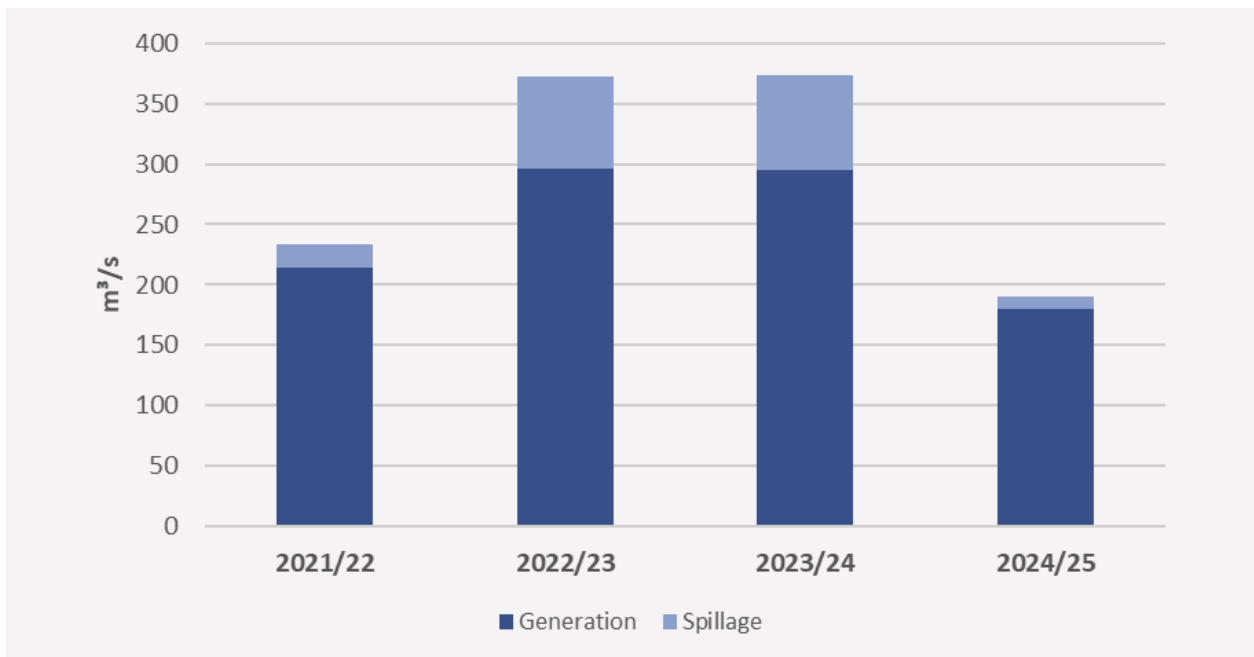


Figure 7. The River Shannon average seasonal discharge in 2024 and a comparison with previous years.

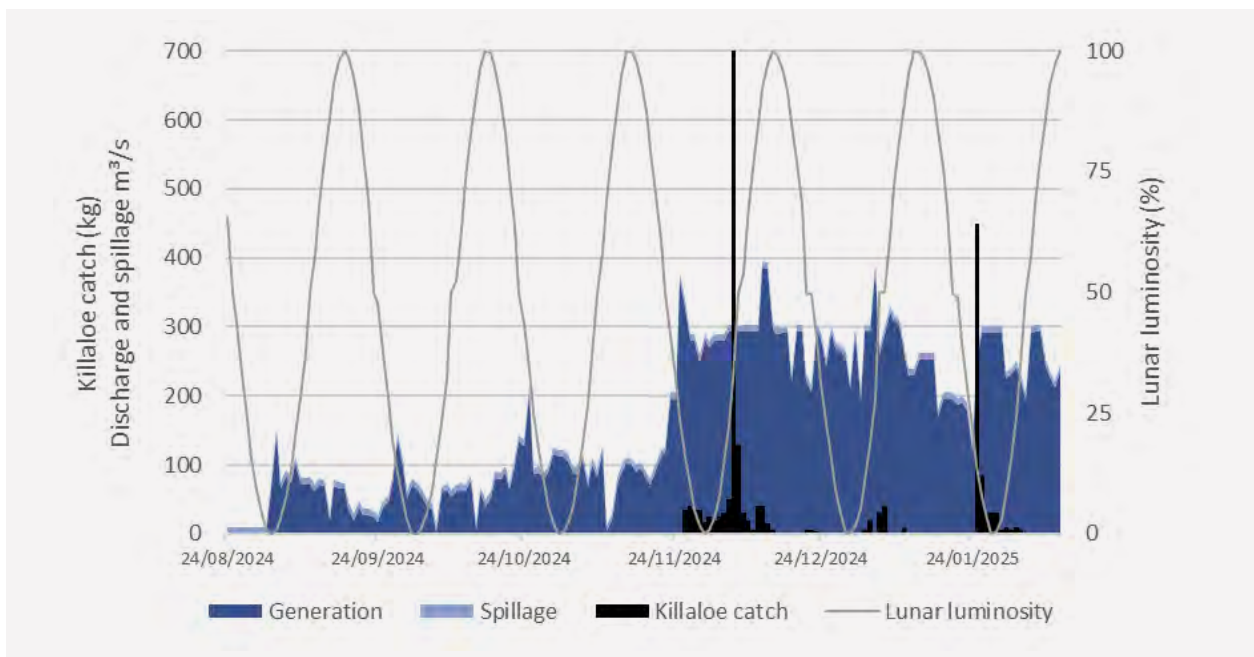


Figure 8. The variation in daily catches at the Killaloe fishing site, in relation to the lunar cycle, discharge and spillage during the 2024/25 season.

Production and escapement data for the River Shannon are summarized in the flow diagram (Figure 9). The estimated production of 37,356 kg is derived from the trap and transport catch at Killaloe, using a fishing efficiency rate of 29.2%, along with the catch from the two Athlone sites. This efficiency rate for Killaloe is based on fourteen Mark-Recapture experiments conducted by the University of Galway between 2016/17 and 2019/20. In total, 32,248 kg (86.3% of the production) was transported beyond the hydropower station via trap and transport. Of the 5,038.4 kg that passed beyond the Killaloe weir, it is estimated that 384.8 kg (7.6%) migrated through the Old River Channel. This estimate is based on the amount of spillage to the Old River Channel, determined using a regression model derived from historical telemetry studies of migration route selection. An estimated mortality rate of 21.15% (984.2 kg) occurred at the Ardnacrusha hydropower station from the 4,653.6 kg that entered the headrace, leaving 4,054.2 kg to continue downstream. This results in an escapement of 36,302.2 kg, or 97.4% of the total production.

The estimates for production, escapement, and trap and transport quantities over the last six years are generally consistent, except for the 2021/22 season, where production was 13 tons lower (Figure 10). The percentage of escapement relative to production has remained high throughout, ranging from 86.8% to 97.4%.

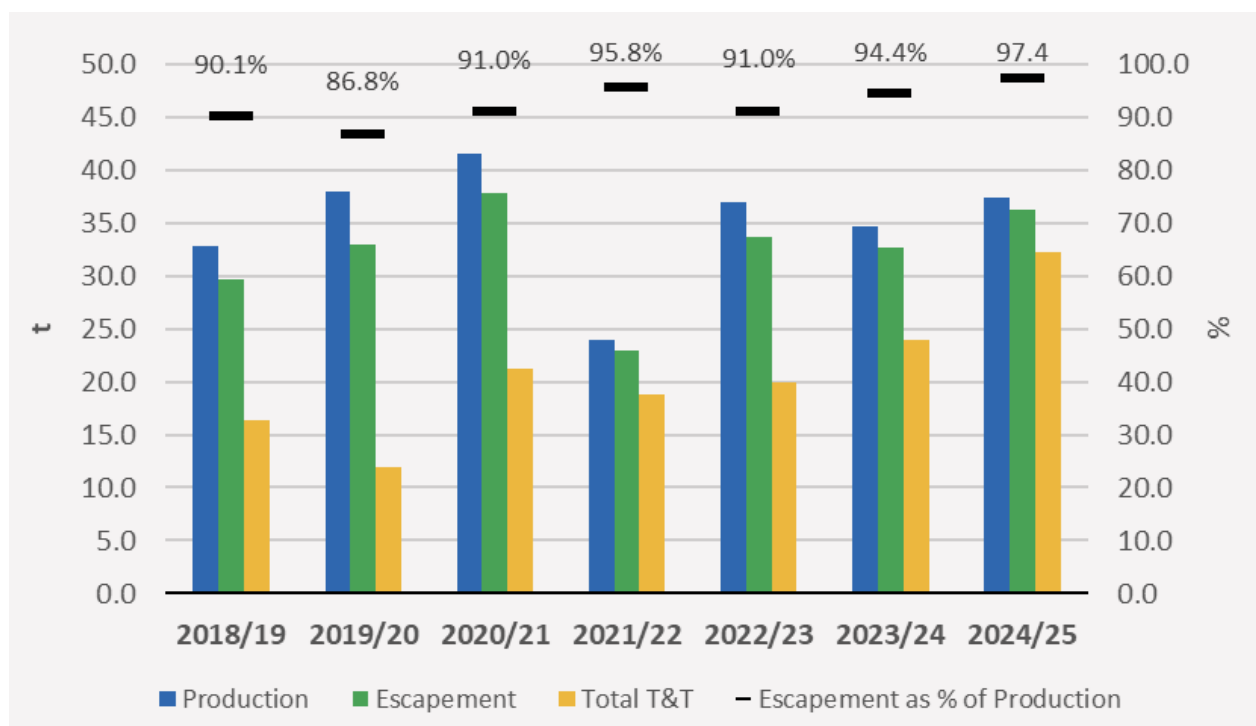
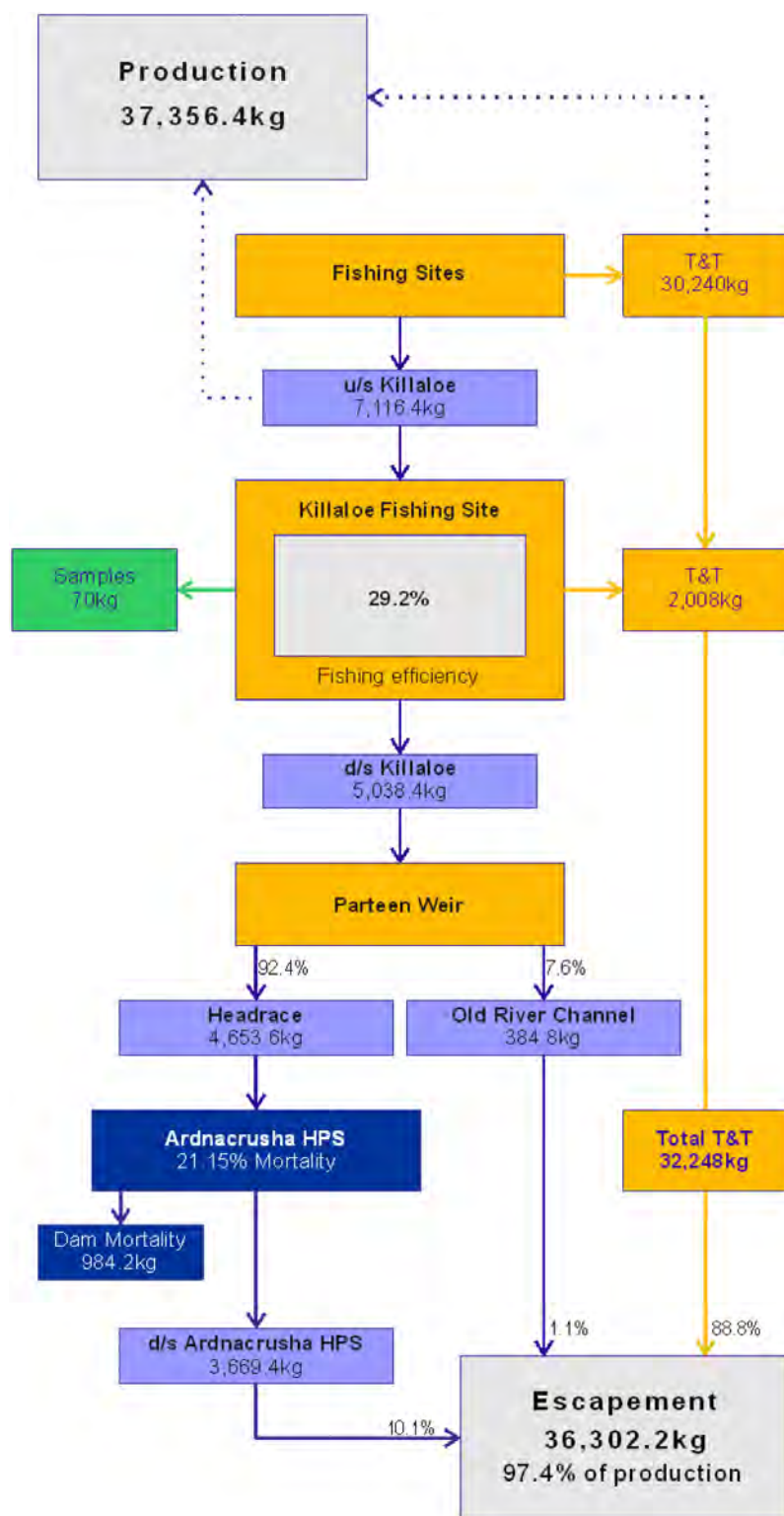


Figure 10. Estimates of eel production, escapement, trap and transport quantities and escapement as a percentage of production values in last seven subsequent years.



1. Total trap and transport catch as reported by the crew at Killaloe eel weir.

2. The fishing efficiency rate for Killaloe is based on 14 mark-recapture experiments conducted by NUIG between 2016/17 and 2019/20. No eels were tagged at this site since.

3. The biomass upstream was estimated using actual catch data collected at the site and the estimated efficiency rate.

4 & 5. A regression model, based on historic telemetry data is used to calculate the proportion of eels migrating downstream of Killaloe which migrate via the Old River Channel or Ardnacrusha headrace. This regression model uses the proportion of total flow released to each channel daily to estimate the biomass of downstream migrating eels travelling via each route.

6. Production is estimated as the biomass of eels captured upstream of the Killaloe combined with an estimate of the remaining biomass of uncaptured silver eels migrating to Killaloe eel weir.

7. Escapement is calculated as the biomass of eels surviving dam passage, eels circumnavigating Ardnacrusha station via the Old River Channel and eels released as part of T&T operations.

Figure 9. A summary of the analysis of silver eel production and escapement in the River Shannon during the 2024/25 eel migration season.

The River Shannon Juvenile Eel Trap and Transport Programme

ESB has been capturing upward migrating juvenile eel at several Lower Shannon locations for many decades. In recent times, efforts have been concentrated at Ardnacrusha station and Parteen Regulating Weir. The three Parteen Regulating Weir and three Ardnacrusha located juvenile eel traps were put into service on the 15th of March 2024.

Fishing activity ceased at all sites on the 6th of September. A total catch of 196.55kg was captured and transported during 2024 (Table 5). This compares to a total of 974.2, 656.43kg, 102.4kg, 1,172.6kg and 13.4kg for 2023, 2022, 2021, 2020, and 2019.

The catches of juvenile eel (151.9kg) at Parteen Regulating Weir were a mixed catch of fingerling eel and elver. All catches of juvenile eel are released into the Shannon catchment above Ardnacrusha station and Parteen Weir. The results of the 2024 elver catches again show the Shannon catch to be in decline (like the European eel population trend). The trapping of juvenile eel will continue in 2025. The Ardnacrusha elver traps have been extensively refurbished over the period 2017-2020. These refurbishments included;

- The provision of increased water supplies at a variety of differing locations to the old Ardnacrusha elver ramp trap. Water from existing discharge points was also diverted and now discharge close to, or onto the ramp area. This increased discharge helps attract juvenile eel to the main trapping area.
- The provision netting at all sites to deter avian predators.
- A walkway was added to allow easy access to the large ramp area. This will also allow regular servicing/maintenance of the site.
- The replacement of the older mat climbing substrate with a new bristle type of mat substrate. These bristle mats are of varying spacing intervals which therefore facilitate juvenile eels of varying length and climbing abilities to access the traps.
- New elver traps were added at two extra locations. These were designed to allow for differing bristle mat spacing sizes to reflect the different sizes/ages of the upward migrating juvenile eel.



The climbing substrate used for the juvenile eel traps.



The climbing substrate used for the juvenile eel traps.

Table 5. The catch of juvenile eel at the three ESB operated locations for 2024. The entire catch of 196.55kg was released into the Shannon catchment above Parteen Regulating Weir and Ardnacrusha Generating Station. These catches represent both elver and larger juvenile or 'bootlace' eel (particularly those captured at Parteen Regulating Weir).

	Parteen Weir			Ardnacrusha			Total
	Old Trap (Fish Pass)	New Trap (Fish Pass)	Middle Bank	Large Trap	Fish Pass Trap	Mechanical Workshop Trap	
March (15/3/2024)	0.7	0	0	0	0	0	0.7
April	14.7	0	0	0.15	0	0	14.85
May	101.4	0.02	0	1.01	0	0	102.43
June	12.9	0.19	0	2.52	0	0.27	15.88
July	15.7	0.17	0	36.0	0	0.26	52.13
August	6.0	0.02	0	4.42	0	0.02	10.46
September (6/9/24)	0.1						0.1
Total catch	151.5	0.4	0	44.1	0	0.55	196.55kg

IFI led Initiatives

Stands and structures

Inland Fisheries Ireland continued with the maintenance and upgrades to the suite of angling infrastructure throughout the Shannon catchment. Older infrastructure was removed and replaced, where requirements demanded, and newer materials such as recycled plastic, glass reinforced plastic and aluminium structures were utilised. The maintenance also involved the clearance of swims in major match venues such as the 'Mudflats' in Carrick-On-Shannon and Clonahee Laek (Strokestown). Maintenance of access roadways and areas were also maintained with selective hedge trimming and weed control.

The general maintenance works were carried out on:

- River Inny
- River Glore
- Ferglas Lake (Longford)
- River Brosna
- Leitrim lakes
- Lough Allen
- River Suck
- River Hind
- River Lung

Upgrades at the 32-peg all-access angling facility at Ballinapark, Donamon (River Such catchment) was completed in 2024, with the final five stands resurfaced with glass reinforced plastic (GRP). The 1st stand was also re revamped and raised to allow for all-year angling.

A design was completed for a new match angling stretch at the Athlone Canal, (Deerpark Road, Athlone) and the AA Screening process was initiated in 2024. This facility will allow access and peg angling along the opposite bank of the Athlone Canal, near 'The Meadow's' in Athlone.

September 2024 saw the conclusion of the Cloonahee Lake re-development project at the Cloonahee fishery outside Elphin, Co. Roscommon. This project which was carried out by a contractor as a part of their successful tender application involved the re-grading and re-surfacing of an access roadway and existing carpark in addition to the erection of stock-proof perimeter fencing. Additional French drains and supplementary drainage works were carried out at the edge of the access road and carpark perimeter. Farm access gates and a pedestrian access gate with new catwalk fencing to allow improved access to the angling structures were also provided in addition to a disabled parking bay. A recent acquisition of various signage for some of the larger fisheries in the Leitrim jurisdiction will also provide a new sign for Cloonahee which will provide updated angling information for the fishery which is one of the most popular coarse angling venues in the region.



Car-park and fencing at the Clonahee fisher prior to works.



Car-park and fencing at the Clonahee fisher post works.



Catwalk access and fencing at Clonahee prior to works.



Catwalk access and fencing at Clonahee post work.



A new footbridge constructed along the main River Inny.



A new footbridge constructed along the main River Inny.



The construction of footbridge on a tributary of the R. Inny at Coolnagun.

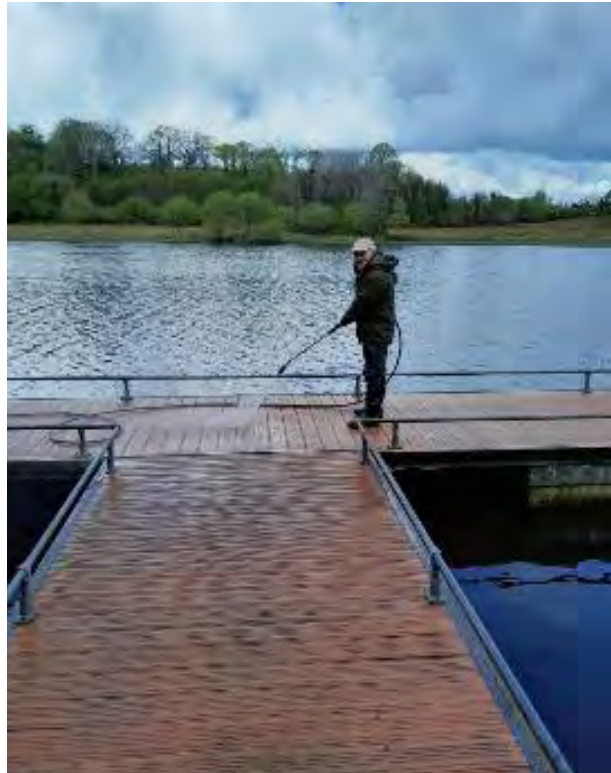


The completion of footbridges and clearance of sites on the River Glore.



New footbridges on the River Glore (Inny catchment).





Leitrim based IFI officers cleaning floating stands on two Drumshanbo lakes.



An old wooden fishing stand which was dismantled at Fearglass, Longford (left); and replaced with a new stand (right).



An old wooden fishing stand which was dismantled at Fearglass, Longford (left); and replaced with a new stand (right).



The construction of a double fishing stand at Fearglass, Longford.



The construction of a double fishing stand at Fearglass, Longford.



A completed fishing stand at Fearglass Lake, Longford.



Before and after pictures of replacement steps and footbridge on the River Inny.



A new footbridge at Creggs Village, Co Galway (Suck catchment).



A pre-made 17ft bridge ready for placement at Camagh on the River Inny.

Riverine Enhancement Work

Inland Fisheries Ireland worked on several riverine enhancement projects in the Shannon Region in 2024. A number of instream restorations were worked on from the design/planning perspective, and assistance was provided to a number of angling Clubs, many as part of Midland Fishery Fund projects. These included projects on the River Suck, River Inny, Lough Sheelin sub-catchments, Glore River, Aughrim River, Lough Ree tributaries and Lough Ennell sub-catchments. Inland Fisheries Ireland's own staff completed enhancement works on a 1km stretch of the Mountnugent River (Lough Sheelin catchment) in 2024. Contractors completed instream restoration works, under IFI supervision on the Pound, Maghera and Finaway Rivers (Lough Sheelin catchment) and the OPW completed works on approximately 1km of the Dysart River (Lough Ennell catchment) in 2024.

Maghera Riverine Restoration

The Maghera River restoration project was completed in July 2024. This project involved the rehabilitation of a 800m stretch of the Maghera river and included the construction of deflectors (alternating and paired), introduction of spawning gravels, repair of existing vortex weirs, bank protection, pools, random boulders, fencing off cattle access points and the installation of three nose pumps.



The construction of alternating deflectors on the Maghera River (left) and the addition of spawning gravels (right).



Maghera River: Spawning gravels, with a pool and random boulders (left); A vortex weir (right).



The installation of 'nose' pumps for livestock, which are placed 30m back from Maghera River.

Riverine Enhancement Work

The Finaway River started in July and was completed on August 2024. This comprised of the rehabilitation of a 1km stretch and included bank protection, repair of vortex weirs, construction of deflectors (both alternating and paired), pools, introduction of spawning gravels, fencing and the installation of three land-based drinkers.



Bank protection on the Finaway river.



The delivery of cattle drinkers for the Finaway River.



Bank protection and spawning gravels being added to the Finaway River.



An instream deflector and spawning gravels on the Finaway River.

Mountnugent River Restoration Project

The Mountnugent instream enhancement project was completed in August 2024. This entailed the addition of spawning gravels, installation of four land-based drinkers and connection of these to an existing solar pump. Work also included moving the solar pump and fencing. This project covered a 1km stretch of this river and all work was carried out by IFI staff hiring in the required machines – 8 tonne digger, mole plough, tractor, 3 tonne digger and 6 tonne dumper.



The loading of spawning gravel into a dumper truck on the Mountnugent River.



The laying of piping for drinkers (left); and a drinker installation (right) which were undertaken as part of the Mountnugent Instream Enhancement project.

Pound River (Sheelin Catchment)

The Pound River instream enhancement was completed in August 2024 on approximately 900m of river. This involved the insertion of spawning gravels and the creation of pools in a spawning/nursery stretch, in the upper stretches of the River.



The addition of spawning gravels into the Pound River.

Dysart River (Lough Ennell) Riverine Restoration Project

Staff assisted and supervised the OPW on a stream rehabilitation project on the Dysart River (Lough Ennell catchment). The river is an important spawning tributary of Lough Ennell for brown trout. One kilometre of the river was rehabilitated as per plans devised with the LETPA and the projects office in IFI. These plans were drafted a number of years ago and the appropriate AA Screening process was completed. New pools and deflectors were put in place. Spawning gravel shoals were replenished.



Spawning gravel pool and deflectors (left); OPW carrying out the works (right).

Breaghmore Solar Drinker Project

Staff completed the Breaghmore Solar Drinker Project which was funded by the Salmon and Sea Trout Rehabilitation, Conservation and Protection Fund (SSTRCPF). The project aimed to improve water quality in the Breaghmore River by reducing direct livestock access which contributes to elevated nutrient levels, increased turbidity, and faecal contamination in the water, degrading overall water quality. This direct access can negatively impact the spawning grounds and juvenile development areas for salmonids.

The project installed 9 solar-powered pumping systems, which will draw water from the river and deliver it to purpose-built drinking troughs located away from the watercourses. The areas of access were then fenced off for cattle access.



Solar pumps installed on the Breaghmore River.

Angling Club Initiatives

Lough Ree Angling Club

There are many challenges to be faced by the angling communities and it is only by having an holistic and co-operative approach that we feel they may be progressed successfully. Pollution is the biggest and ongoing challenge that we face, and anglers are to the fore in noticing changes that may not be apparent to everyone.

River and stream barriers have been a major issue for many years now as they prevent or hinder the migration of fish, especially to their spawning areas. We have continually highlighted this issue, especially at Tarmonbarry weir. In dry years it is a significant impediment to trout reaching their spawning streams on the Camlin system. Genetic analysis reports indicate that this system is second only in importance to the Inny system for recruitment of trout to Lough Ree. These issues have been recognised at all levels, and we are hopeful that the new Barriers Mitigation Program will have Tarmonbarry weir in their sights.

We thank ESB. and IFI for their local works on streams and infrastructure.

The Clooneigh stream has a three-year program of enhancements planned and there have been surveys completed on the Tang River and two tributaries as part of the Coosan Anglers Midland Fisheries Fund project.

On the angling side we are pleased to report that we had three youth anglers on the Irish team in Grafham, England in the 'Home Nations International' between Ireland, England, Scotland and Wales and we are pleased to announce that Ireland prevailed and took the honours. Two of those three also qualified for the 2025 team in Scotland. Great to see youth involvement. We also have father and son combination of Frank and Sean Dempsey going to Idaho, USA in July 2025 as manager and coach respectively of Ireland in World Youth Fly Fishing Competition.

Together hopefully we can face the challenges.



Photo shows left to right Harry McGuinness, Evan McMickan and Jack McGuinness. These three youth anglers were members of the winning Irish team competing at the 'Home Nations International' between Ireland, England, Scotland and Wales on location in Grafham, England.

The 2025 Shannon Fisheries Partnership Workplan

The 2025 ESB habitat Work plan

The following list of ESB work sites have been prioritised for 2025:

- The Nenagh River - Ollatrim catchment (L. Derg)
- Ballyfinboy (L. Derg)
- Castleconnell (Lower Shannon)
- Mulkear (Lower Shannon)
- Little Brosna - Camcor catchment (Mid-Shannon)
- Lecarrow River/Canal (L. Ree)
- Breensford River (L. Ree)
- McNamara's Lake (Lower Shannon)
- Clooneigh /Kilteevan River (L. Ree)
- Shannonbridge (Mid-Shannon)
- Cloghan Lake (Mid-Shannon)
- Yellow River (Athlone)

Notes

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