

Hydropower Briefing Paper

General Concerns over Hydropower installations

Fisheries and the aquatic environment are being potentially jeopardised in an attempt to promote green renewable energy from hydropower. We are not against using river flows to create energy – we support the principle - but we must ensure that the aquatic environment and its dependent species are not impacted by hydropower developments. Indeed, the Water Framework Directive (WFD) demands this, as does the Environment Agency's statutory duty to maintain, improve and develop fisheries.

Applications for hydropower schemes do not necessarily require Environmental Impact Assessments, even though they have the potential to cause significant environmental damage on several counts:

- The weirs required to create the head of water necessary to drive turbines can cause barriers to fish migration, which fits in with the second issue associated with this debate. Unless sufficient water flows over the weir, or through an adjacent fish pass, fish will not be able to reach spawning areas. Also, migratory fish massing in unnaturally large shoals below barriers will attract increased predation, poaching and the risk of disease outbreaks, especially in warmer weather and higher water temperatures. All these issues have the potential to significantly impact the overall productivity of a river catchment and, as such, we believe they contravene WFD's objectives to attain Good Ecological Status in rivers and, importantly, that there should be no further deterioration in their status.
- Where hydropower schemes rely on water being abstracted above a weir and discharged below it, the area of river between these points has the significant potential to become a depleted reach; lower than mean flows will alter the morphology of the stretch, so impacting the species living there, and could again become a barrier to fish and invertebrate migration. This is particularly important in rivers with several hydro schemes – the accumulated effect could be significant.
- Where mill leats or side streams take water away from the main river channel, unless efficient fish passes are provided, migratory fish will become confused as to the route they should travel upstream. Evidence has shown that fish disorientated in this way may not find alternative migration routes, and will be lost to the breeding stock completely.

Case Studies

Two case studies are worth quoting:

Ruswarp Weir on the Yorkshire Esk is in the process of gaining planning permission and applying for an abstraction licence from the EA. Particular issues include:

- ❖ Ruswarp Weir on the Yorkshire Esk is the first barrier salmon and sea trout encounter on their return migration to their natal river. It is vital that these fish are able to ascend the weir quickly and easily. Any build up of fish below the weir will leave them vulnerable to predation and poaching. **An efficient fish pass, with adequate flow at all times to attract fish to run it, is essential on all hydro schemes.**
- ❖ **A ‘hands off’ flow must therefore be set at a level that allows fish to ascend the fish pass at all times.** It must be absolutely forbidden for the turbines to be operated under flow conditions which are inadequate to encourage fish through the fish pass.
- ❖ **A suitable monitoring programme must be established** to determine the ease by which fish can negotiate the weir on both their outward and home migrations. Any adverse impact on migrating fish must be remedied immediately by altering the design and/or operation of the turbines/weir/fish pass.

Settle Weir, on the River Ribble, is in the process of being constructed. The process was protracted and far from satisfactory:

Lessons which MUST be learned from Settle Weir Scheme, River Ribble

- Initially, there was a total lack of knowledge on behalf of the developers and the Council about the way migratory fish rivers function. Potential hydro developers must be made aware of their responsibilities in relation to migratory rivers, taking into account Environment Agency responsibilities under the Water Framework Directive. This is included in the new Hydropower Guidelines, **but the issue is far too important to just be covered by voluntary guidelines**
- **Communication** proved to be poor internally between EA departments, and between Council, hydro developers, riparian and fisheries interests. **The EA needs to develop a greater degree of understanding and co-operation between its departments** so that they “sing from the same hymn sheet” - advice and information must be consistent and definitive
- There is nothing in the new Hydropower Guidelines on monitoring for environmental effects when this is crucial for the well being of our rivers, especially in the light of the WFD. **We must have Government assurance that**

environmental monitoring, including fish, MUST be included in ALL hydropower schemes

Summary of demands on the Government for environmental security around Hydropower schemes:

- ❖ **River catchments must be surveyed for future viable hydropower sites** which can efficiently generate power without significant adverse environmental impact. Only these sites should be considered for hydropower schemes, and the EA should be the competent authority to determine which sites should be developed, after consultation with all interested parties. **Hydropower should not be delivered piecemeal in any catchment, otherwise the cumulative effect could be devastating to the environment and its dependent species, and contrary to the WFD objectives.**
- ❖ **Monitoring of all hydropower sites is essential.** If a hydropower unit is shown to have adverse impact on migratory fish or their habitat and this cannot be overcome by altering design or operation, **there must be an ultimate sanction of closure of the unit. The precautionary approach must be paramount over this issue, in favour of the fish and the aquatic environment.**
- ❖ **The EA needs to develop a greater degree of understanding and co-operation between its departments**
- ❖ **An efficient fish pass, with adequate flow at all times to attract fish to run it, is essential on all hydro schemes.**
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