Ulster Angling Federation

Response to UKTAG consultation:
Updated Recommendations on Environmental Standards
River Basin Management (2015-21) Draft (SR3 – 2012)

8-6-12

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1 Background

The Ulster Angling Federation is the representative body for game angling associations in Northern Ireland. We have a membership of some 60 associations with a total individual membership of some 7,000 anglers. The Federation represents anglers in discussions with Public Bodies, Government and other NGO's and has been in existence since 1930. We are represented on a wide range of committees to ensure the concerns of anglers are heard.

Our member Angling Associations are very concerned about the development of hydroelectric schemes on rivers as some of these have proved to be detrimental to the river environment generally and to fisheries in particular.

The Resource of Angling

Local Angling Associations have worked extremely hard for many years to conserve, protect, and enhance not only the fishery on rivers but the entire river environment, for the benefit of local people and increasingly, visitors. Countless (voluntary) man-hours and hundreds of thousands of pounds have been spent to improve rivers and associated fisheries: these Associations continue to provide a self-financing and voluntary community-based effort to look after the rivers.

A huge effort is now underway to protect and conserve the trout and salmon – many sea nets have been retired and strict limits on rod catches have been brought in.

The Pricewaterhouse Coopers Report of July 2007 for DCAL on the social and economic value of angling in NI, states that all forms of angling in NI support some 780 full time equivalent jobs, and are worth some £40m p.a. to the NI economy, mostly from game angling. If this jobs/economic benefit is to maintained and enhanced, the provision of good water habitat is absolutely vital for our fisheries

The DCAL study highlighted the impressive record of angling in promoting a healthy, outdoor activity with an almost unmatched record in eliminating sectarian influences. Angling Associations are now responsible for selling large numbers of day tickets to visiting anglers and are generating considerable interest in NI among anglers from outside the area. It is therefore important that a proposal which may jeopardise this community activity should be subject to reasonable assessment.

2 The Joint Links submission

We fully support the submission on this consultation from the 'Joint Links' representing Wildlife and Countryside Link, Scottish Environment Link, Wales Environment Link and Northern Ireland Environment Link.

3 River Flows

We are very concerned that given this analysis UKTAG is proposing to relax standards for all river types. Given emerging science and the absence of certainty about UKTAG must adopt a precautionary approach and maintain and improve current levels of protection.

4 Spatial Criteria Guidance

The document;

Recommendations on
Surface Water Classification Schemes for the purposes of the Water Framework Directive
December 2007
(alien species list updated – Oct 2008, Nov 2008, June 2009)

Section entitled; A.1 General Criteria (page 40)

Including;

Table A1a: Spatial criteria for the geographic extents of failures of one or more of standards or condition limits (other than the morphological condition limits) that are expected to have a significant effect on the ecological status of a water body

This document is a very significant problem; in practical terms, if the dewatered stretch is less than 1.5 km, the recommended percentage limits on abstraction are ignored. Even if the dewatered stretch is greater than 1.5 km, then NIEA write themselves an Assessment and licence it anyway, as they are doing on the river Roe SAC.

The Spatial Criteria Guidance needs to be revised to provide some degree of protection to rivers.

5 SNIFFER WFD 114, Impact of run-of-river hydro-schemes upon fish populations.

We are extremely concerned that the recommendations in this document seem to be being ignored in the present consultation;

Extracts from the NIEA and WFD documents are in blue script.
UAF comments are in black script.

SNIFFER WFD 114, Impact of run-of-river hydro-schemes upon fish populations.

The Phase 1 was completed in August 2011 and the report includes a review of literature on run-of-river hydropower schemes, compares and contrasts regulatory frameworks, and provides recommendations for suitable mitigation and monitoring activities.

The main recommendations of the Phase 1 Report are highly significant and it is now of the utmost importance that these are implemented. We note the following important elements within the Phase 1 document;

Page 25 Change in Flow Regime Caused by Hydropower
Line 7; Ideally, abstraction regimes should maintain peak flows and protect low flows, and where possible reflect the natural flow regime, i.e. only a fixed portion of the intermediate flow is abstracted (figure 12a).

This reflects the widespread conclusion in published literature that the application of the proportional take is necessary to provide variability of the river flow across the whole of the flow regime, and hence reasonable protection for the river.

Page 38 4.2.7 Cumulative Impacts
Rizzo (1985) concluded that" we must get away from the present method of evaluating multiple hydropower projects on a project by project basis". Consequently, there is a need to revise the current legislation to accommodate this cumulative impact scenario.

This wholeheartedly supports the UAF view that present policy on cumulative impacts has not worked, and can never work, due to the inherent flaws in the policy of restricting examination to "water bodies".

Page 47 5.3 Flow Management

The comments here reflect the widespread conclusion in published literature that the application of the proportional take is necessary to provide variability of the river flow across the whole of the flow regime, and hence reasonable protection for the river.

Page 50 5.3 Flow Management
....it is recommended that these restrictive standards are reviewed in a risk-based framework to account for uncertainty of likely impacts of flow regulation of fisheries, and the precautionary approach to management of flows in relation to fish and fisheries is adopted.

As most salmon stocks are now in a parlous state, it is vital that the recommendations of this study are adopted and a much more precautionary approach to abstraction is taken.

Page 57 and 58 Conclusions and Recommendations

The four main recommendations are crucial to our situation here in NI;

"Recommendation 1
It is recommended that detailed studies on the impacts of both low-head and high-head run-of-river schemes on fisheries and other aquatic biota are carried out as a matter of urgency. Such studies should compare the status of the fisheries before and after the schemes become operational..."

Recommendation 2
It is recommended that studies to assess the most effective procedures for mitigating problems arising from small-scale. run-of-river hydropower schemes are conducted. Where possible these should be linked to new scheme proposals and be part of the post- monitoring assessments.

Recommendations 3 and 4
It is recommended that as knowledge about the relationships between hydrological characteristics and fish community requirements improve, the standards are revisited. In the mean time, it is recommended that these restrictive standards are reviewed in a risk-based framework (Cowx et al., 2011) to account for uncertainty of likely impacts of flow regulation of fisheries, and the precautionary approach to management of flows in relation to fish and fisheries is adopted.

Recommendation 5
It is recommended that protocols for monitoring the status of fish populations both before and after the scheme is operational are developed and made available for developers to allow them to provide appropriate information for robust EIAs."

As most salmon stocks are now in a parlous state, it is vital that the recommendations of this study are adopted and a much more precautionary approach to abstraction is taken. In particular, Recommendation 4 needs to be examined immediately and abstractions only granted on the basis of a proportional take. As set out in Appendices 1 and 2 of our paper, the scenario for the protection of salmon is now totally different to that which obtained during the drafting of these guidelines, a step change in attitude and application is now required – the status quo is no longer acceptable.

The reference in Recommendation 5 to “robust EIAs” is particularly poignant in that NIEA do not require any such EIA except in an SAC, despite a recommendation from the Assembly DCAL Committee that they should be provided for all hydroelectricity schemes.

Appendix 1 Outcomes from the SALSEA Research Project

The SALSEA Project (salmon at sea) was an enormous research exercise involving hundreds of scientists, carried out to establish the present state of health of salmon populations, and also to forecast what the future holds for the species. The main results were presented at a Conference in La Rochelle, France in October 2011. We have included at Appendix 2 a précis paper of the results, by Dr Ken Whelan who is a highly respected Irish scientist and administrator, and former President of the North Atlantic Salmon Conservation Organisation.

The conclusions of the SALSEA project are that the species in Ireland is suffering a highly significant stock reduction, and that all means must be employed to conserve and protect the remaining fish to secure the survival of salmon in Ireland.

As Dr Ken Whelan says in his conclusion, “taking urgent management action in these areas is no longer a choice – it is an imperative.”

This effectively means that in respect of salmon conservation, the time before the Conference in La Rochelle may be deemed ante SALSEA, and the time following, as post SALSEA. Those measures that were judged as being commensurate with the status of the salmon stock at that time, (ante SALSEA) cannot be similarly judged now, in the post SALSEA period. A robust, measurable and clearly demarcated change in attitude and action is demanded by the SALSEA results, in respect of the protection of salmon against threats in freshwater.

it is now incumbent upon Government to afford the enhanced protection for salmon that its present stock status demands.

The Government has consistently failed to meet its responsibilities in the field of protection of biodiversity.

The post SALSEA situation demands a completely new attitude from Government

Appendix 2

Salmon at Sea
by Dr. Ken Whelan

Recent Population Declines

For the past two decades scientists have become increasingly worried that, for some stocks of salmon at least the prospects of survival have plummeted. We know that in the 1960s and 70s the number of adult Atlantic salmon at sea was in the region of eight-to-ten million fish. In more recent years this number has reduced to three million. The earlier decades may well have represented a period of particularly high oceanic productivity, but the scale and speed of the decline in ocean abundance of Atlantic salmon has been of concern to scientists and managers.

At a river level, continuously monitored systems such as the North Esk in Scotland and the Bush and Burrishoole systems in Ireland have seen the survival of smolts drop from an average of 15 per cent to less than ten per cent. In more recent years survival rates have struggled to reach eight per cent and at times have dipped to five per cent. Losing 95 per cent of a river's output at sea is unprecedented, and indicates ocean-wide changes which are impairing the smelts' ability to feed and grow at sea.

Although removal of net fisheries and increasing rates of catch-and-release by anglers have provided a welcome boost to overall spawning stocks, marine survival of grilse has remained stubbornly low.

Oceanic Influences

The causes of this worrying phenomenon may lie in the oceans, which are changing not just in terms of surface temperature but also biologically. The distribution of the shrimp-like creatures which form the plankton communities in the surface layers of our neighbouring seas is altering at a significant rate. Species adapted to the colder waters in which salmon smolts thrive are moving north and new, exotic forms from the south now inhabit those vacated ecological niches. We also now know that is it is not simply the quantity of food available to the feeding salmon that is important but also the array of organisms and the quality of the nutrition they provide.

Movement north by the prey species has profound implications. Research has shown that the potential impact on the more southerly stocks of salmon, including fish from Spain, France, Ireland and the UK, is greatest and that salmon from more northerly climes, such as Norway and Russia, are faring better. This north/south divide has been apparent to scientists for many years, but what was less apparent was the east/west divide, which clearly indicates that salmon feeding to the north and north-west of Iceland and those feeding around west Greenland are currently

enjoying high food abundance - good news at least for our multi-sea-winter fish, which predominantly feed in these areas.

The marine zone of most immediate concern is the Norwegian Sea and the north-east Atlantic east of Iceland. Here conditions are far less favourable for the post-smolts arriving from those more southerly rivers.

Individual Salmon Stocks and Migrations

Until recently, tracking salmon at sea was largely confined to tags placed in the nose or back of the juvenile or adult salmon. Increasingly, new technologies have become available, such as computer chips inserted in the backs of migrating smolts which record a dazzling array of data including depth, temperature and, in the case of the more sophisticated tags, the geographical position of the fish. The major disadvantage with these tags and the more traditional nose and Carlin tags is that the adult fish must be captured to retrieve the information.

Speakers at the salmon summit outlined several new technologies which do not have this requirement. So-called pop-up tags are programmed to leave the fish after a defined period and transmit their data to overhead satellites. Coastal migration routes can now be mapped by use of a sophisticated array of receivers designed to track individual salmon, and more recently we have seen major advances in the use of genetic fingerprinting technology

Breakthroughs in genetics have enabled scientists to accurately assess family connections between animals. DNA sequencing, used in forensic laboratories to assign blood or tissue samples at a crime scene to an individual, has become a commonplace of television dramas. Scientists have developed similar genetic markers to link salmon back to their population of origin.

The European SALSEA programme (SALSEA Merge) provided scientists with an unprecedented opportunity to sample juvenile salmon in their rivers of origin across Europe and to test the theory that each of these populations represented a biologically discrete stock of salmon. They also decided to go one giant step further and to sample mixed populations of salmon at sea to ascertain whether individual salmon could be assigned back to their river or region of origin.

Given the size of the ocean and the extent of the populations to be sampled (more than three million fish), the identification of regional markers linking populations of salmon was essential. Without these markers it was unlikely that samples of a sufficient size would be available to statistically assign individual salmon back to specific geographical regions. As it transpired, the technique proved even more precise than could ever have been imagined.

Over the three years of the SALSEA Merge programme some 27,000 juvenile salmon from 466 locations in 284 of Europe’s 1,700 salmon rivers were sampled and analysed. The major salmon-producing systems were prioritised, and the database of information collected represents some 80 per cent of the productive capacity of

the region's salmon rivers. Early in the analytical process it became obvious that regional tags or genetic links were evident and scientists have now discriminated 18 regional groupings across Europe, such as Irish Sea, south Norway, south England. These regional tags proved to be stable over time and were used by the geneticists to assign the more than 4,000 samples of post smolts caught at sea back to their region of origin. But they went further: in the case of the River Bann (Northern Ireland) and the River Loire Allier (France), which harbour unique genetic populations, they managed to track the fish across the ocean from the spawning grounds to their feeding areas.

Research Results and Future Implications

By including panels of markers from farmed fish they have begun to untangle the occurrence of farmed salmon in the high-seas samples.

More recently, in the case of the emerging commercial mackerel fishery off the Icelandic coast, the geneticists were in a position to show that adult wild salmon, taken as a by-catch, were not, as might have been expected, of Icelandic but European origin.

The management implications of this new knowledge are immense. At long last we can trace the regional and river-of-origin specific pathways of salmon at sea. Recent work in Ireland has shown that the River May, for example, contains four discrete populations of salmon within the one river system. Doubtless this is also true of many of the other larger salmon systems. Each of these populations will have adapted to their particular environment and may well differ in terms of key aspects of their biology such as smolt age, run timing, age at maturity and migration pathways. In future, management will have to take account of these population- specific factors.

Where commercial salmon fisheries still exist, the new technology will permit a thorough assessment of the populations represented in the catches and allow for a more sophisticated level of management, ensuring that such commercial fisheries only harvest stocks which are above their conservation limit and that fish from weak or recovering stocks are protected. For salmon from the southern stock complexes, the ability to trace the migration routes to the feeding grounds may in future lead to pressure for linear marine protected areas to shepherd the salmon to sea and back.

The issue of smolt by-catch in the large commercial pelagic fisheries for herring and mackerel continues to be of major concern, and more research is required to assess the level of impact of these fisheries. In the meantime the precautionary approach demands that action be taken to minimise the risk to migrating salmon populations. Using the trawls at a lower depth is one possibility, and at least now we can begin to define the sensitive marine areas and where exactly along their migration pathways weaker stocks are most at risk. With these new tools we now have a realistic expectation of understanding - for the first time - factors that regulate the cycles of dearth and abundance of salmon at sea.

In addition to providing new insights into the migration pathways of post-smolts, scientists are using the new electronic technology described earlier to learn more about the distribution of the salmon at sea. The new pop-up tags have shown that once salmon are large enough, they use the deeper ocean to a far greater degree than was previously thought.

In winter salmon can dive to extraordinary depths and have been recorded as deep as 800 m. For periods of up to 24 hours they can live at depths of 400 m- 600 m, in the realm of the sperm whale. A mystery remains as to how salmon forage at these great depths, since light is largely non-existent It is assumed that they compensate by using other senses such as taste, smell or vibration detected by sensors strung along their lateral line. The ideal temperature for salmon to feed and thrive was thought to be between 4 deg C and 8 deg C but the tags have shown that larger adult salmon can and do migrate to the very edge of the ice sheets at 80 deg North.

The ocean tracking systems used by Canadian scientists to monitor individual salmon movements across the strait of Belle Isle have also thrown up unique and as yet unexplained behaviour patterns. Kelts, having migrated earlier from rivers along the Canadian coast, appear to dally in a specific holding area until the smolts arrive and then both groups move northwards towards the feeding grounds.

Is this a similar pattern to that displayed by birds? Are salmon juveniles learning the pathways north from salmon adults? Are the salmon, as they move northwards, sensing the presence of adults returning to spawn from their ancestral feeding grounds? This ground-breaking research has opened the door to new and intriguing possibilities and as yet unanswered questions surrounding salmon behaviour at sea.

Management Implications

What are the management implications of this research over the decades to come? And. most importantly, what exactly can we do to protect and support our salmon at this time of change? Salmon and their ancestors have been around for the past 60 million years, encountered immense challenges over that time and adapted very effectively to deal with them. That is what they do and what they are made for.

There is no doubt that in the face of severe challenges the abundance of any animal population is bound to drop, initially at least. The fish are making mistakes: they are getting lost they are dying because they are in the wrong place at the wrong time, failing to find food or encountering increased predation. But critically, as a population they are learning -learning how and when to adapt: Such adaptation takes time and we have no idea how long it took for past adaptations to take effect

Our challenge is to lift the man-made pressures currently on the populations at risk so as to give them time and space to adapt and to recover. We have studied salmon only for a relatively short time - in the case of salmon at sea, a little over 100 years. The salmon feeding grounds off Greenland were discovered only 50 ago. Some of the current scientific assessments may over time prove wrong, or the timescales may be too pessimistic (or indeed in some cases over- optimistic), but the one

lesson we must learn is that man's influence can and does have an impact on these struggling populations.

Management actions will primarily take place in freshwater, where optimising smolt output is fundamental to at least partially countering the effects of climate change. Research has now clearly shown that different areas of the ocean are behaving in very different ways.

Doubtless, similar changes have happened before, and what we are witnessing is part of the continuum that has shaped our oceans over the millennia. What role man has played in accelerating or altering such changes is hotly debated but what is clear is that our salmon are facing an uncertain future.

Salmon scientists must link more closely with their marine science colleagues to ensure that the salmon is universally accepted as a legitimate member of the pelagic family of fishes. We must also argue strongly that those funded to study the Changing oceans, and particularly the impact of such changes on the pelagic ecosystem, are charged with monitoring the welfare of our salmon at sea.

We must move away from studying the survivors to an all-embracing vision of salmon populations which encompasses survival corridors stretching from the most remote spawning burn to the limits of the salmon's migration pathways. Freshwater temperatures are rising, smolts are growing faster and the smolt age is dropping. Younger smolts are often smaller and therefore do poorly at sea. Countering the effects of increasing water temperature through providing cover and shading and ensuring that abstraction and water regulation are done in a manner which ensures overall temperature stability are just some of the actions that must now be prioritised.

Urgent Actions

We have long talked about the impacts of forestry, pollution, and aquaculture on the marine and freshwater environments, and perhaps in the past believed that we had the luxury of time to deal with these issues. In the face of what we have learned over the past few weeks about the stocks that are under pressure and the stocks at risk at sea, taking urgent management action in these areas is no longer a choice – it is an imperative.

Ken Whelan is research director of the Atlantic Salmon Trust. He served as president of NASCO from 2004 to 2008 and chairman of the International Atlantic Salmon Research Board from 2008 to 2011.