The Wild Salmonid Emergency

and possible solutions

Twelve years ago, the Irish offshore, interceptory drift net fishery for salmon was bought out by the State at a cost of some €30m. This was forced on us by the EU on foot of complaints by other member States that Irish offshore operators were harvesting their endangered species, as they returned to SW Britain, France and NW Spain from the North Atlantic feeding grounds.

There was then a four year period of near total cessation of officially sanctioned exploitation, followed by the gradual introduction of a new tag based Total Allowable Catch system (TAC), within individual river systems, based on the stock strengths of those individual rivers.

This should by all projections have resulted in a large increase of fish making it up river to spawn and a gradual increase in the general stock levels resulting in a massive boost to the angling tourism industry, projected to be soon worth several hundred million. This in general, particularly in the South, has not materialized, indeed catches have dis-improved. The Munster Blackwater is by next year 2017 likely to be back on "catch and release" the projected catch for this year being about 3000. This compares unfavourably with the peak back in the late twenties of well over 500,000.

The official view of why not, is that there has been an escalating level of "sea losses". Smolt going out to their North Eastern Atlantic feeding areas, are simply not returning in the numbers expected. The fisheries scientists tell us that survival is down to around 5% from a past level of 40%., supposedly for the following reasons.

- Climate caused, ocean temperature changes which have moved the sandeel and krill further north and the fish have not yet adjusted to this.
- The mass harvesting of krill and sand eel to provide feed for the fish farms and the European domestic cat. And indeed oil for Danish power plants.
- Salmon at various stages of their sea life being "inadvertently" caught by trawlers fishing for other species.
- Damage to smolt as they exit their river systems and head north, caused by myriads of sea lice larvae coming off the sea cages of the fish farms in the west coast inlets. More and more evidence seems to confirm this as the major loss factor. What is more than this, is it is now postulated that various debilitating diseases of adult salmon are being transmitted by these lice. Furthermore escaped cage stock may detrimentally interbreed with the wild.

http://www.bbc.com/news/uk-scotland-highlands-islands-20236291

- There has also been heavy predation of migrating smolt by hunting party flocks of Cormorants, though this has been "disproven" by a Bird Watch Ireland survey, which did no survey work in March / April or May, the crucial months when this happens. Thus examined outside this vital estuarine migration window, cormorants had no salmonids in their stomachs. What is most worrying now, is that the hunting parties have over the past two years ceased. Is this because the anglers have shot them all, or that their sea food has come back in great quantities, or is it because there are now insufficient smolt to make their estuary feasting worthwhile.? Whatever the case, Canadian research suggests up to 80% of a smolt run may be decimated by such activity. This estuarine migration can take up to several weeks as the smolt adjust to the salinity changes.

But are these all the reason for the low numbers of returnees? Perhaps not.

Could a major factor be that we are not sending out sufficient numbers of strong smolt in the first place.?

Several major changes have occurred over the past fifty years. Firstly the advent of rural electrification in 1955 and bottled gas and the Bord na Mona peat briquette in the sixties. Why was this so significant. Before that time, every and any small tree in the size range of 3" to 4" growing in rural Ireland was relentlessly cut for "firing", meaning cooking and heating. The banks of the small streams were considered public domain. This meant thousands of miles of small tributaries of the main rivers were open to sunlight and highly productive nursery areas for trout and salmon. However, the vast majority of these small streams are now completely tunnelled over and of very limited value for salmonid production. It is very easy to see which are ecologically deficient. They are the ones with no dark green Ranunculus weed growing in them. If a handful of this long, streaming weed with buttercup type flowers is pulled up and examined, it will be seen to be teeming with life, fresh water shrimp, snail and insect larvae, with abundant bird life to be seen picking insects off the floating tops. Work done by Dr.Martin O'Grady reported on in 1993 conclusively showed that this over shadowing of these streams reduced their breeding potential by 70%. That was over twenty years ago and has got much worse since, exacerbated by ill thought out REPS projects of fencing off river banks.

As an addendum, this point above may not be entirely true. We now realise that the exactly concurrent introduction of myxamatosis to the rabbit population in the mid fifties, was also massively significant, given 40 million rabbits were virtually wiped out and that forty rabbit were equivalent to a bullock. The literature shows that an infestation of rabbits has a major effect on vegetative cover, in particular tree re generation.

Consequent to this development has been the phenomenon of main channel spawning of salmon. This was thought to have been caused by diminution of the stock due to excessive exploitation, meaning there weren't enough to force each other up the smaller streams.

whereas the main reason was probably the tunnelling by the unchecked growth of overtopping vegetation. Spawning in the main channels, leads to over competition and excess predation in those local areas, as well as a smaller weaker smolt being produced, easily mortally damaged by sea lice attack. Could this be a reason for less survival at sea.? It is known that salmonids which are born way up the small dendrites lead to a stronger, earlier specimen heading out to sea. **So what might be a solution to this problem?**

There have been a number of pilot projects involving manual rehabilitation of degraded stretches of dendrite, but the amount that can be done this way by hand, is but a tiny fragment of what needs doing. Enough has been done though to demonstrate a massive increase in productivity of the stretches concerned. Work on the Kilmanaghan river near Clonmel is a case in point. The reality though is such rivers probably have a thousand kilometres of good nursery streams each, so dealing with 0.1% isn't going to make much difference. So how could this be achieved on a much grander scale.?

https://www.youtube.com/watch?v=v40PGLVoq4g&feature=youtu.be

Paying the adjacent farmers do the job as part of their environmental schemes.

At the moment they are under the umbrella of REPS / AEOS, making the problem far worse, by fencing off rivers and streams, not just cattle drinking areas, but without a follow on maintenance programme. This is being done with good intention, on the basis that cattle were damaging the banks and stirring up silts, but what is happening is ecologically worse. If the fence lines were sensibly laid, it may be possible to mechanically harvest and maintain the protected growth**. We must also examine whether it is really a few cattle watering "gashes" that are silting up the spawning beds in the first place. Fifty years ago, there were many, many more such watering places, before the advent of the black polythene water pipe and worries about TB. Is it not far more likely that the cause is the shading out of light upstream, such that there is no river weed like the Ranunculus to bind the silts in place. Thus they are being swept down in the current and then clogging the gravels.?** A positive factor with cattle is they create a browsing level up to 1.5 meters, which also lets light in. **We now have another major possibility in that we can re direct our "green" energy supports to a sustainable biomass harvesting of these riparian zones**, instead of importing our biomass obligations from the Third World.

This "cattle" problem has directly led to another complete red herring, the Lamprey game. Lampreys we are told, stir up the spawning areas making them fit for the salmon who spawn later on. The problem is "the Lampreys can't get up over the wicked weirs. That didn't seem to be a problem fifty to two fifty years ago when the weirs were built. Probably the reason the Lampreys are so scarce is because their traditional spawning areas are now totally sterile. Hot on the tail of the Lampreys are Egrits and escaped Rainbow Trout. No, lets wake up and think about the real issue, the tunnelling by light impenetrable mass

growths of Alder and Willow. Besides no large, slow migratory lamprey is going to survive an otter for five minutes, not a hope, now that their population has greatly increased.

How about applying the law to Coillte (semi state forestry) and private forestry owners as regards not planting right on top of streams and dendrites. The former have just announced bigger profits and are crowing about their ecologically sustainable practices. It would be a good moment to come down heavy on them, and a great start to the work needing doing. In Scotland this condition of keeping back from the river's edge is rigorously enforced. Recent clear felling on the banks of some small rivers local to the author, demonstrate an immediate, massive improvement in the riparian ecosystem. The Lickey river down in West Waterford, a tributary of the Blackwater, was totally tunnelled by Coillte forest, but some has recently been clear felled, resulting in a near immediate resurrection of the ecosystem. But minus of course any salmon, who need to be “re introduced”.

Many of the big rivers have a large proportion of their source in the midland bogs. Before the bogs were drained and worked, they acted as enormous sponges, greatly flattening out their respective river flow duration curves. This meant that these rivers were far less flashy, and thus less likely to cause flooding down in the lower reaches where they pass though significant towns, such as Kilkenny, Clonmel etc.. It also meant they provided a far more productive environment for the salmonid young. What good is a dried out stream for half a normal Irish Summer. The simple solution to this problem is once worked out, each of these bog areas should be fitted with limited egress “V” notch weirs. This move would greatly alleviate downstream flooding and at the same time be of great ecological benefit., creating large areas of ecologically productive wetlands. Unfortunately it is certain that already a number of wind farms have been located in such areas, without making sure that the tower bases and roadways are able to accommodate an extra meter of water.

Introduction of the European beaver.

A major government sanctioned trial in the West of Scotland has given excellent results, with another one in Wales now started. Within a few years the beaver will be widespread across the UK. The Irish Wildlife men are dead against this, because they say it is not a native species and wasn’t ever here. Are they sure.? The hare we have here has since the big freeze up in 2011 when a number went white, has been proven to be the Artic “Blue” variety, with the ability to go white as opposed to the English / French “Brown” version. If they are here, why not the European beaver except it was wiped out by man. Indeed this animal suffered the fate of being declared fish by the Church and was thus easily wiped out for that reason, let alone its prized pelt. Using beavers has another massive advantage in that their activities would greatly slow down dendrite run off, holding back the silts, a far better course of action than spending €50 million each canalising the middle of Kilkenny, Clonmel, Fermoy and God knows elsewhere. Apart from anything else all international research points to their presence being of massive benefit to numerous species of animals and birds. It is completely unacceptable to simply throw the hands up and say "no",

without first familiarizing oneself with some of the relevant reports on the matter which have been generated in the UK and elsewhere. For instance -

http://www.salmon-trout.org/pdf/Briefing%20Paper%20Beavers%20Charity.pdf

Now of course we will have the bright sparks telling us that the small streams and dendrites not shaded over by trees, are completely clogged over with soft vegetation, much worsened by excess fertiliser usage. Of course they are, but that merely reinforces the argument for the beaver, as they would keep those areas open. This is all about ecological balance. That is the key and that is why the beaver is considered a "keystone" species.

It is also very important to realize that humans too are just another animal in the ecosystem. As far as the ecology of the riparian zones is concerned, the removal of the two legged animal from the scene was in itself a massive interference in the then status quo. Let alone the rabbit wipe out. This is one more good reason for putting in a substitute to restore the balance.

It is interesting to postulate what will happen in the Sahel over the next fifty years, when fifty million African women no longer spend half their day gathering "sticks" and carrying water, both these functions being superseded by Chinese made photovoltaic panels, electric water pumps, and heavy duty Chinese made batteries. Of course there will be an massive environmental change, exactly as happened here, except in this case for the good, but in our case for the bad.

However in order to make progress on any of these issues though needs one major change. In essence we need to move to the North American model of State control, meaning a Dept. of Inland Fisheries and Wildlife, perhaps also including elements of Agriculture and Forestry. Certainly all SAC zones (Special Areas of Conservation) should be under one control. Under the present arrangements nothing can be done, because each Dept. has regulations which block the other and seemingly take pleasure in doing so. For instance it is impossible to work on a river bank, March to September, which is the only practicable time you can work. And you can't work on the river from September to March because of the Fisheries rules. By the way, Dr.Colm McCarthy recommend such a change in his Bord Snip Nua report.

Now if the salmon is to be a thing of the past, because we can't control what is happening in the ocean feeding areas, does that mean we simply give up. No, because if the angling tourist can't fish for salmon, an even larger group would come from abroad to fish for trout. Indeed the fewer salmon juveniles there are in the rivers, the better life is for the juvenile trout. However, nearly all the same issues apply. Trout too have a migratory lifestyle but on a smaller scale. Research on top trout rivers like the Suir, shows that the fine trout caught on the main rivers, aren't born there, but rather up side tributary perhaps many miles away, where conditions for juveniles are far better. They then when strong enough to

do so, migrate to the adult areas. Unfortunately the same applies. These vital nursery tributaries and dendrites have largely already become mere sterile tunnels. By the way, this dearth of brown trout totally disproves the current scientific flavour of the month that this lack of salmonids is to do with CO2 in the oceans. When do brown trout go out into the oceans.!

So what is needed.?

Firstly, a sorting out of the politics of the situation. This means getting our riparian systems all under one coordinated control. This needs to be accomplished right now under the umbrella of the Flooding work which is being led by OPW.

Then a grand plan for the opening out of the dendrites. This doesn't mean five or ten kilometres per major river. A good start would be to apply the law to Coillte. This as a first move would be relatively politically acceptable. Farmers should be re-instructed to keep their riparian zones 66% open under their terms and conditions for "Greening".

Better still be sustainably paid to do so by re directed Energy subsidies. Many will be astounded to know that instead of supporting a home based biomass industry, we instead imported thousands of tonnes of biomass from the Third World, trucking it up to Lanesboro, to burn in the peat station there, with 60% of the energy going up the stack and cooling tower. Not what the spirit of the EU directive required.

Parallel with this Beavers should immediately be trialled on suitable rivers.

Then a re-seeding of these dendrites using Whitlock-Vibert boxes. All this could be done in conjunction with the Dept of Education and become part of the junior school science curriculum. This involves capturing ripe fish in the Autumn, stripping them and placing their fertilized ovum in specially designed boxes, buried in the gravel. Those fish that return to spawn will seek out the very tributary they were born in and then the cycle will be self perpetuating. Doing this has absolutely nothing to do with hatcheries, which are expensive to run and of dubious merit.

www.fedflyfishers.org/Conservation/Whitlock-VibertBox.aspx

Watching this short film is an absolute must, if you wish to understand how this whole idea potentially fits our scene.

Doing this would be a fantastic opportunity for a joint venture with the country's schools as part of their science curriculum. The wild salmon is after all considered to be an iconic part of Irish wildlife.

This massively increases the survival rate and by placing these boxes, each with approx 300 ovum, carefully along the small streams, will lead to a vast increase in the number of strong smolt being sent out to sea.

The Weirs Debacle. (two or three meter high stone variety - not twenty or fifty meter concrete)

In all facets of life, there is a human disposition when something is wrong, to strike out against the nearest and easiest soft target, often without thinking things through properly. The "tear down the weirs" game, beloved of some anglers and authorities, is a clear case in point. Let us explain. Anglers and tourism interests want if possible, especially on the main rivers, to have salmon fishing that starts in February and ends in September. This requires salmon to enter the river and remain viable without feeding, for the fantastic period of eight or nine months before they spawn. Now that is fine, if at the headwaters of your river you have a large lake, where they can go doggo for months on end, but if you have a river without a lake, you need large stretches of near dead water, where the fish can safely sit out the long Summer. Going back one hundred years, one of the best Spring salmon rivers in these islands was the Suir. Not too many lakes there, but what it did have were numerous weirs installed by the ancestors of the writer of this opinion and others like them. No, such weirs are a vital part of the ecology and it is a criminal act of gross stupidity to want to tear them down. "But they are an obstruction to the fish". Yes, but think what they were built for, the powering of an adjacent mill. All you have to do is to re instate the headrace gates, so they can readily be operated and then turn the headrace straight back in below the weir. Then according to local conditions, drought etc., the gates could be raised for a number of hours to allow up and down passage. Cost, a few tens of thousands of Euro. Wonder what the Clondulane issue has already cost and not a bag of cement used. A million or more in legal fees alone. This solution was put forward by the writer nearly ten years ago, but those involved choose not to listen. Such a solution as proposed would also have a massive advantage for the anglers, as it would allow for the creation of false spates, which would freshen the affected areas of the rivers, greatly improving the chances of catching fish.

Still in this zone of contention, it is pertinent to ask the following question. Before rural electrification in the fifties, there were approximately fifty times more mills and turbines than there are now. Were there fifty times less salmon or a hundred times more ?

It is also pertinent to question the modus operandi of the State in its attack on the Clondulane fishery owned by Lismore Estates. The victim never lost the case but was simply worn down to submission by vast legal costs, occasioned by the State's legal team adjourning and adjourning, stringing the whole process out so as to cause massive legal fees to accumulate. This is a gross abuse of process that should be called to book.

The salmon is no species on the verge of extinction, that produces one or two young per adult pair a year if all goes right. Given the right conditions, salmon are capable of making a massive population increase in a very short period of time. This for two reasons. Firstly the female produces thousands of eggs, most of which in the natural state of things get wasted. That could be rectified by the use of the Whitlock-Vibert boxes. Secondly, especially for Ireland, we potentially have ideal breeding conditions. Given a chance a Southern Ireland salmon can achieve smoltification in just two years, that being the point when it is ready to go to sea. In Scotland this is probably three, four or five years and in Iceland and Norway, up to seven years. Given a properly coordinated plan, we could very quickly get to achieve the hundreds of millions of Euro angling benefits that were projected when the drift nets were brought out, but which for all the reason given here, we have failed to achieve. And all this could be achieved for just a few million Euro. A total "no brainer".

And on top of all this, we have the absolutely unique opportunity to involve our young in the education system in this grand project of rectification, with firstly the beaver and secondly the Whitlock-Vibert box facets of the scheme. This combined with the general benefits such a course will confer on wildlife as a whole

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Nicholas has lived on or very near to a relevant river all his life, mostly the Tar, a tributary of the Suir, at Castle Grace, where there is a mill, weir and turbine installation. He recollects well being seized by the arm by the fisheries inspector Mr.Wall, who had arrived on his NSU Quickly autocycle from Clonmel, the reason being the five year old child was hauling out salmon parr on the end of a bamboo.

The headrace is 200m. long and the tailrace 700m. In the fifties and sixties, this river was teeming with fish, including large numbers of salmon of all sizes. Every Summer red fish could be seen jumping in the dead water above the weir and every Autumn vast numbers ran up in the floods, heading upstream to spawn in all the small glens and streams. In 1972 Nicholas caught three Peal (grilse) in three consecutive casts above this weir.

In 1989 a big redevelopment job was done on the hydro scheme, bringing up another meter of head from a mile downstream, at the same time widening the tailrace considerably, creating a broad shallow flow, with just shifting sand. By three years later there was a considerable re growth of ranunculus and a massive population of trout, but by year five, it was necessary to get in an industrial loader to break up the ranunculus each Summer, because it was massively impeding the flow and raising the water level, thus reducing the turbine output. This practice was continued for ten years, but gradually it was noticed that where the willow and alder was re asserting itself, no weed was growing. Nicholas then moved to a policy of planting even more willow and alder in the gaps, which very soon

achieved a total block out of light. Now there is no weed, no fish and if one stands in the water in waders and observes the bed of the tailrace, you can see all the silt and sand constantly on the move. There would be absolutely no question of anything spawning there. Anyone is welcome to come and observe this situation, but it is more important to realise that this "experiment" is a perfect example of just what is happening to a vast proportion of what were our salmonid nursery streams and also demonstrates why we are having so much silting of our waterways, leading to major flooding problems downstream.

CONCLUSION

Anyone would think this issue was all about red herrings such as weirs, lampreys, draft nets, snap nets, cormorants or whatever else. No. All facets of this problem looked at over a fifty year period, point to the massive ecological change brought about by alder and willow tunnelling, to be the key cause of salmon decline, leading to far fewer, weaker smolt going out to sea. Those that do make it out to the high sea are then subject to decimation by cage origin sea lice attack. Conclusive proof of this is the fact that the only system with improving stock is the Moy, which has its lakes at its head, they with many open type, un tunnelled dendrites leading off them and a quick exit to the Northern ocean by their smolt, which consequently aren't decimated by the sea lice on their way. The other proof of this, is the sudden near total destruction of the Western sea trout fisheries was coincidental with the start of cage operations. The smaller, sea trout smolt, which stay closer in shore didn't stand a chance.

And by the way, if we want to be really ecological about all this, we would do away with off shore salmon farming, and bring the whole operation onto land based ponds, using large Archimedes type pumps to pump in sea water at high tide and then recover the pumping energy +++ by letting the "treated" water back out at low tide, through the same turbines / pumps. The energy recovery +++ would be sufficient to run the UV and other purification systems necessary to kill off pathogens and invertebrates including sea lice larvae, harmful to the natural environment offshore. Then there would be no lice problem and no escapee problem, and also no wild salmon / sea trout problem.!

The very first thing needing doing is for OPW to blame the mid section river silting problems nationwide, on the tunnelling upstream. That will cause Agriculture to change their “greening” spec. That firstly needs a riparian zone dispensation from Wildlife for Summer cutting of trees and bushes and to achieve that needs a sustainable biomass energy harvesting system that puts money in the landowner’s pocket. All the machinery needed for doing this is already being made by the likes of John Deere Finland.