



Agenda Item 5.2
For Information

Council

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***Maintaining and improving river connectivity with particular focus
on impacts of hydropower - An NGO Perspective***

Maintaining and improving river connectivity with particular focus on impacts of hydropower An NGO Perspective

Following presentations from the Parties on river connectivity, with a particular focus on hydropower, this NGO perspective concentrates on river connectivity at a catchment level, looking at other significant issues relevant to free-fish passage from headwaters to the ocean and back again, as befits the management of an anadromous species.

Upland Habitat

Healthy juvenile habitat is essential for successful parr production, taking into account that parr can remain in fresh water for between 1 and 4/5 years and so habitat requirements are permanent, not seasonal. So, potential impacts such as excessive water abstraction can rob upland streams of their lifeblood and, therefore, make survival to smolt stage very challenging.

Downstream Migration

Outward smolt migration is just as important as the return adult journey, but does not always receive the same attention. Various potential barriers can challenge smolts, including weirs and hydropower schemes that delay them and make them vulnerable to predation from other fish species, birds and mammals. In particular, the cumulative effect of multiple barriers can diminish smolt numbers so that the final production of the river can be unnaturally low, regardless of how successful the juvenile stages were.

Aquaculture

There are increasing concerns that freshwater salmonid farming can impact water quality within river systems, especially from excess nutrients such as phosphates, but also from contaminating chemicals, including endocrine disruptors. Some research is being carried out on these issues but much more needs to be done to ensure that migrating salmon smolts, and other aquatic species, are not adversely impacted by freshwater aquaculture discharges.

Open net salmon farming in estuaries, fjords and coastal regions can be the final barrier to outward migration before smolts reach the ocean. Sea lice and disease emanating from farmed fish can transfer to wild salmon and sea trout and cause significant mortality and further reduce the number of smolts that begin their marine phase.

The NGOs believe that the only way to minimize the impact of aquaculture on wild fish is to farm in closed containment units, both fresh water and marine.

Tidal Barrages and low flows into estuaries

Once fish reach estuaries on their return migration, they face two immediate potential barriers to entering rivers; tidal barrages, and low flows either caused naturally by drought conditions or man-made through excessive water abstraction higher up the catchment. Low flows into estuaries are often overlooked in water resource plans as many fail to recognize fisheries issues. This can only be remedied as part of overall catchment plans compiled with political commitment to protecting wild salmon.

Fish Passage

Tidal barrages, weirs, hydropower schemes and high dams all require efficient fish passes of one form or another. Fish passes must have sufficient flow through them to attract salmon to

run, preferably at all river levels, as any delay threatens unnaturally high predation, either from mammals or humans. Indeed, shoals of fish detained in estuaries have been shown to decline significantly in number by the day, either being predated or just ‘disappearing’ from the run. In rivers with an industrial heritage, such as the Tyne in England, residual heavy metal and chemical contamination can also inflict heavy losses on salmon runs when fish have not been attracted quickly enough through the estuary into fresh water.

Land Management and Industry

The freshwater environment is often impacted by poor land management and/or industrial practices, particularly in terms of diffuse pollution from agriculture, road run-off, poorly treated sewage, industrial contamination and the like. Once again, there must be the political commitment to protect salmon and other aquatic species from the impacts of activities that decision makers may consider to be of greater importance than the conservation of fish or the rivers that support them. We hear all too often that the official focus is on ‘sustainable development’ or ‘economic growth’. The NGOs believe it is quite possible to protect river corridors and their dependent species while encouraging economic development and growth, but it does take political commitment and an understanding of the issues. This is not an alien concept and, indeed, it is now increasingly realized that healthy rivers and water quality benefit local communities and economies just as much as salmon and fisheries – and an abundance of salmon is a natural indicator of the health of the entire catchment.

Exploitation by In-river Nets and Rods

Coastal mixed-stock fisheries were discussed at the 2015 Theme-based Special Session and the NGOs urged that these indiscriminate fisheries should be closed because they reflect bad management practice. Once fish enter their natal rivers, it should be up to local management, within the limits of national regulatory measures, whether or not there is a harvestable surplus for nets and rods to exploit, because quite obviously, both netting and angling can cause a significant barrier to fish migrating up rivers. If there is no surplus, then netting stations should be closed and angling should be subject to catch and release, which conserves stocks but still produces economic benefits for local communities.

Spawning and Juvenile Habitat

Once adult salmon reach spawning areas, having negotiated many potential barriers on both their outward and return migrations, the habitat must be in good condition to allow successful spawning and the production of the highest number of healthy, wild smolts as possible. River management practices, such as dredging gravel, or land management issues such as forestry-produced acidification and pesticide chemicals, are possible major impacts at this stage, together with loss of flow due to abstraction, land drainage etc., which is where this presentation began.

Summary

For salmon to survive and prosper, there must be river connectivity and free passage so that the fish can access both their freshwater and marine habitats with as little delay or impact from human interference as possible. We will only achieve the main objective for managers as highlighted at the 2011 Salmon Summit in La Rochelle, of producing the maximum number of healthy wild salmon smolts as possible from river systems, if spawning and juvenile habitats and water quality are pristine.

This depends entirely on political commitment to protecting wild salmon in the face of competing demands for economic development and growth. The NGOs believe that this is not an ‘either/or’ decision, but that imaginative planning can support both economic activities

alongside river systems while still protecting the aquatic environment so that salmon thrive in their freshwater stages. That will bring maximum possible benefits to the economy and local communities, while still allowing salmon, perhaps the ultimate indicators of a healthy aquatic environment, to thrive as naturally as possible