

THE SHANNON SCHEME AND ITS EFFECT ON THE SHANNON FISHERIES

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Introduction

In 1922 Ireland went through dramatic changes, the withdrawal of British gave the Irish nation a chance to initiate programs that would change Ireland forever. One of the most important projects was the erection of a Hydro-Electric dam at Ardnacrusha, this project would prove innovative and a catalyst for the economic growth of the nation. As a rural nation in the 1900s many Irish people on the lower Shannon gained their living from farming or fishing; places like Castleconnell and Killaloe had vibrant angling tourism industries and it's clear that anyone involved in fisheries in the region enjoyed economic security. The Shannon also contributed to the richness of the soil along its banks and riverside farms and gardens were very productive. Today it's easy to forget that the Shannon Salmon generated huge financial returns for Fisheries owners, in the 1930's the management of the Lower Shannon Fisheries was directed by the Limerick Board of Fishery Conservators. The Board was responsible for policing and directing fisheries polices in the Limerick region, and were involved in the fishery until 1934 when Minister Sean Lemass introduced the Shannon Fisheries Bill to Dáil Éireann. It was proposed that the Electricity Supply Board would in future be responsible for the management of the fisheries of the River Shannon. To this day the ESB retains ownership of the Shannon River and cooperates with other government departments and bodies to direct fisheries management. This paper hopes to provide an insight into how the changes on the Lower Shannon have affected the survival of the Shannon salmon, and to analyse the effectiveness of the policies introduced to ensure the survival of the Shannon Salmon.

The construction of the Ardnacrusha dam had an immediate effect on fish migration. Initially experts believed that returning adult salmon would continue to use the old channel, and access the middle and upper Shannon via the fish pass constructed at Parteen dam. Shortly after the Shannon Scheme became operational, it became evident that the greater discharge through Ardnacrusha, attracted fish up the tail race. Other than the seldom used Boat Lock, there was no access route to the upper waters and many potential spawners either died or failed to reach their spawning grounds. This effect of the Shannon scheme was well documented in the local media at the time and it is estimated that catches of salmon on the Limerick fishery plummeted from 414,000 pounds, to 42,000 pounds after the dam was built, furthermore, the spawning beds of the large spring salmon, which the Castleconnell fishery was famous for, were lost. The impact on angling was immediate and the recommendation for salmon fishing upstream of Castleconnell was dropped from the 3rd edition of *The Anglers Guide to the Irish Free State*.

The Lifecycle of the Shannon Salmon

Spawning: The life of a salmon begins in spawning streams, spawning adult salmon pair off and move to gravel beds on or about Christmas. The Hen fish will find a gravel bed with a good flow of water. She uses her tail to scoop out a hollow in the River bed, while the Cock fish hovers around the gravel bed driving off any other males which may come too close. The hollow is about the size of a domestic wash basin is called a Redd. When it is ready the Hen fish deposits her eggs into the hollow and these are fertilized by the Cock which releases its sperm or (milt) into the water beside the eggs. The hen fish then covers her egg deposits with gravel. Finally a single mound is formed over the eggs many pairs of adults will use the same gravel patch and can be recognized after the spawning season by having a selection of mounds in a row similar to sand dunes. The adult pair is now exhausted and they leave the eggs to fend for themselves. In the Limerick region the spent adults are now known as (slats) or (spent fish). They become thin and will deteriorate and die, some of the hens may return to sea to repeat the process again. While the Shannon Salmon may return to sea, it is not the case for its North American cousins whom never return to sea after spawning. During the spawning season the fish have a red hot glow and their backs are dark brown or almost black, some fish are visibly damaged from disease due to infestation by parasites.

Egg to Alevin: The next stage of development takes place over the next two to four months, the eggs are incubated in the gravel, an early start before the emergence of other river parasites and invertebrates, is an advantage to the eggs survival, the cold conditions at this time also helps to bring the eggs to the Eyed Ova and then the Alevin stage. The Alevins have a yoke sack, which sustains it while it develops in the safety of the gravel beds. The biggest danger to the Alvin's at this stage can be big spring floods, that can wash away incubating gravel.

Fry to Smolt: The next stage is when the Alvin's immerge from the gravel as Fry around April they live in the rivers and streams just in time to avail of the emerging invertebrates. Their freshwater diet includes: (Midge Larva, Caddis Larva, Caddis Fly, mayfly and stonefly), to name a few. Over the next one to three years the fry grow into somlts in their river habitat and finally return to sea.

Smolt to Feeding Adult: This stage begins the marine stage of the Salmons lifecycle. The Atlantic salmon (as the name suggests) enters the Atlantic sea feeding and getting bigger and stronger. Its diet includes: (krill, Crustaceans and Sand Eel). Adult Salmon can stay at sea for one to four years before returning to the rivers and streams of origin, and will repeat this process as they have for generations.

(Information source. <http://www.shannon-fishery-board.ie/salmon-life-cycle.htm>)

The Effects on the Salmon Habitat from 1928

As the Shannon scheme project would have been a major undertaking for any country, for a new republic like Ireland it was a huge gamble. In 1924 the concept of the Shannon scheme and state electrification was presented to government the Irish government was impressed by the Siemens project, and they were happy to move forward with the project immediately.¹

It is easy to understand that fisheries would have to take second place to the Shannon scheme. The labor party (which at the time had taken up the role of opposition) felt that the scheme would be detrimental to the Shannon fisheries; it was 1959 before the problem of fish passage into the river above the Shannon scheme was addressed. And the measures taken to ensure the movement of fish through the canal and river bed did not work.²

In Dail debates it was stated, the protection of fisheries rights had to take second place. McGilligan stated emphatically that in carrying out this scheme, ‘although all reasonable precaution will be taken to prevent injury, we do not preclude the possibility of injury being done to the fisheries, and if in a case of conflict between fishery and electricity interests, then electricity is going to have superiority’.³

The development in the 1930s of the ESB Hydro-dam at Ardnacrusha has had a major impact on salmon stocks in the Shannon catchment. The erection of the dam had basically cut the catchment in half with the numbers of salmon dwindling over the last 75 years with only 839 wild salmon passing upstream of Ardnacrusha during 2003. Overall in 2003, 1,904 fish were counted at Ardnacrusha / Parteen counters, while 40 years previously in 1963, 23,322 fish were counted through Thomond Weir - a short distance downstream. This salmon trap was closed down by the ESB in 1978.⁴

The Changed Salmon Habitat

As the construction of the Shannon Scheme restricted access to returning adult salmon to the upper Shannon above O’Brien’s bridge, and reduced water levels in the lower Shannon region, the options for spawning Shannon salmon had changed drastically. The concerns of conservators, anglers and fisheries owners were realized. Returning salmon would have to utilize existing spawning areas below the weir at Parteen, such as; The Kilmastulla River, the Mulkear River, the Clare Blackwater, and the Groody River. While there were existing spawning areas on the main channel of the old Shannon, the fall in water levels meant that new spawning areas were realized, and existing areas improved. Habitats on the main Lower Shannon such as; Castleconnell,

¹ The Shannon Scheme. P36.

² The Shannon Scheme. p38, 39.

³ The Shannon Scheme. p40.

⁴ Submission to the joint committee on communications, Marine & Natural Resources. .net.

Doonass, Plassey and Corbally, changed as is nature's way, and began to produce habitat that returning fish could utilize.

Extent of the Problems with Salmon Production Realized

In 1928 the successful development of the Shannon scheme gave a much needed boost to the economy of the Limerick region. Many in the community benefited from the construction of the Shannon scheme, an abundance of jobs, the need for accommodation for migrant workers and the supply of construction materials seen the local community benefit from the project. But as the dust settled on the hydro-electric project the financial implications of the loss of the Salmon harvesting industry were realized. The government of the day knew that the question of the survival of the Salmon harvesting industry would have to be addressed and set about investigating ways to salvage the losses to the industry. Reports in local newspapers contained the concerns of many with interests in fisheries and their attempts to lobby Government to act on the looming problem of the survival of the Shannon salmon,

Motion for Fishery Board Meeting: “At the next meeting of the Limerick Board of Fishery Conservators, Mr. A. Blood-Smyth, solicitor, will move the following resolution: ‘That the Minister of lands and Fisheries be requested to take immediate steps to establish a salmon hatchery in the Shannon of adequate size, as the only possible means of making good the wastage in the salmon that must be caused by the Shannon Hydro-Electric Scheme.’⁵

The Government's Solution to the Problem

Earlier In March of 1930, it was reported that the government, sent a department of fisheries official to Limerick to look for a suitable site for the establishment of a salmon hatchery, it was the feeling that the best approach to ensure the rejuvenation of salmon stocks, was to introduce a hatchery on the Shannon. The process entails the stripping of eggs and milt from the returning adult fish, mixing the eggs and milt, then placing the eggs in a controlled environment and producing fry to be placed in streams, where they in turn will grow, and proceed to sea and return again to be milked for hatchery purposes. At the time this was a new science, and there was no assurance that it would work, but it was agreed that something would have to be done, at the time the Limerick Board of Fishery Conservators were desperate to agree with any program to save their industry,

A Shannon Hatchery “Mr. R. Southern, of the Free State Department of Fisheries, has visited Limerick in regard to the question of establishing a salmon hatchery on the

⁵ Limerick Leader: 7 July 1930.

Shannon. It is understood, as a result of his investigations, that it would be placed near the fish pass at O'Brien's Bridge, where the water level is the most suitable."⁶

Concerns for the Safety of Returning Salmon Fry

Another problem was that returning salmon fry needed to return to sea to complete their lifecycle, and there were concerns over fry mortalities,

Salmon and the Intake Canal: "Mr. Blood-Smyth---the condition of nature has not changed. Proceeding, he said that the scheme was a brand new thing in this country, and what the salmon fry would do there was a matter of speculation. No one could tell whether or not the fry would go into it? Would the fry be damaged if they went into it? Some people would tell them that they would not be damaged going through the turbines. He thought that they would be damaged ---not by the turbines, but by the sudden change in pressure. He was told that a good size bottle can go through the turbines and not get broken."⁷

The Role of the Limerick Board of Fishery Conservators

The Board were instrumental in advertising the plight of the Shannon salmon harvesting industry, unlike today, the Boards members represented the interests of fisheries owners. It seems, according to newspaper reports, that the Board's members were represented by solicitors under powers of attorney. This suggests that some fisheries owners were English, they had retained their interests in Shannon fisheries after 1922, locals questioned the right of the absentee landlords, to direct fisheries policy, at Board level. This gives insight into the purpose of the Board; whose main function, was to harvest salmon, for the financial advantage of fisheries owners. The Board lobbied government, to affect the country's fisheries policies.

Wordy Warfare: "Today at the meeting of the Limerick Fishery Board, Mr. A. Mackey's right to sit on the Board was questioned. Mr. Bannatyne said he would like to ask the chairman what was Mr. Mackey's qualification to act as a conservator." "Mr Mackey---You will be able to find out more if you want to. May I ask what is your qualification for sitting here? Mr. Bannatyne---I am here by power of attorney." "Mr. Mackey---I would like to put a question. How many members here are sitting by power of attorney and how many are substitutes, because Mr. Moran has recently stated clearly that the board has not a large enough membership for business purposes? Chairman--- That serves no purpose, because those acting under power of attorney have the legal right

⁶ Limerick Leader, 15 March 1930.

⁷ Limerick Leader, 9 April 1930.

to sit. Mr. Mackey—There is an object in my question when you take into account that this Board is flooded by men who have not the interest of fisheries at heart. Mr. Mackey added that he was speaking as a business man, and as a fishery proprietor, and he had no hesitation in saying that the business of the Board was carried out in a rigged condition, and was a disgrace. He (Mr. Mackey) did not like to use the word, puppetism. But it was by puppetism the Board was run, because they had men there that day who opposed democratic representation and tried to keep the Board in its present rigged and ruinous and wretched condition. He (Mr. Mackey) had no hesitation in saying that the Board was now in a more disgraceful condition than ever before.”⁸

Thousands of Fish Die

The problem of returning adult salmon came to a head in summer of 1932, when thousands of salmon returned to the Shannon, but found the route to their indigenous spawning grounds blocked, by the Weir at Parteen and the dam at Ardnacrusha. It was hoped at the time, that the fish would bypass the mouth of the tail race, where waters from the Ardnacrusha turbines flowed back into the Shannon, and travel up the old Shannon route, to the base of the Weir at Parteen, where the fish could be lifted up, to enter the upper reaches of the Shannon, and continue on their way. As the season advanced, it was clear to see from reports of fish dying in great numbers in the Tail Race, that an environmental disaster was unfolding. Questions were asked in the Dáil, asking what steps were being taken by the state, to prevent the destruction of salmon in the tail race, and if fishing restrictions in the tail race, would be lifted, to allow dying fish to be harvested. The restrictions would not be revoked, and this led to local net men ignoring restrictions, leading to the famous “Battle of the Tail Race”, involving the Abbey Fishermen,

“A barrier of electrified chains was placed at the mouth of the tailrace in 1930 to prevent salmon from entering it from the old channel. The barrier was introduced as a result of considerable political pressure, as it was clear that considerable numbers of fish were being delayed in the tailrace. The electrical barrier was unsuccessful and removed as, according to press reports it electrocuted fish turning their blood black and their flesh blue, rendering them uneatable”⁹

Salmon in the Tail Race: “Mr. James Reidy (Cna. nG., Limerick) asked the minister of Lands and Fisheries in the Dail if he will state what steps are being taken to prevent the destruction of salmon in the tail race at Ardnacrusha, and if the people involved in the salmon fishing industry, whose means of livelihood have been interfered with by the Shannon electrical development. Will be permitted to fish the tail race, and thus enable much valuable food to be saved from destruction. The Minister replied as follows:--The

⁸ Limerick Leader, 17 September 1930.

⁹ Limerick Leader, 17th Jan 1931.

staff of my department has been inquiring into a recent finding of dead salmon in the tail race at ardnacrusha, and if the cause of mortality can be discovered I shall consult with the Minister for Industry and commerce as to the steps to be taken to prevent its recurrence. I am not prepared to revoke the byelaw prohibiting the use of nets in the tail race.”¹⁰

The Shannon Fisheries Bill

As pressure grew on government, to deal with the problems identified with the construction of the Shannon scheme, and the future survival of the Shannon salmon, it was proposed, that the Electricity Supply Board be responsible for the management of the river Shannon fisheries. Reports of the public outcry for action and continued lobbying by the Board of Conservators, led to Mr. Sean Lemass in 1934, introducing the Shannon Fisheries Bill to Dáil Éireann, as a solution to the fisheries problem,

River Shannon Fisheries: “The Electricity Supply Board will in future be responsible for the management of the River Shannon; it will have power to take over fisheries compulsorily, to appoint exofficio members of the Limerick Board of Conservators, to sell trout and salmon without license, to alter the weekly close time, and to do various other matters. These matters are provided for in the new Shannon Fisheries Bill, which was introduced by Mr. Sean Lemass, Minister for Industry and Commerce, in Dail Eireann last week, and has now been circulated to deputies. The bill makes provision for the payment off compensation in the respect of damage to fisheries and fishing rights, and for the transfer of such fisheries to the board. Every person who has suffered damage before or after the passing of this bill by reason of injury to a fishery or fishing right caused by the operation of the Shannon hydro-electric works may make application within a year if the injury occurred pervious to the passing of the bill and within three years if it occurred subsequent to the passing of the bill, but no compensation will be payable in respect of an injury to a fishery which is acquired by the board under this bill.”

Minister’s Powers: “The Minister may transfer to the Board any fishery or fishing right which he may have acquired under the Act of 1925. The Board of works may similarly transfer any interest which they may hold in any fishery to the Electricity Supply Board. The Board in addition to its duties regarding the Hydro-Electric works, shall have the duty of managing and preserving the Shannon fisheries. The Board may acquire, either permanently or temporarily, and either compulsorily or by agreement, any fishery or fishing right in the Shannon, land weir, dam bridge in or across the waters of the Shannon fisheries. It may terminate or restrict any way-leave or water or fishing rights, and divert

¹⁰ Limerick Leader, 9 July 1932

or close any private road, canal or other artificial water-way. The Board are, however, prohibited from interfering with various public amenities, public roads or bridges.”¹¹

In the *Irish Times* of the 19 July 1934 it was reported that the second reading of the Shannon Fisheries Bill was passed.

The E.S.B. Takes Over

The Shannon fisheries bill, cleared the way for the E.S.B to direct management procedures on the Shannon River for the first time. To this day, the E.S.B. has proven to be the most successful Irish organization in the history of the state, the same drive and efficiency the ESB applied to electrification of the state, was applied to fisheries on the Shannon. The first major project regarding fisheries on the Lower Shannon, was the erection of a Salmon Weir at Thomondgate, this Weir was erected to replace the old Lax Weir, a short distance upriver of the Thomond Weir. This Weir, was more modern than the previous Lax Weir, and new technology allowed for fish to be harvested for scientific analysis. At this time, Arthur E.J. Went, was the government’s scientific expert, he carried out the first detailed analysis on salmon stocks entering the Shannon River system. The main purpose of the Weir, was to harvest salmon for the retail markets, the ESB were allowed to harvest 28% of salmon passing through the Weir, these fish were then sent forward for processing and smoking. The records compiled by A.E.J. Went, gave some indication of returning adult salmon numbers, but it does not take account of the numbers of fish harvested at sea by trawlers or on the estuary by driftnets,

“While the Board appreciates the ESB’s primary function as one of generating and transmitting electricity, they also have a duty to manage the natural resource given to them by the State, this includes protecting the habitat of salmon, protecting the downstream migration of smolts, and the upstream migration of adult salmon, particularly adjacent to their dam. If the ESB in reviewing its core business believe that these matters are best addressed by another body then adequate resources must be made available by the ESB to ensure that these responsibilities are met.”¹²

Salmon Fisheries: “The steady increase in the recorded run of salmon at Thomond weir, which began in the 1948-49 season, has been maintained. During the war, and for some years afterwards, the run of fish in the Shannon declined. A similar trend was experienced, during the same period, in most of the other rivers in Europe, and, although its cause has not been defiantly established, the continuance of more favorable returns may justify the presumption that the decline has been arrested. By arrangement with the

¹¹ The Irish Times, 14, July 1934.

¹² Submission to the Joint Committee on Communications, Marine & Natural Resources.

Department of Agriculture (Fisheries Branch), only 28% of the recorded run at Thomond Weir may be taken.”¹³

Thomond Weir, Shannon Fisheries Act, 1937

The Shannon Fisheries Act was to make further and better provision in relation to fisheries of the River Shannon, and for that purpose, to amend the Shannon fisheries act 1935. In section 3 of the act provision was made to allow for the construction of the Thomond Weir. The act also allowed for the compensation of fisheries owners, whose fisheries were transferred to the ESB.

“Without prejudice to the generality of any of the provisions of sub-section (1) of section 9 of the Principal Act, and in addition to the things which are by that section declared in particular to be lawful for the Board to do, it shall be lawful for the Board to construct, maintain, and operate a fishing weir on the River Shannon of such design, dimensions, and materials, and (subject to the limitations imposed by the next following sub-section of this section) in such situation as the Board shall think proper.”¹⁴

The Free Gap

One consequence of the new Weir was that the free gap was closed. This gap was protected under legislation, and was maintained on the Lax Weir, it allowed for free movement of salmon through the Weir. There were many newspaper reports of the anger of local fishermen towards the loss of the free gap, the feeling being that it prevented salmon accessing fishing spots upriver,

The Thomond Weir: “Dear sir in a letter from “K.H.” the writer made a very wrong claim in saying that the Thomond Weir was seriously diminishing the stocks of salmon, due to its not having a free gap. Everyone who has knowledge of this subject knows that the small percentage of fish taken has no effect. Anyone can apply to the department of fisheries, Dublin, for the true audited returns of the Weir. This body is served by experts of the international fame, including Dr. Went; it is their job to advise on the development of fisheries and to carry out scientific research. Their records show a very large increase in the run of salmon, in direct contrast to those of other countries.”¹⁵

¹³ The Irish Times, 23 August, 1951 page 6.

¹⁴ Shannon fisheries act, 1938.

¹⁵ Limerick Leader 16 January, 1950. Page, 3.

Arthur E. J. Went

In his publication; *Salmon of the River Shannon, (1948-1951)* By Arthur E. J. Went, Department of Agriculture, Fisheries Branch, Dublin. Mr. Went provides detailed accounts of the information gathered at Thomond Weir, this was the first intensive research into salmon stocks after the Shannon scheme was opened,

“In a paper published in 1950 ("Salmon of the River Shannon in 1946 and 1947", *Journ. du Cons.*, 16, No. 3) the writer described the continuous investigations which were being carried out on the salmon stocks of the River Shannon in an effort to follow the annual changes in that river. During the period 1948 to 1951, inclusive, further material was collected on the same lines as previously (see *Went*, 1950, p. 341). This consisted of representative sets of scales and data from salmon taken by the fishing weir at Limerick known locally as "Thomond Weir". All the fish entering the weir are counted (see *Went*, 1943) and a proportion (only 28 % at present) are retained for marketing. The four additional years now described give us a long series of observations which are worthy of being placed on record. No account is taken of the fish captured seawards of Thomond Weir, as the intensity of the fishing in that region has remained more or less constant since 1941.”¹⁶

Salmon in Ireland: In a paper on “Salmon investigations in Ireland with particular reference the River Shannon Dr. A. E. J. Went, inspector of fisheries and science adviser, Department of Lands, said that investigations into Irish salmon were only spasmodically carried on before 1926,¹⁷

“Before the operation of the hydro-electric plant the Shannon was predominantly a salmon river; that was to say, the bulk of the fish had spent two or more years feeding in the sea and run into the river before June, whereas to-day the Shannon was predominantly a grilse river. The average size of salmon entering the river in 1941 was much smaller than in 1928. The grilse had not actually increased, but had remained relatively stable over the years. The heavier and earlier-running fish had however disappeared to a very great extent.”¹⁸

The introduction of the hatchery scheme at parteen

¹⁶ *Salmon of the River Shannon in 1946 and 1947*, A.E.J. Went,

¹⁷ *The Irish Times* 11 September, 1957, page 8.

¹⁸ *The Irish Times* 11 September, 1957, page 8.

Finally in the mid sixties, Some 28 years after Mr. R. Southern of the Free State Department of Fisheries first proposed the establishment of a hatchery on the lower Shannon, the facility was producing salmon smolt,

“Since it was established in 1958, it is estimated Parteen has helped restock the Shannon river system with more than 100 million salmon. Under Fisheries Manager Drummond Sedgewick, adult salmon were captured on the Mulkear River at Annacotty, and taken to the new hatchery at Parteen for stripping. Originally these salmon eggs were fertilized and reared as an experiment in 2 meter ponds and a rearing house. In 1962 Dr. Noel Roycroft was employed as Fisheries Biologist where he oversaw infancy mortalities reduced from 80% to 10%. In 1963 following the success of the initial experiment, it was decided to build fourteen 6 meter ponds and four 10 meter ponds these ponds were constructed in 1964 and the material used was concrete. This improvement realized an increase in the carrying capacity from approximately 100,000 smolts to 280,000 smolts.¹⁹

“The Mulcair and Shannon systems were restocked with unfed fry/parr/smolts but no attempt was made to differentiate between multi sea winter and grilse. The mid 60's saw the opening of a hatchery in Carrigadrohid on the Lee, followed by Cliff on the Erne in 1971 and Ballyshannon in 1982. Stocks from Parteen were transferred to these locations in order to start up the new hatcheries. Likewise large amounts of parr were used at the start up of a commercial fish farming operation in Connemara in the mid 70's while the 80's saw stock for conservation purposes supplied from Parteen. Parteen played an important role in salmon conservation throughout Ireland from the late 70s to the early 80s when a reciprocal agreement with Fisheries Boards saw the swapping of elvers for salmon ova, parr and smolts. In 1988, ESB Fisheries developed the River Shannon Salmon Management Programme, with a four-year strategy for salmon management on the Ireland's longest river. Subsequently, Stage 2 and Stage 3 management programmes were introduced. Since the early 80s, smolt release from Parteen has been between 150k and 190k per annum. Between 800,000 and 2 million unfed fry are released each year. Parr planting has varied between 30,000 and 100,000 a year, while the number of broodstock returning has varied from 800 to 2,500. Since the introduction of the programme, a distinct Multi Sea Winter stock and Grilse stock have been established at Parteen. Multi sea winter smolts are fin clipped and coded wire tagged before release and grilse are fin clipped only. The tagging programme is carried out by ESB staff under the control of the Marine Institute.”²⁰

How Hatchery Procedures were Applied

¹⁹ Interview with Paddy Barry, 14 July, 1999. Limerick Civic Trust.

²⁰ http://www.esbelectricmail.com/_archives/em_archive/archives/jun2008_em/pgen/jun08_pgen2.htm

In the 1930's, salmon farming had been successful in some Scandinavian countries, but the production of salmon on the scale achieved in the parteen hatchery was a worlds first. Many problems had to be overcome to realize the successful production of salmon, it was marine biologist Noel Roycroft, and later Paddy Barry, that implemented the procedures that made the hatchery the success it is to-day. The problems encountered included; water quality, algae growth, water oxygenation, pH levels, parasites and diseases. The staff also realized that they would need to devise new terminology to differentiate between wild, farmed and ranched salmon, it is recognized that the hatchery at Parteen and the hatchery staff were responsible for the development of the aquaculture industry.

After the success of the hatchery, salmon offspring in different stages of development, were placed throughout the Shannon River system; the next task was to assess the returning fish to gauge how well the new system would work. Below the weir at Parteen, hatchery releases worked well as no hindrance was experienced. Fish released above Parteen Weir encountered many more difficulties, as the natural River route was cut off by the Weir. Any young fish nursed in streams in the upper Shannon above Parteen Weir, would eventually need to pass through the turbines in the power generating station at Ardnacrusa,

“At Ardnacrusa generating station there are 3 Francis turbines and 1 Kaplan turbine. The Kaplan is known to be fish-friendly and operates in a different manner from the older Francis design. A study was carried out by Normandeau Associates Inc. and Fishtrack Ltd in 2004 to determine the survival of hatchery-reared smolts passing through the Kaplan turbine using HI_Z Turb’N Tag-recapture technique. Although the possibility was considered that hatchery smolts could have reacted differently to wild smolts in the turbine passage, this study concluded that the Kaplan turbine will safely pass more than 90% of the migrating fish. It was noted that 4.3% turbine-entrained smolts were visibly injured and suffered immediate mortalities. While this survey estimated entrainment through the Kaplan turbine, further studies are required to give an over-view of the effects of the entire generating installation. The study did not assess such indirect effects as physiological stress and increased susceptibility to predation and disease.”²¹

The devastation of Salmon Stocks by Over-Harvesting

In the late seventies, reports in the newspapers exposed the extent of overfishing of the Shannon salmon. Sea going trawlers were witnessed entering the Shannon Estuary fishing with illegal nets, some of them were unlicensed. Other factors contributing to the loss of salmon numbers included; traditional estuary drift netting from small boats, the E.S.B. harvesting 28% of stocks from traps at Thomond weir, poaching, and lack of restrictions on fish numbers caught on rod and line. It seems that pressure was applied to authorities to turn a blind eye to the illegal fishing

²¹ http://www.shannon-fishery-board.ie/downloads/2010/Salmon_Restoration_plan.pdf

methods by local politicians, there were reports of fisheries officers being chased off by trawlers, the seventies was a dark time for salmon survival on the lower Shannon. Returns were so bad that the E.S.B. decided to suspend its commercial salmon harvesting business at Thomond weir.

Observers say canvassing worked against the salmon: “Drift-netting trawlers, 13 of them, are strong around the mouth of the river Shannon and government has been asked to use force in shifting them, or at least to help the Limerick Fishery Board to prosecute the owners and crews who enter the estuary. The trawlers have painted out their registration numbers and are alleged to be using nets a mile long, at least three times the legal length, and, as well, are using nets 60 meshes deep, ignoring the recent order to cut the number of meshes to 30. The Fishery Board’s 17-foot patrol boat when it goes among the trawlers, is “buzzed” continuously. In two incidents this week, Mr. John Costello, the fishery inspector, was on board. The boat was followed by three trawlers which forced it close to the shore and to the rocks, where it stood in danger of being sunk or at least damaged. ALLEGATION. It is alleged by observers that the trawler has been working in the estuary for some time now, but nothing could be done “because there was an election on,” said one Limerick man.”²²

“The increased success of drift-netting along the West, South and North coasts in recent years has put other forms of salmon-fishing in jeopardy. The Inland Fisheries Commission, which reported in 1975, stated that salmon-fishing at sea was virtually unsupervised.”²³

ESB head fears collapse of salmon fishing industry. “Speaking at the publication of the ESB Fisheries report, professor Dillion said that in the light of what had happened to the salmon run in 1978 fishing season, the board had now decided very regretfully to suspend for the present its remaining”²⁴

“The report for the year ended March 31st, 1978, again voiced the board’s alarm. Increased fishing had reduced declining stocks to a critical level, and if these stocks were to be conserved, urgent action was now imperative. The main problem is lack of effective regulation of salmon fishing. There is an excess of salmon licenses issued for drift netting at sea and now the problem is compounded by excessive fishing by unlicensed boats including large trawlers.”²⁵

²² The Irish Times, 18, June, 1977. Page 4.

²³ The Irish Times, 18, June, 1977. Page 4.

²⁴ The Irish Times, 1, November, 1978. Page 13.

²⁵ The Irish Times, 1, November, 1978. Page 13.

ESB reports lowest ever salmon stock levels. “The report than spells out how bad the situation has become. On the river Shannon, last year’s salmon count at Thomond Weir was the lowest since counting commenced in 1941.”²⁶

“The report says that the ESB’s heavy investment programme in restocking safeguarded the Shannon stocks from the effects of the increased in the number of legal drift nets operating around the west coast in the 1970 – 75 period. But since 1975 the advent of illegal unlicensed netting by large 60 foot trawlers off the mouth of the Shannon, with nets far in excess of the legal limit, has had a dramatic effect. This activity, says the report, is the prime cause of the present collapse of the stock. The total Shannon run, which averaged 48,000 in 1962 – 75, fell to 16,000 in 1978.”²⁷

The Establishment of the Fishery Boards

After the decimation of salmon stocks on the lower Shannon in the seventies, the government had to take action to reform the problems with the fisheries sector. It was proposed to establish a central fishery board, and to form regional boards to control fisheries policies locally. As the Shannon River was still under the control of the ESB, it would be decades before the Shannon Regional Fisheries Board would fully direct maintenance, security and fisheries policy on the lower Shannon, as regional boards did around the country. The regional boards played an important role on inland fisheries, illegal fishing had been a problem for years, and licensing and regulation helped to solve this problem to a degree, but it caused problems for rod anglers later when anglers nationwide rebelled against new licensing arrangements. The rod dispute started in 1987 and continued into the nineties, it was never really resolved and in the end the Fisheries boards got their way

“The Central Fisheries Board (CFB) is a statutory body, which was established under the Fisheries Act, 1980. The role and responsibilities of the CFB are, as set out in the Fisheries (Amendment) Act, 1999, "to promote, support, facilitate, and co-ordinate where necessary, and to advise the Minister on policy relating to, the conservation, protection, management, development and improvement of inland fisheries and the efficient and effective performance by the Regional Fisheries Boards of their functions".

The seven Regional Fisheries Boards were also established under the Fisheries Act, 1980. The Regional Fisheries Boards have statutory responsibility for the management, conservation, protection, development and improvement of the fisheries within their regions, and offshore to a twelve mile limit for the protection of salmon. Their remit also includes specific responsibility for marketing, catchment management and angling promotion. The seven Regional Fisheries Boards are: Eastern Regional Fisheries Board Western Regional Fisheries Board Southern

²⁶ The Irish Times, 17, December, 1979. Page 6.

²⁷ The Irish Times, 17, December, 1979. Page 6.

Regional Fisheries Board North Western Regional Fisheries Board South Western Regional Fisheries Board Northern Regional Fisheries Board Shannon Regional Fisheries Board At up to 23 members per Board, the Regional Fisheries Boards are unwieldy and have a reputation for internal conflicts and competing aims between different stakeholders. There are two types of board members, elected members and Ministerial appointees. The electorate is divided into different classes depending on the type of fishing licenses held. Members of each class of the electorate are eligible to be nominated for election in that class. The significant changes in the management of inland fisheries stocks have considerably altered the balance between license classes since the establishment of the Boards 29 years ago.²⁸

The End of Traditional Drift-Netting in the Estuary

For years many organizations had called for an end to drift-netting on the Shannon estuary, this way of fishing was carried out by families who held traditional licenses to fish in the estuary, normally they fished from traditional boats known as gandelows, from 2000 many groups both private and public put pressure on fisheries authorities to remove drift-nets from the Shannon estuary. A compensation scheme was proposed and put in place.

“The Shannon Regional Fisheries Board believes that the management of this natural resource requires a clear national policy encompassing all of the complex issues associated with it. The conservation and protection of the salmon stocks themselves must be our first priority thereafter the coherent management of the harvesting of the surplus stock. Based on scientific advice on a catchment by catchment basis a rebalancing of the harvesting of salmon from offshore to inshore should be undertaken. The Board recommends that Drift nets around the coast of Ireland be removed through buyouts.”²⁹

Peter Power (Limerick East, Fianna Fail) Question 184: “To ask the Minister for Communications, Energy and Natural Resources if his Department will offer a financial compensation scheme for drift net fishermen similar to the scheme presently in place, if they surrender their licence after 21 December 2007; if the ban on drift net fishing will be reviewed by his Department in the next five years; and if he will make a statement on the matter.” [31773/07]

Eamon Ryan (Minister, Department of Communications, Energy and Natural Resources; Dublin South, Green Party): “Applicants have until the 31 December 2007 to accept any offer under the Salmon Hardship Scheme. This deadline, I believe, provides ample time for those concerned to give the scheme due consideration. The Standing

²⁸ <http://www.shannon-fishery-board.ie/downloads/2009/Summaryofproposals.pdf>

²⁹ Submission to the Joint Committee on Communications, Marine & Natural Resources, Re: Commercial Salmon fishing and Salmon Angling.

Scientific Committee of the National Salmon Commission has advised that stocks of salmon in a number of rivers in the Shannon Estuary are below conservation limit. The Regional Fisheries Board and the Marine Institute will monitor the stocks in developing a management plan for each of the rivers with a view to identifying the extent of the recovery, if any, arising from the cessation of the harvesting of salmon and any stock rehabilitation works undertaken.”³⁰

Lower Shannon Fisheries Today

As Ireland entered into the new millennium, the ESB’s policies toward its involvement in the River Shannon fisheries changed, older fisheries employees were retired and not replaced, and the way was cleared for the Shannon Regional fisheries board to take over maintenance and policing duties from the ESB. At first, private security firms were employed to enforce fisheries laws on the lower Shannon, this approach did not prove successful, finally the Shannon Regional fisheries Board took over enforcement duties. At this time the CEO of the Shannon Regional Board was Eamon Cusack, under his supervision the Board enforced laws and applied policies as directed by scientific advice, he’s approach was not well received by lower Shannon anglers.

Firstly the board closed the Shannon to rod angling for salmon from O’Brien’s Bridge to Thomond bridge, when local anglers protested to local government ministers, the Lower Shannon was opened to catch and release for wild salmon, 10 blue tags are allocated to anglers each season to allow hatchery salmon to be harvested by anglers, a ban on rod angling for salmon from traditional boats was also put in place. These restrictions are in place to this day, and the fisheries board has to apply to the minister for the environment each year to open the lower Shannon for salmon angling.

The policy of the Board towards dealing with anglers problems was to set up a partnership committee with existing angling clubs, (ESB Electricity Supply Board Fisheries Conservation, Shannon Regional Fisheries Board, Shannon Mulkear and District Angler Association and the Limerick and District anglers Association.) the majority of anglers in the region are not involved in any of these organizations and as a result have no input into the policies affected by the partnership. As a local angler it is easy to be negative towards the fisheries boards interaction with rod anglers, more could have been done to keep the anglers on board, there are hundreds of anglers in the region who would be happy to assist in habitat maintenance. On a positive note, the Board must be commended on their work in the Mulkear river, which has proven to be a huge success, this is the product of the hard work of the board’s staff whose enthusiasm is infectious,

³⁰ Ministers questions www.gov.ie

“While the Board appreciates the ESB’s primary function as one of generating and transmitting electricity, they also have a duty to manage the natural resource given to them by the State; this includes protecting the habitat of salmon, protecting the downstream migration of smolts, and the upstream migration of adult salmon, particularly adjacent to their dam. If the ESB in reviewing its core business believe that these matters are best addressed by another body then adequate resources must be made available by the ESB to ensure that these responsibilities are met.”³¹

Salmon fishing ban at poaching blackspot. “A THREE-MILE stretch of the Shannon River near Limerick city has been declared a poaching black-spot. The Shannon Regional Fisheries Board has deployed extra fisheries officers to patrol the river banks between the Black Bridge at Plassey and Thomond Bridge. Eamon Cusack, chief executive officer of the board, claimed thousands of salmon may have been taken from that part of the Shannon in recent years. As part of new conservation measures, all fishing for wild salmon has been banned for the season on the Shannon, the Fergus and the Maigue. The season started in March and finishes at the end of September. Wild salmon fishing is being allowed on the Mulcair but a season quota of 1,200 is in place. The board, owing to the activities of poachers, rejected appeals by anglers to open up the Shannon between the Black Bridge and Thomond Bridge. Mr Cusack said the board, however, had agreed to allow coarse and brown trout fishing between the Black Bridge and Thomond Bridge. Ministerial approval is expected Mr Cusack said: "The Shannon, between Plassey and Thomond Bridge, is one of the most poached stretches of the entire Shannon. As a result of this we have put in place extra fisheries officer patrols to address the situation there. From reports we have received, hundreds — if not thousands — of salmon have been illegally taken from this section of the Shannon." Mr Cusack said anglers could target hatchery or farm salmon between Plassey and O’Briens Bridge, adding that anglers could "identify hatchery salmon as they have their fins clipped". Mr Cusack said the conservation measures would yield long-term gains through increased salmon and white trout stocks on the river network. Sean Quinlivan, spokes-man for the Limerick Anglers Association, said he welcomed the move by the fisheries board to restore coarse and brown trout fishing on the stretch. But he added: "We want all kinds of angling opened up and I dispute the board’s claim that it is a poaching blackspot”³²

“Andrew Reale, of Garryowen, picketed outside the recent Fisheries Board conference entitled ‘Shannon Waters’ held at the Strand Hotel, against the prohibitions, which he feels, are making it impossible for Limerick city to develop an angling tourism industry.“From 2007, the Shannon Regional Fisheries Board imposed the restrictions on

³¹ Submission to the Joint Committee on Communications, Marine & Natural Resources, Re: Commercial Salmon fishing and Salmon Angling.

³² The Irish Examiner, 22, May, 2007.

the lower Shannon river, near Limerick city. The most significant effect was felt by anglers with disabilities and senior anglers with mobility problems,” said Mr. Reale. “A ban on worm angling means that older anglers who find it tiring to spin or fly fish can’t enjoy their hobby. “Most fishermen I have spoken to feel the fisheries board has a negative opinion of Limerick city anglers and their new policing strategy aggressively targets them” Mr. Reale continued that Limerick fishermen feel that the heavy handed approach of fisheries officers is designed to push anglers into conflict, thus leading to on the spot fines and criminal convictions.”³³

Hundreds of Fish Dumped

In a newspaper report it was exposed that for years, hundreds of fish die at the wall above the Weir at Parteen. The fish were gathered up and transported to a landfill site in north Tipperary, the matter of fact manner of the statement by an ESB spokesman is upsetting. I would worry that if these fish were returning adults that had been trapped at Parteen Weir, and transported above the weir by ESB fisheries staff, that some wild fish destined for the Kilmastulla may have been part of the dumped fish? The article does not say if any genetic or scientific research was carried out on the origin of the fish. To think that this had been happening for years without any attempt to find a solution is a disgrace.

Dumping of fish investigated: “North Tipperary County Council has launched an investigation into the dumping of hundreds of salmon at the county’s main landfill at Ballaghveny outside Nenagh. Mr. Pat Peril, a member of the Shannon regional fisheries board, raised the issue with North Tipperary County Council after the fisheries board’s December meeting was told that salmon were dying at Parteen Weir, the ESB’s main fishery hatchery on the Shannon, near Birdhill. Mr. Peril established that hundreds of salmon were dying and being dumped by the waste management company Advanced Environmental Solutions (AES) at the Ballaghveny landfill. A spokesperson for the ESB fisheries said that many salmon were trapped at Parteen Weir every year and were disposed of under license at the North Tipperary landfill. The spokesman added that 300 to 400 fish were disposed of in this manner each year.”³⁴

2010 Sees Further Changes to the Fisheries Sector

In 2010 legislation was passed to allow for the central and regional fisheries boards to combine under the name Inland Fisheries Ireland, time will tell if this strategy will change anything for fisheries in the region,

³³ The Limerick Post 18, May, 2009.

³⁴ The Irish Times 8, January, 2004. Page 2

“It has been widely acknowledged that the sector is characterized by a regionalized management structure with strong involvement by local interests in decision making, complex issues of ownership, reliance on State funding and tensions between stakeholders. For some time, it has been accepted that the current structures governing the sector are in need of restructuring.”³⁵

The Lower Shannon Angler

Speaking as a Lower Shannon angler, the perception of anglers by the fisheries organizations may not be as it seems, yes there are bad anglers, and anglers can be difficult when faced with changes that affect the enjoyment of their pastime. The Lower Shannon angler is unique to Irish fisheries, most of them can trace their heritage on the Shannon fisheries for generations, and they strongly believe they have a god given right to fish on the Lower Shannon. Like the estuary drift-netters, fishing was a family activity and they used a boat specific to their needs called the angling cot or the earlier; (brocaun), in my youth all anglers had access to a cot, this gave the angler the facility to access fish holding in deep water, in this community the stigma of being called a poacher was not accepted, and this is still the feeling of Shannon anglers today.

Conclusions

Today, it is easy to look at the effect of the Shannon Scheme on the Shannon salmon as a tragedy; we must remember that at the time, everyone involved in harvesting salmon played their part in the demise of the wild salmon stocks on the Shannon. In the 1930's the government of the day had ignored the issue of salmon stocks for too long, and decided to impose the problem on the ESB, luckily the fisheries staff were very enthusiastic about the task, they improved the chances of survival for the Shannon salmon, but could the ESB management have done more? Certainly, they chose to construct Thomond Weir to harvest salmon for sale 21 years before constructing the hatchery facility at Parteen, and continued to harvest salmon for sale until 1978, but as salmon production was an important industry it had to be maintained. It was believed that planting salmon offspring in the upper reaches of the River Shannon could reintroduce salmon to the River above the Shannon scheme, when I read that for years hundreds of adult salmon have been dying at the wall above parteen Weir I was horrified, also smolts returning to sea must endure the trauma of passing through the turbines at Ardnacrusha. It's my opinion that to try to reintroduce salmon to the upper Shannon without a working fish pass is a futile exercise and inflicts undue distress on salmon.

³⁵ <http://www.shannon-fishery-board.ie/downloads/2009/Summaryofproposals.pdf>

This poses the question, what is to be done to ensure the survival of the Shannon salmon? Presently important work is being carried out on the lower Shannon below Parteen Weir to sustain existing productive salmon habitats. The Mulkear River is a testament to what can be achieved with planning and hard work. Not long ago in August of 1997, the Mulkear River suffered a fish kill, today it is realizing an increase in salmon numbers close to those achieved years ago. If some of the same procedures were applied to other spawning areas on the Lower Shannon, the same success could be achieved in those areas, and salmon stocks increased throughout the catchment. The catchment needs to be assessed in its own right when calculating the total allowable catch, to include lake area and estuary area figures in assessments gives a misleading account of stock figures. A fish counter needs to be placed at Thomond Weir to access the true state of salmon stocks, a counter was in place here from the construction of the Weir. If a realistic account of stocks entering the lower Shannon was available on a season by season basis, any problems with stocks could be corrected quickly, at present if a problem existed it may be years before it is realized. While there is a counter in place on the Mulkear River this cannot account for stock in the whole catchment.

A detailed survey of areas on the Lower Shannon from Corbally right up to the Silver River at Silvermines needs to be initiated, local knowledge of anglers, and the expertise of retired ESB fisheries staff must be utilized, potential spawning areas on the Lower Shannon and tributaries must be identified and marked, and angling of any sort in marked areas needs to be suspended for a time to allow salmon, trout and lamprey young, time to establish in the habitats. The cooperation of anglers would be vital to the success of the project, the fisheries organizations could employ the help of local anglers to protect and clean up River habitats. If this approach was successful in improving fish stocks, these fish could be used to restock the upper reaches of the Shannon when a working fish pass was installed in the future.

Interaction of the new fisheries organizations with anglers in the region is very important going forward. Speaking from experience, I was unhappy with the approach of the Shannon Regional Fisheries Board towards the Limerick angler, our angling community lost a lot at the hands of the Fisheries Board, but I feel the Board lost something much more important, our respect. Dwelling on the past will achieve nothing and with our country in recession, money to carry out projects is not available, the regions anglers need to be utilized to help manage and protect our fishery. The new fisheries body can use this period of restructuring in fisheries to regain the trust of anglers in the region, a simple gesture such as changing the existing bye-law so as the fisheries body does not need to apply to the minister each season to open the Lower Shannon to catch and release and the return of boat angling for salmon would help to restore relations.

Lately the word stakeholders has been used to describe anglers, it's good to see an attempt being made to help anglers participate in the fisheries process, I have experience of dealing with fisheries authorities in the past and found it hard to achieve anything, indeed it was necessary to use the media or approach the department to get a response from the Board. I discussed how the Regional Board used partnership with existing clubs to interact with local anglers, I attended an

AGM. Of the Limerick and District anglers Association in January 2011, the secretary said the association only had 24 paid up members if you consider that there are up to 500 anglers in Limerick how does partnership represent the opinions of the majority of anglers, this also could be seen as discriminatory. I accept that dealing with individual angler's problems would be difficult, it might be productive to appoint an existing fisheries officer to different angling areas on the Lower Shannon who could build a rapport with anglers in his or her district, in turn anglers could report problems to someone they know.

I discussed how successful the Hatchery program at Parteen Weir has been, if part of the facility was used to take pairs of wild salmon from areas with existing spawning beds, and used to produce fry they could then be released back to the nursery streams on their home habitats, it could help to boost existing stocks, the Hatchery has been used to rejuvenate salmon stocks in Rivers around Europe, so why not use it to assist the survival of our own Shannon salmon.

Finally, the relationship of the new Inland Fisheries Ireland with local anglers must be discussed, while the name may have changed, and the organization may have been restructured, little else has changed. Last summer I attended a series of evening meetings held to inform the public about the Mulkear life project; I found the presentations very interesting and informative. While all the contributors were interesting, the speaker who impressed me most was Dr. Fran Igoe, he's opinions on habitats, indigenous species and the account of using local anglers to carry out research impressed me, I thought that he's opinions were not that different to the opinions of local anglers, I said to myself "anglers need to hear what this guy has to say" over the course of four presentations I did not see many if any anglers at the promotions. The IFI needs to work to inform and involve all anglers in the region, a data base of anglers needs to be compiled and a promotional day organized specifically for anglers and to reach out to anglers. If the IFI can gain the support of locals it would improve the efficiency of the organization and ease the workload on fisheries officers.