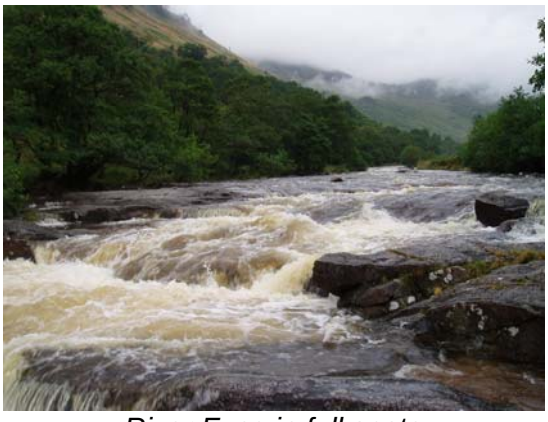
Large Woody Debris
Fish Habitat Creation in West Coast Spate Rivers

Background
The strategy for habitat management and improvement for salmonids in Argyllshire spate rivers has been developed to improve productivity in relation to use land and water resources (Hydro, Forestry & farming) and changing weather patterns. Increases in the intensity of rainfall and land drainage associated with land use practises has meant that large spate events have occurred more frequently in recent years. The consequences for riverine habitats are understood to be increased rates of mobilisation and transport of riverbed sediments, particularly the smaller pebble and gravel, which are essential spawning substrates for salmon and sea trout.

Habitat management strategy
Redd count surveys undertaken in recent years on a number of Argyll's spate rivers indicate that many of the redds identified are associated with in-stream features created by large woody debris (LWD), particularly fallen trees. The first reaction of many fishery managers is to remove fallen trees from the river, but AFT has begun to raise awareness of the potential benefits of retaining LWD within the wetted channel to;

- Scour the riverbed to **create deep pool habitat** for adult fish
- **Provide cover** for adult fish from predators (& anglers)
- Mine & retain new substrates to **create spawning and juvenile fish habitat** downstream
- **Protect Redds** from mobilisation during severe spate events



River Fyne in full spate

Fallen tree – River Fyne 2007

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River Fyne case study

As part of the fishery restoration project, The River Fyne has been subject to an intensive study & improvement programme. Following a gale in the spring of 2007 a mature tree fell into the lower reaches of the river and the effects of this on the habitat and the fish were monitored by AFT through the following year.

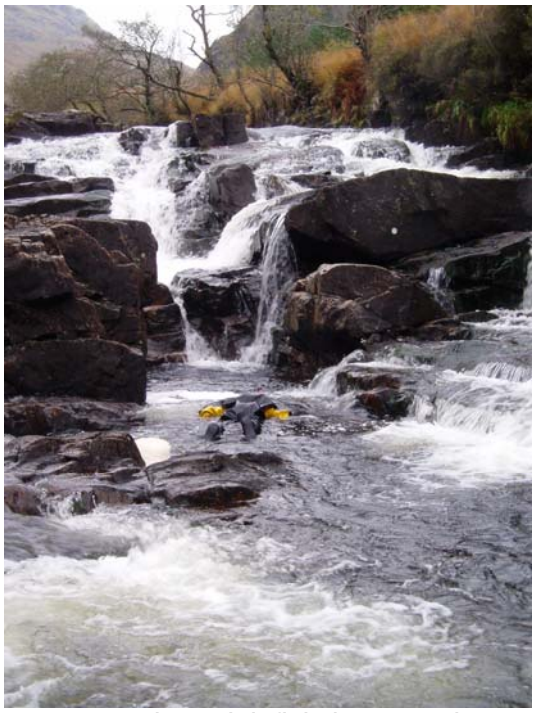
Adult fish counts – Snorkel survey

During late October 2007, AFT staff undertook a snorkel survey of the River Fyne during low, clear water conditions to evaluate the number of returning salmon and sea trout. Using the mask and snorkel, it was observed how a shallow glide habitat had been scoured by the water pressure against the tree to create a deep pool below. Three salmon and a sea trout rested under the shade of the main limb at a site where adult fish had not been recorded in three previous surveys (2004-2006).

Redd count survey

Counting and mapping of spawning site locations has been undertaken between 2004-2006 on the River Fyne to inform on progress of the restoration programme. A new active spawning site was recorded in the December 2007 survey on the outflow of the new pool created by the fallen tree. The tree, laying at an angle slightly across and down the stream appeared to protect the new spawning site from elevated flows.

New spawning substrates (Dec 2007)



Counting adult fish (Oct 2007)

Future Management

Similar scenarios to the River Fyne study have been identified in many other spate river catchments and hence the active inclusion and retainment of large woody debris features is now considered to be a potential cornerstone of the strategy for river habitat improvement in Argyll. Consultation with SEPA in regard to CAR licensing for this management tool is currently being sought.

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