Tackling the weirs of the Don Catchment

Ed Shaw
1770 km²
1.5 million people
Arthur Lee and Sons Crown Steel Works, Sheffield, 1921
“Sheffield, I suppose, could justly claim to be called the ugliest town in the Old World..... the shallow river that runs through the town is usually bright yellow with some chemical or other”

George Orwell
‘The Road to Wigan Pier’
1937
Weirs
Weir removal best,

but...
Heritage value
‘the Wheels of the Loxley Valley must be seen to be of far more than local or regional significance: their importance is European, if not more widely international’
Heritage value
Heritage value
Navigation
Gauging Weirs
Infrastructure

https://www.sheffieldhistory.co.uk
Infrastructure
Risk of damage
Risk of contamination
Ecological
Ecological
Atlantic Salmon

- Aim to enable salmon to recolonise catchment
- Well known once common
- Symbolic of the fate of the river
- Recolonisation powerful message of recovery
Living Heritage of the River Don

- Heritage Lottery Fund & matched funding
- reconnecting people back to the natural, cultural and industrial heritage of the Don
- improving attitudes to the Don so its heritage is better valued as a major asset

Supported by The National Lottery through the Heritage Lottery Fund
Larinier fish passes
Easements
The ‘orphan’ weir challenge

• Owners of the five weirs couldn’t be traced
• How to build fish passes without permission?
• Indemnity insurance
• EA statutory powers
• Can be transferred
Prospects for salmon

• To what extent will salmon flourish?
• Fish passes aren’t perfect
• Question of the combined impact of fish passes
Fish pass efficiency
Fish pass efficiency

Efficiency = 70%
Cumulative impact

100% → FISHPASS 70% → 70% → FISHPASS 70% → 49% → FISHPASS 70% → 34%
Fish pass efficiency

Efficiency = 70%
Bottleneck effect

100% → FISHPASS 90% → FISHPASS 80% → FISHPASS 90% → 80%
Cumulative impact

SPAWNING HABITAT

Fish pass efficiency 95%
Cumulative impact

SPAWNING HABITAT

Fish pass efficiency 90%
Cumulative impact

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Fish pass efficiency 80%
Bottleneck effect

SPAWNING HABITAT

Fish pass efficiency 60%
What about multiple fish passes?

• Reality somewhere in between?
• ‘Random’ failure more serious
• Complicated by temporal variation in passability
• Important implications for strategic planning
Conclusions

• Lots of reasons why weirs can’t be removed
• ‘Orphan’ weirs dealt with using EA statutory powers
• Combined impact of weirs very important