



Department of Communications, Marine and Natural Resources
Roinn Cumarsaíde, Mara agus Acmhainní Nádurtha

Water matters “*Have your say*”

Physical Modifications

The Conference Centre
County Hall
Cork

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Divisional Engineer

28 September 2007

Water matters “*Have your say*”

Physical Modifications

- The Reason for the Water Framework Directive
 - In spite of initiatives tackling water pollution
 - Europe’s water dependent ecosystems have continued to deteriorate
- The WFD puts in place
 - Comprehensive system to protect and improve the aquatic environment
 - Improve status of aquatic ecosystems
 - At least “Good status” for all waters by 2015
 - An enormous task

Water matters “*Have your say*”

Physical Modifications

- Why have water resources deteriorated?
 - One major reason is morphological change i.e. changes in the physical shape of channels and coastlines
- Causing
 - Changes in natural processes (e.g. flows or sediment transport)
 - These changes alter the quantity and quality of plant and animal communities by changing habitats
 - Usually for the worse

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Physical Modifications

- Examples of Modifications to Rivers
 - 95,000 river crossings
 - 900 kilometres river embankments
 - 19 large dams or reservoirs
 - Multiple weirs
 - Arterial and local land Drainage
- Modifications to Coastline
 - 10 large ports
 - 200 kilometres of coastal defences

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Physical Modifications

- SW River basin district has
 - 306 bridges (?)
 - 143 kilometres of river embankments
 - 2 large water reservoirs
 - 1 large port
 - 28 kilometres of Coastal defences
 - Many kilometres of altered channels

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Physical Modifications

- Ports and Sea Defences
 - Development replaces or reduces natural habitat
 - Dredging/sea dumping impacts on habitat
 - Sea defences may alter habitat e.g. saltmarsh

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Physical Modifications



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Physical Modifications

- Examples of impact of modifications
 - River Drainage or flood protection
 - Adversely alters natural pools and shallows vital for abundant fish life
 - Straightening reduces naturally available habitat
 - Increases flow/sediment/nutrient transport to estuaries

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Physical Modifications

- All rivers in the SWRBD are salmonid
 - Salmonids require habitat of high chemical, biological status
 - Restoration requires not only good water chemistry standards but exacting instream and riverine conditions

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Physical Modifications



Atlantic Salmon



Sea Trout



Brown Trout



Common Eel



Arctic Char



Lamprey, Brook, River, Sea

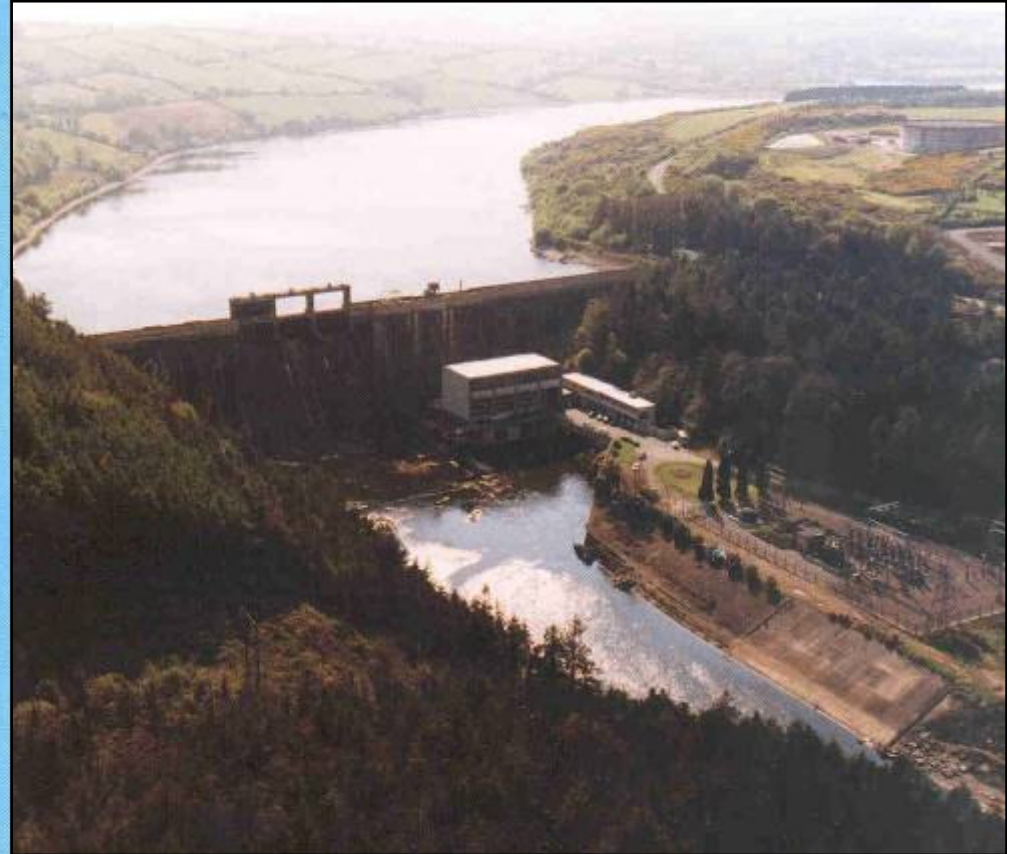
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Physical Modifications

- Barriers and Impoundments
 - Dams, Bridges, weirs or culverts
 - Can restrict or block fish migration to spawning grounds
 - Barriers mostly act cumulatively
 - But it takes only one impassable barrier to eliminate a migratory species from its natural habitat
 - Dams and weirs significantly degrade habitat due to impoundment

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Physical Modifications

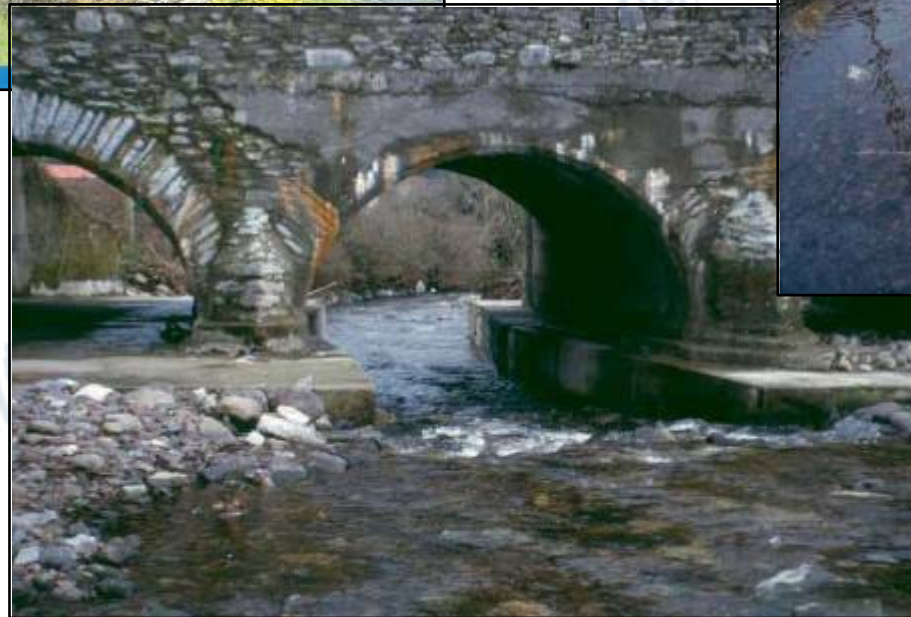


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Physical Modifications



Impassable bridge apron



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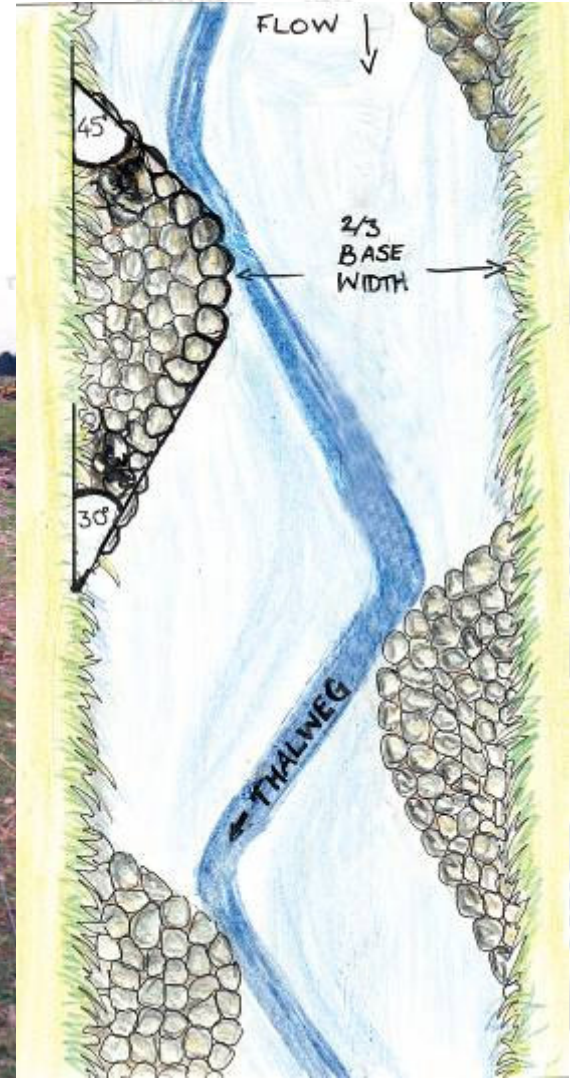
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Physical Modifications

- Programme of Measures and Standards
 - Studies to identify appropriate technical options
 - Various techniques to quantify impact from physical modifications being trialled
 - Economic evaluation to give final agreed programme of measures

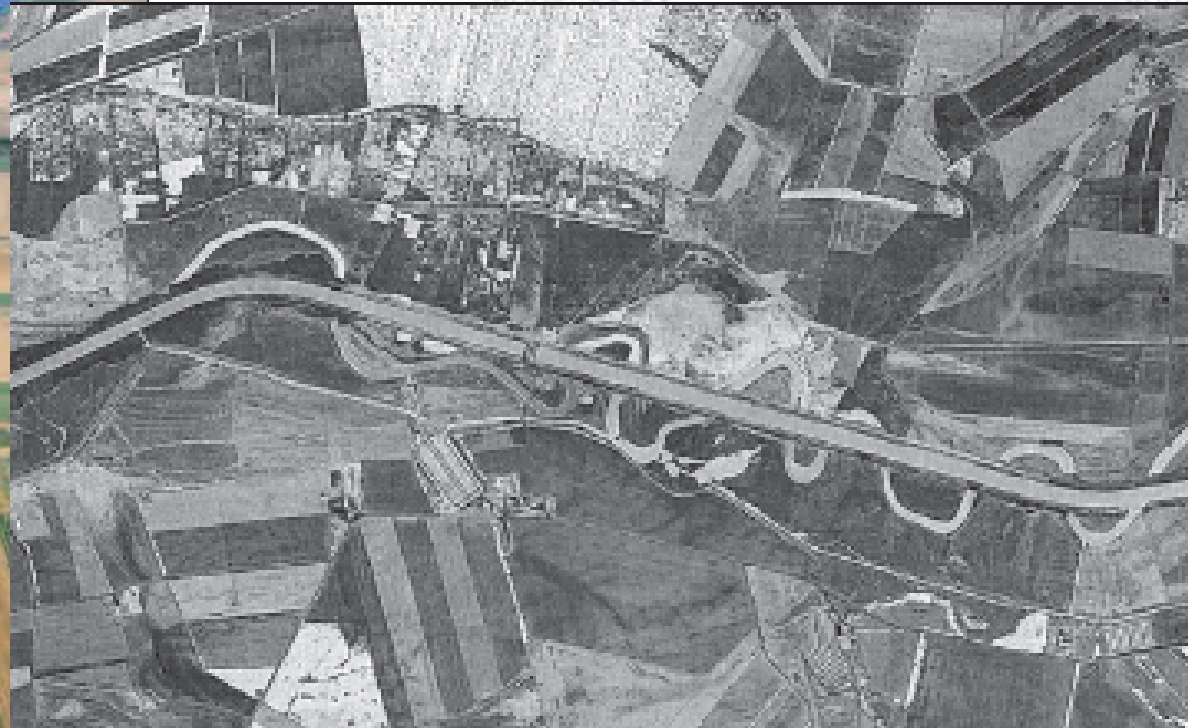
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Physical Modifications



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Water matters “Have your say” Physical Modifications



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Physical Modifications

- Article 4.7 sets out circumstances where failure to meet certain WFD objectives is permitted
 - For new modifications to the physical characteristics of a surface water body
 - Is the result of new sustainable activities
 - Where there is overriding public interest, benefits to the environment, human health and safety