Iascach Intíre Éireann
Inland Fisheries Ireland

# Nature-based Solutions from an Inland Fisheries Ireland perspective

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Comhairle Contae
Átha Cliath Theas
South Dublin County Council

dlr
Comhairle Contae County Council

Life

# OVERVIEW

- IFI – who we are
- Fisheries and Sustainability
- Environmental Management and IFI's Role in the Planning System
- Nature-based Infrastructure
- "Planning For Watercourses in The Urban Environment"

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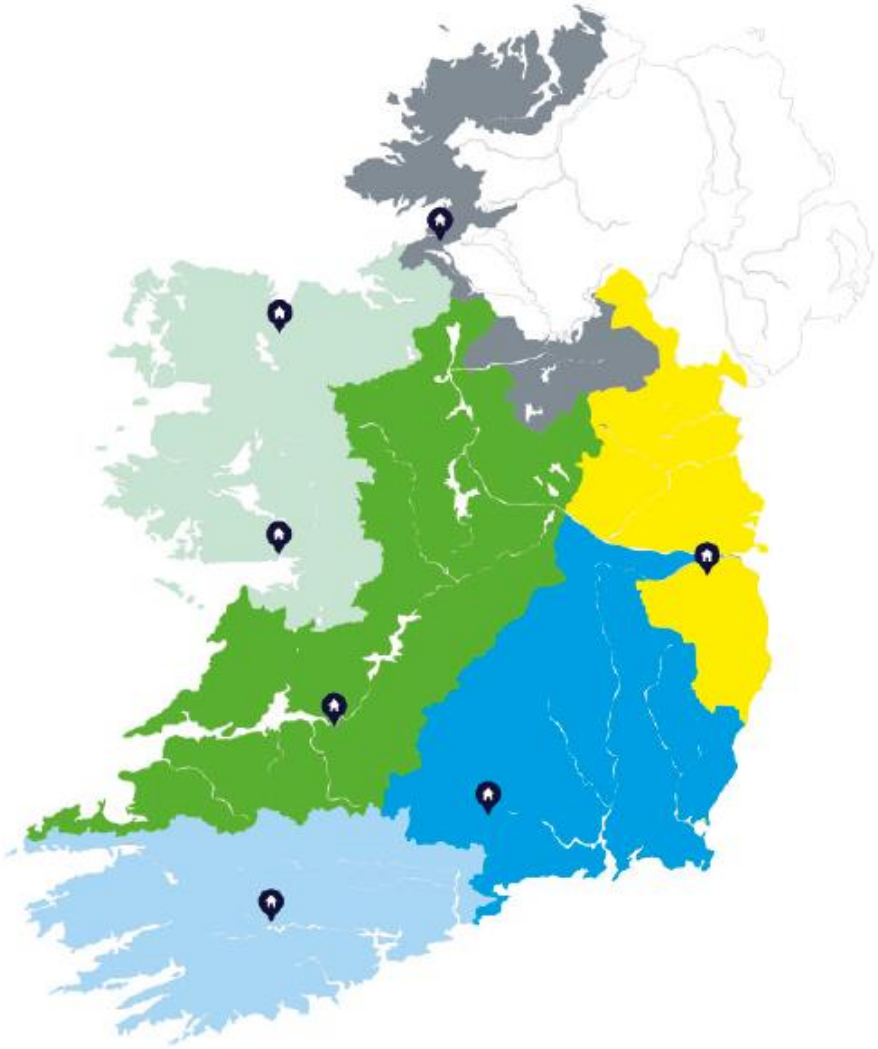
# IFI Structure



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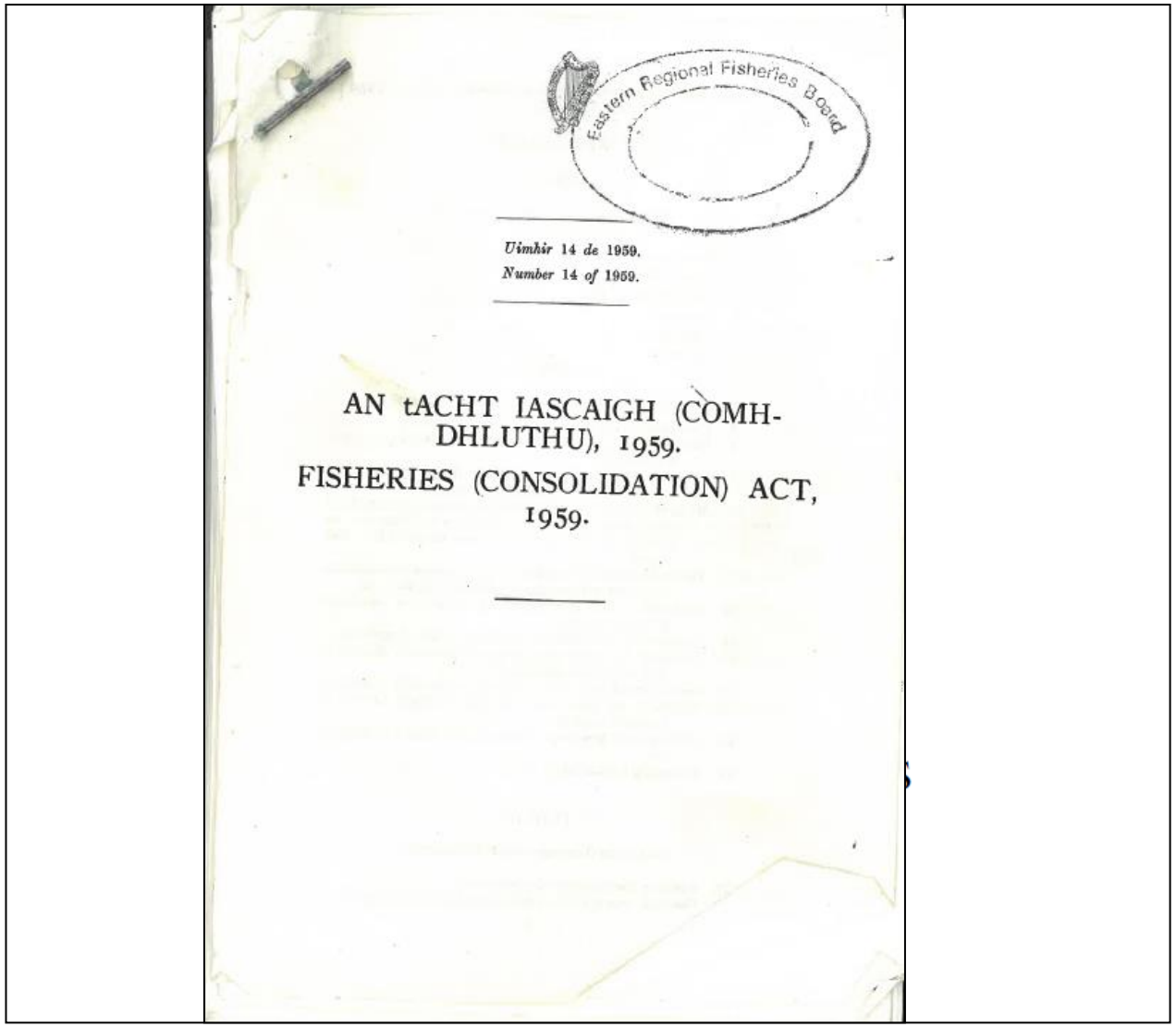
# Fisheries & Sustainability




*Uimhir* 14 *de* 1959.
*Number* 14 *of* 1959.

AN tACHT IASCAIGH (COMH-DHLUTHU), 1959.

FISHERIES (CONSOLIDATION) ACT, 1959.

# Fisheries & Sustainability

- The Fisheries (Amendment) Act *1999…requires IFI to have regard for the need for 'sustainable development'*

- The Inland Fisheries Act 2010…IFI must have regard to the requirements of the European Communities (Natural Habitats) Regulations 1997 (S.I. No. 94 of 1997) and the need for the **sustainable development of the inland fisheries resource (including the conservation of fish and other species of fauna and flora habitats and the biodiversity of inland water ecosystems).**

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# Environmental Management

IFI's environmental function:

1. Regulatory / Enforcement Roles
    A. Planning, Licensing and Compliance
    B. Incident Management
    C. Expert Witness

2. Expertise, Knowledge & Sectoral Input

3. Stewardship and Advocacy

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# IFI and the Planning System

IFI core responsibilities as a **Prescribed Authority / Notifiable body** under:

- Sections 11, 12, 13, 24, 28 of Planning and Development Act, 2000 - No. 30 of 2000 (as amended) and
- Sections 13, 15, 28, 82, 121, 169, 179, 213 of the Planning and Development Regulations 2000 (S.I. 600 of 2001)
- Article 20 of the Environmental Protection Agency (Licensing) Regulations, 1994 S.I. 85 (1994), Article 18 of the Waste Management (Licensing) Regulations, S.I. No. 133 (1997) and under the European Communities (Birds and Natural Habitats Regulations 2011)
- IFI responsibilities under the Heritage Act 1995 and related provisions under the Fisheries Acts…

# IFI Habitat Restoration Policy

- Minimise negative impacts of works in or near surface waters on fish habitat
- Maximise restoration and the 'biodiversity benefit' of third party projects
- Recommend appropriate further measures providing advice, guidance and direction where appropriate

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# How do we achieve sustainable development?

COLLABORATION

PARTNERSHIPS

INTEGRATED SYSTEMS

# CONTEXT FOR ACTION

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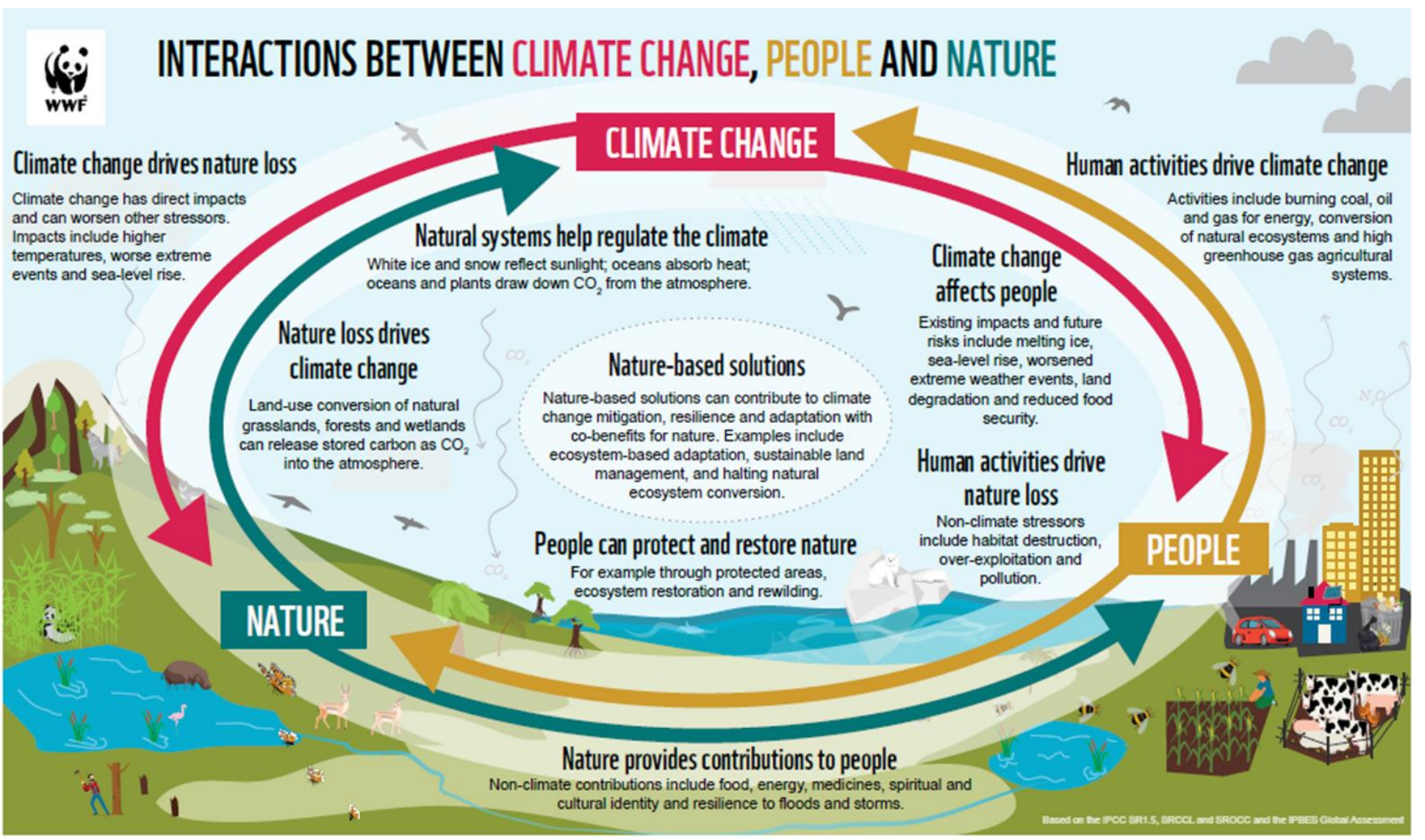



1 Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty (October 2018) or 'SR1.5'

2 Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems (August 2019) or 'SRCCL'

3 IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (September 2019) or 'SROCC'

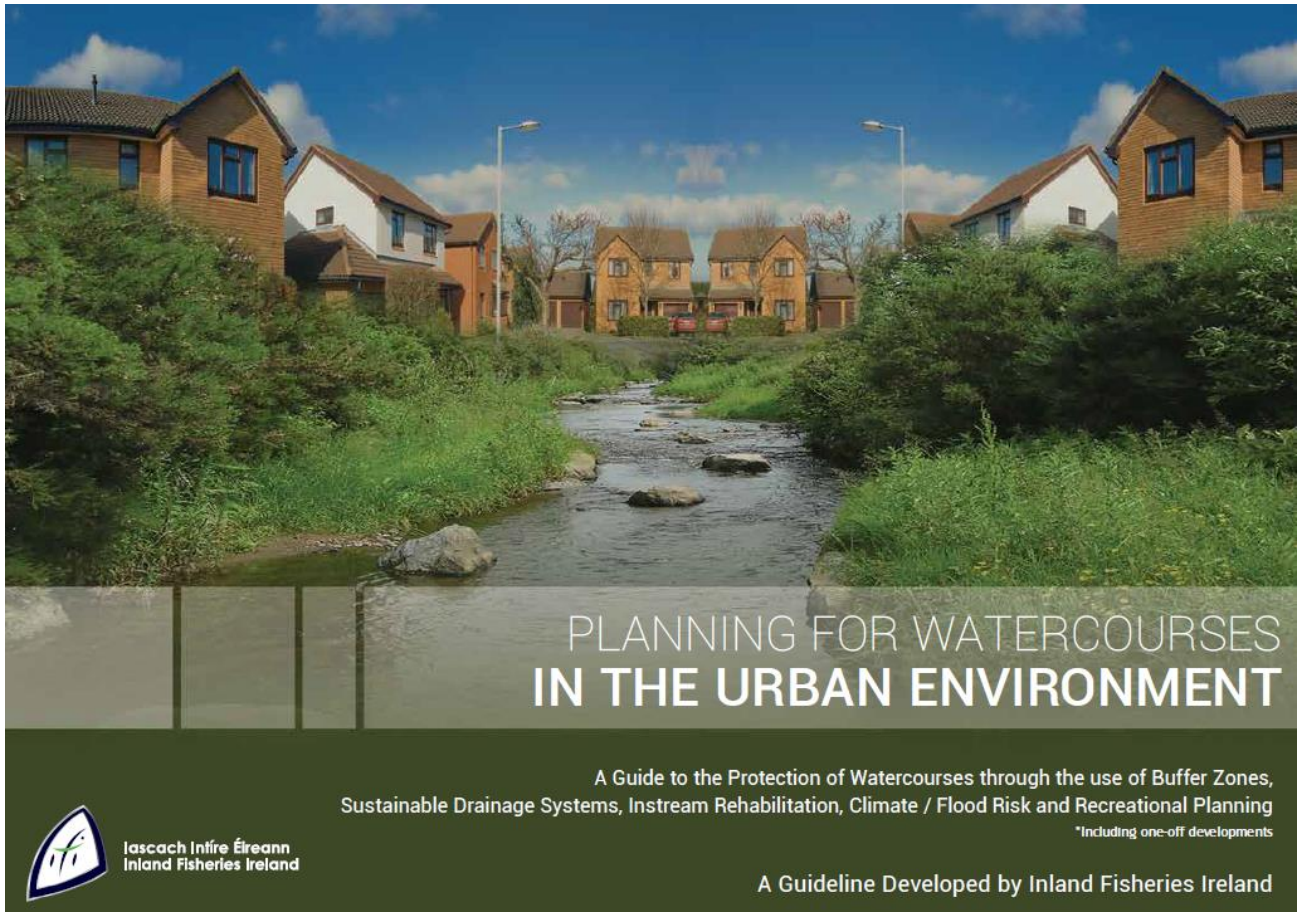
4 IPBES Global Assessment on Biodiversity and Ecosystem Services (May 2019)

# Nature-based Solutions

- Increased understanding of how rivers work
- Improved engineering techniques – 'soft' engineering / swales
- Early consultation / cooperation is essential –

**Opportunity for planning & action at scale**

# IFI Guidelines

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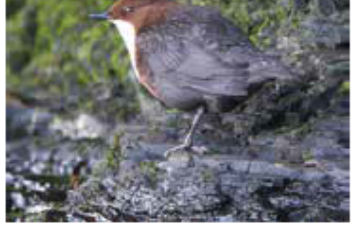


# Foreward

Rivers, lakes and streams are an integral part of our environment and if managed appropriately can significantly improve the quality of life for people living in urban areas. They can be a setting of high visual and acoustic amenity, where people find respite from the busy humdrum and stress of urban life. In this context, they provide an opportunity to develop linear parks or walks close to nature, not often associated with urban living. However, they become fragmented and degraded, loosing their intrinsic value, if not planned for and developed by Inland Fisheries Ireland through consultation with a wide range of experts in people living nearby. It is important to note that, the riparian zone (i.e. the bank and the just ecological, but also practical functions from a human point of view. For example, the must be allocated at the planning stage, and it is strongly s planned for at the forward planning stage, such as during the compilation of County and Local Area Plans. Without this space, the four steps in this guideline cannot be accommodated. These steps are described in the context of an overall riparian buffer zone (i.e. strip of vegetated land running parallel to the river, which acts as a buffer against negative human development or activity). Again - this Riparian Buffer Zone MUST however be sufficiently wide to protect the river.

The recommended buffer zone width for larger river channels (>10m) is 35m to 60m and for smaller channels (<10m) is 20m or greater. The determined width should be tailored to site specific circumstances, river reach or lakeshore characteristics. It is important that the buffer zone is wide enough to protect the ecological integrity of the river (including emergent, marginal and bankside vegetation) and takes into account the human history of the area. Wider buffer zones can be multifunctional in the urban environment if linked and managed appropriately, bringing greater benefits to the wider community.

This riparian buffer is subdivided into three separate zones, each with a different function, width, vegetation type and use. It is important to note that, the urban landscape, unlike cal features and therefore a greater with the protection of water courses

**STEP 1. PROTECT THE STREAMSIDE RIPARIAN ZONE.**

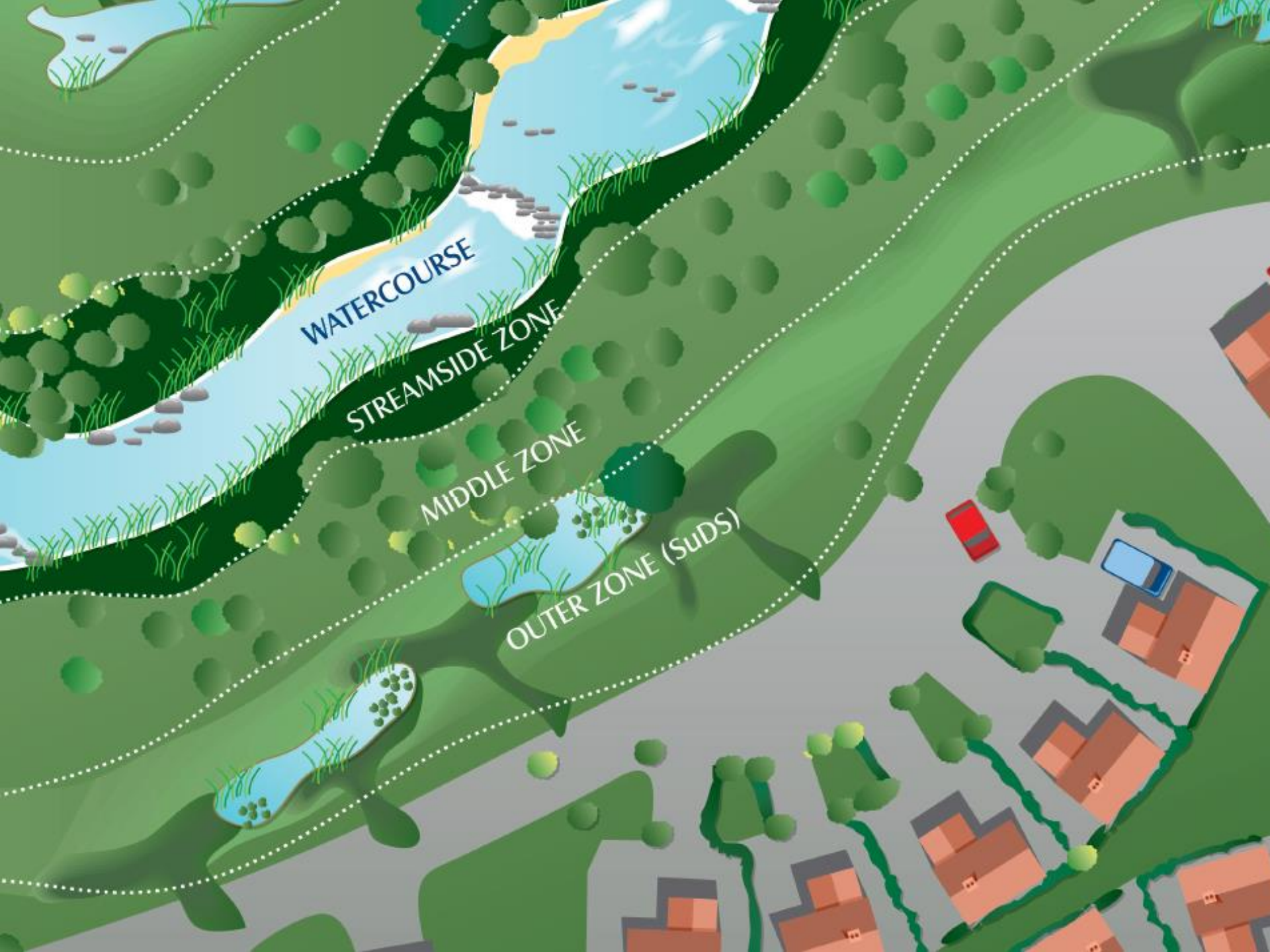
**STEP 2. CREATE A MIDDLE RIPARIAN ZONE – CAN INCLUDE AMENITY INFRASTRUCTURE, e.g. FOOTPATHS / CYCLEWAYS**

**STEP 3. CREATE AN OUTER ZONE TO INCORPORATE SUSTAINABLE URBAN DRAINAGE SYSTEMS**

**STEP 4. REHABILITATE THE RIVER ITSELF TO RECREATE DIVERSITY OF INSTREAM FEATURES FOUND IN NATURAL CHANNELS**

Protection of the riparian zone doesn't preclude amenity use, and this guide strongly advocates the incorporation of amenity uses (walks, angling etc) into the (middle or outer) Riparian Buffer Zone, so long as it is done sensitively and with minimal impact on the water and riparian environment. The outer zone can be linked to a network of linear parks, picnic areas and other amenity areas where appropriate. These can provide greater space for flood protection and Sustainable Urban Drainage Solutions.

*Culverting and piping of small streams and drains should not be permitted except under exceptional circumstances and only though agreement with Inland Fisheries Ireland. Drains should be incorporated into a SUDS network*


WATERCOURSE
STREAMSIDE ZONE
MIDDLE ZONE
OUTER ZONE (SuDS)

## STEP 1 – PROTECT STREAMSIDE ZONE >10M

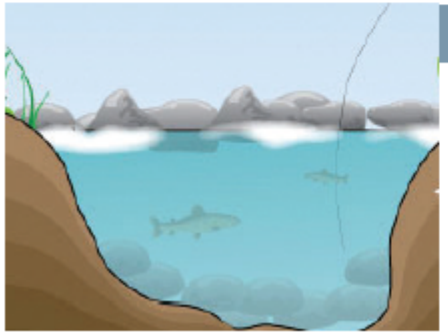
- ENSURE SUFFICIENT SPACE IS SET-ASIDE , I.E. >10M.
- LEAVE INTACT IF IN AN UNDISTURBED NATURAL SITE.
- IF DISTURBED, LANDSCAPE APPROPRIATELY.
- PLANT WITH NATIVE MARGINAL AND EMERGENT VEGETATION.

## STEP 2 – CONSTRUCT MIDDLE ZONE 15M-30M

- ENSURE SUFFICIENT SPACE SET-ASIDE , I.E. >15M.
- LEAVE INTACT IF IN AN UNDISTURBED NATURAL SITE.
- IF DISTURBED, LANDSCAPE APPROPRIATELY.
- CREATE AMENITY WALKS ETC.
- PLANT WITH NATIVE TREES AND VEGETATION.

## STEP 3 – CONSTRUCT OUTER ZONE >8M

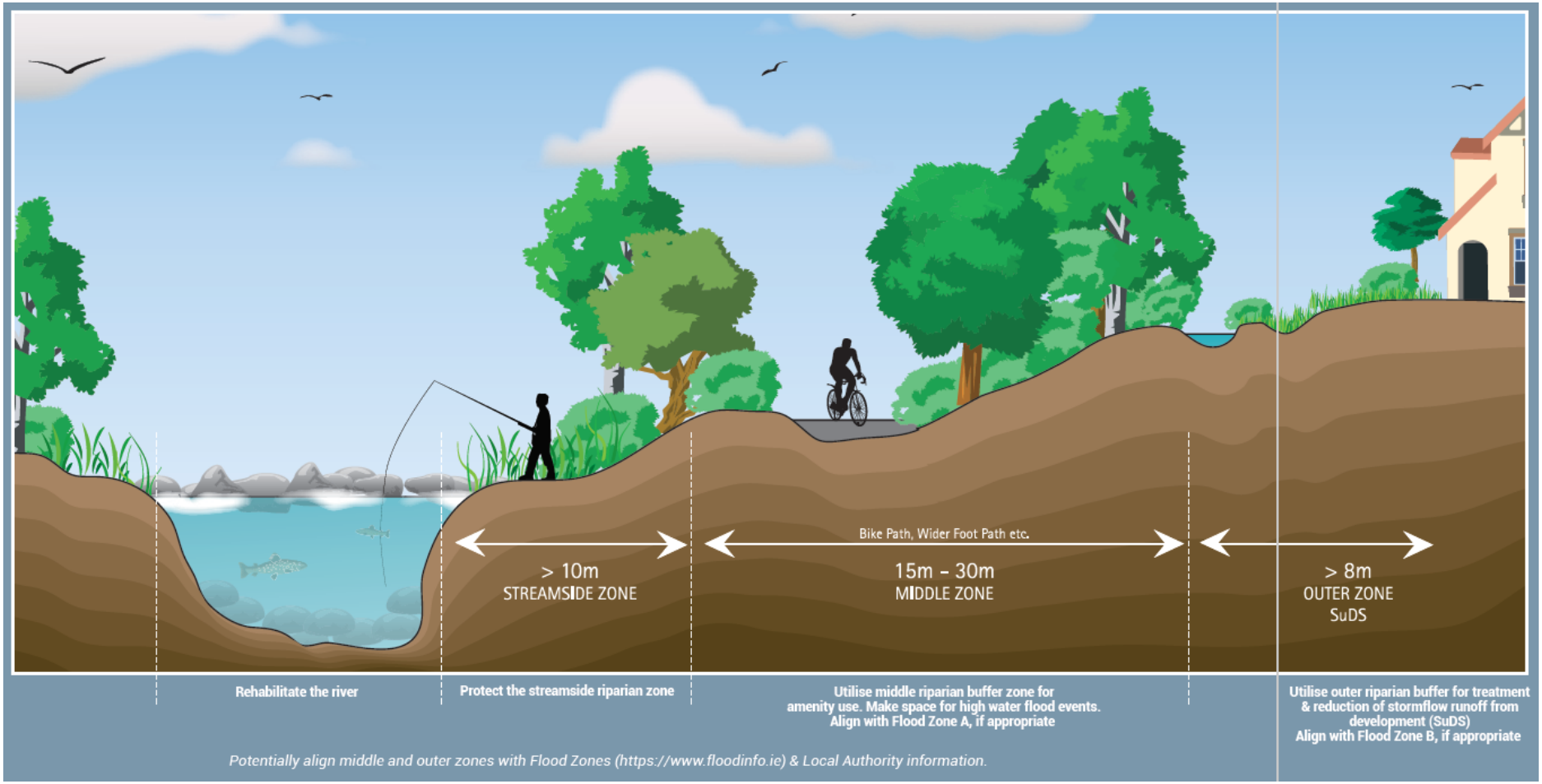
- ENSURE SUFFICIENT SPACE SET-ASIDE , I.E. >8M.
- LEAVE INTACT IF IN AN UNDISTURBED NATURAL SITE.
- IF DISTURBED, LANDSCAPE APPROPRIATELY.
- INCORPORATE SUDS (E.G. SWALES, RETENTION PONDS ETC.).
- ENSURE SUDS LINK APPROPRIATELY TO DEVELOPMENT IN A TREATMENT TRAIN.
- CONSIDER WIDER AMENITY USES IF APPROPRIATE.



## STEP 4 – REHABILITATE INSTREAM CHANNEL

- IF WATERCOURSE WAS PREVIOUSLY DEGRADED BY DRAINAGE, REHABILITATE WITH APPROPRIATE HABITAT RESTORATION TECHNIQUES.
- CONTACT INLAND FISHERIES IRELAND FOR ADVICE.
- RECREATE HABITAT VARIABILITY.
- CONSIDER CREATION OF ANGLING POOLS IF APPROPRIATE.
- CONSIDER SAFETY REQUIREMENTS (E.G. AVOID STEEP BANKS.)
- ENSURE WORK IS CARRIED OUT TO A HIGH ECOLOGICAL STANDARD. *CONSULT WITH IFI FOR FURTHER ADVICE*

# IFI Guidelines

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# Urban Impacts

## EXAMPLES OF DAMAGED WATERCOURSES DUE TO INSENSITIVE URBAN DEVELOPMENT

To plan for appropriate development along watercourses in urban or expanding urban centres, it is helpful to learn from past experiences. The following "what not to do" examples of developments proximal to watercourses have been identified by fisheries staff as problematic. A brief explanation is given for each case, all of which demonstrate that these impacts can be wide ranging; from amenity loss and loss of biodiversity to increased flooding and pollution impacts. All of these developments have been built too close to the watercourse.

### COMMONLY ENCOUNTERED PROBLEMS ARE:

RESTRICTED PUBLIC AND ANGLER ACCESS.

INCREASED SURFACE RUNOFF LEADING TO UNNATURAL RIVER FLOW REGIMES.

INCREASED FLOODING AND EROSION PROBLEMS.

LOSS OF COVER AND FOOD FOR FISH AND AQUATIC ANIMALS.

LOSS OF FOOD AND HABITAT FOR RIPARIAN ANIMALS AND PLANTS.

LOSS OF RIPARIAN AREA AND FRAGMENTATION OF RIPARIAN CORRIDOR RESULTING IN A REDUCTION IN BIODIVERSITY.

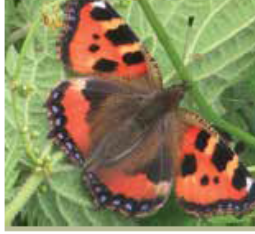
OFTEN THE INTRODUCTION OF NON NATIVE PLANTS (SUCH AS JAPANESE KNOTWEED) IN IMPORTED SOIL.

LOSS OF AESTHETIC VALUE AND A POTENTIAL QUALITY AMENITY FOR PUBLIC UTILISATION.

POORLY DESIGNED CULVERTS AND BRIDGES RESULTING IN BARRIERS TO FISH PASSAGE / NATURAL MOVEMENT OF RIVERBED MATERIALS

The riparian corridor is permanently fragmented by this development, part of which now sits on the riparian zone. There is no bank cover for fish and the movement of mammals such as otters are affected by the absence of bank vegetation, which they often use for cover. Surface runoff from the adjacent carpark and building enters the river untreated. Public access is completely restricted. If this type of development continues further up the catchment, the river will be in serious trouble.

# Providing Tangible Benefits to Urban Communities:
## Climate Action, Flooding, Mental Health, Positive Living & Reduced Crime



### WIDER BENEFITS TO SOCIETY

The rehabilitated watercourse with its Riparian Buffer Zone (incorporating SuDS) can be developed even further to improve the overall amenity value for the public. The benefits of nature to individuals stress-levels and mental health in general is well documented. More recently studies have shown that the impact of nature and green areas have significant health benefits for wider society. These include improvements in community well-being, recreation, recovery from serious illness and reduced anti-social behaviour.

Studies have even found a reduction in violent crime rates in greener areas. The incorporation of the Riparian Buffer Zone and the restored river into a network of linear parks, walks and cycle routes in the urban environment is a logical progression as the riparian buffer should provide some of the green space needed. Walking is now the most popular outdoor activity in Ireland, and schemes such as the Slí na Sláinte offer ways to manage such routes effectively. Rivers offer an ideal opportunity to develop waymarked walks in urban areas (away from hazardous traffic) which are not only safe, but have high visual and acoustic appeal. This must be an important consideration for urban planning, as obesity (in particular childhood obesity) has been identified as one of the biggest health threats in Ireland today. The design of the walk and green spaces can be planned on a site by site basis, but ideally should preserve and compliment the longitudinal riparian corridor.

### THE WHOLE IS GREATER THAN THE SUM OF THE PARTS

Any one of the four steps will result in an improved watercourse and amenity in the urban environment. However, the combination of steps compliment each other, working cumulatively to maximise protection of the watercourse and ensuring that it serves as a high quality amenity for the local community. In addition flood risk to property and infrastructure should be significantly reduced. Therefore, it is recommended that this system is incorporated into future planning decisions with regard to local area and regional plans. These plans need to be prescriptive as to what is expected from developers, and the responsibility of implementation and maintenance needs to be examined carefully. In other words, set aside sufficient buffer width, landscape and plant appropriately, incorporate SuDS if possible, rehabilitate the watercourse itself including angling pools for kids, and design amenity infrastructure such as paths

for the middle and outer zones. Limited nature trails may be considered for the streamside zone. Set-aside riparian zones not only function as amenity areas but can also be important buffers for protecting urban buildings and infastructure (and the local economy) against severe flood events such as the example above in Golden, Co. Tipperary on the River Suir. Here the river regularily floods into the park which alleviates pressure further downstream and making space for water. Implementation of the recommendations in this guidance document will increase the resilience of urban areas to predicted impacts of Climate Change. Making space for water and biodiversity will reduce flood risk and increase environmental quality for those living in urbanised areas.

# Where to from here…?

Many Shared Goals including:

- Sustainable Planning and Development
- Integrated Catchment Management
- Climate / Biodiversity Action

Nature Based Solutions

**PLEASE USE THE IFI GUIDELINES**

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# IFI Guidelines

Typical example of a wild Irish cascading watercourse illustrating a good range of instream and bank habitat diversity

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# THANK YOU FOR YOUR ATTENTION

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